



USER MANUAL



<u>Z-PASS2</u>

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Seneca Z-PC Line modules: **Z-PASS1, Z-PASS2**

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1 Preliminary information / Informazioni preliminari

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SENECA SRL PUO' MODIFICARE IL CONTENUTO DI QUESTO MANUALE IN QUALUNQUE MOMENTO E SENZA PREAVVISO AL FINE DI CORREGGERE, ESTENDERE O INTEGRARE FUNZIONALITA' E CARATTERISTICHE DEL PRODOTTO.

Date	Revision	Notes	
07/03/2019	22 (FW rel. SW003900_250)	-Added chapter "Timer Configuration" -Added paragraphs under "Rule Management" for new logic features	
20/03/2019	23 (FW rel. SW003900_251)	 Paragraph "Rule Management": added "Bitmask" condition and "Set Bits" action Paragraphs "Alarm Configuration", "Message Configuration": added info about export/import to/from csv file Paragraph "Configuration Management": added type of configuration to be saved 	
09/04/2019	24 (FW rel. SW003900_260)	-Added chapter "OPC-UA protocol" -Added paragraph "OPC-UA Server Cconfiguration"	
23/07/2019	25 (FW rel. SW003900_270)	-Added chapter "MQTT client protocol" -Changed Chapters order for new webserver menu	
26/07/2019	26 (FW rel. SW003900_280)	-Added OPC-UA server Security Policy -Added MQTT client protocol chapter info	
27/08/2019	27 (FW rel. SW003900_290)	-Added the new option "Retain" in Tag Creation/Modification	
05/11/2019	28 (FW rel. SW003900_292)	-Max Modbus TCP-IP servers from 10 to 25 -Added NAT 1:1 feature -Added Static Route feature	
19/12/2019	29 (FW rel. SW003900_293)	Added new 64 bits Tags in chapter "Tag Creation/Modification"	
19/12/2019	30	Added info about OPC-UA Server namespace-id	
30/03/2020	31 (FW rel. SW003900_295)	Added "User" account	
23/09/2020	32 (FW rel SW003900_299)	Added "Datalogger on Trigger" new feature Added "Serial Trace" new feature Added "SMS command "OVPN ON" and "OVPN OFF" Added new parameter MQTT "Sleep Timeout"	
25/01/2021	33	Added new command "CLEAN LOGS" (From FW rel 313) Added info on how to send commands from MQTT to the device Added info on how to write a command from MQTT to the device Removed all references to old Z-PASS models	
06/04/2021	34	Removed missing hyperlinks	

2 CHARACTERISTICS

2.1 RTU Models characteristics

MODEM:

ZPASS2-S-4GWW (Rev. C3x):	LTE-TDD B34/B38/B39/B40/B41
	LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B12/B13 B18/
	B19/B20/B25/B26/B28/B66
	UMTS/HSPA+ B1/B2/B4/B5/B6/B8/B19
	GSM/GPRS/EDGE 850/900/1800/1900MHz
ZPASS2-4GWW (Rev. C3x):	LTE-TDD B34/B38/B39/B40/B41
	LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B12/B13 B18/
	B19/B20/B25/B26/B28/B66
	UMTS/HSPA+ B1/B2/B4/B5/B6/B8/B19
	GSM/GPRS/EDGE 850/900/1800/1900MHz

3 Firmware Licensing Terms

3.1 Firmware with Open Source GPL

The Z-PASS firmware contains Open Source software under GPL. According to Section 3b of GPL, we offer you the source code. You can obtain the source code with licensing terms of the Open Source software from Seneca s.r.l. on request. Send your request to support@seneca.it with the subject "Open Source Z-PASS ".

4 Upgrading the firmware by USB pen

Z-PASS firmware can be upgraded by means of a USB pen; a pen drive formatted with FAT32 file-system is needed.

The procedure is the following:

1) download the FW file from one of the following links:

http://www.seneca.it/products/z-pass1 http://www.seneca.it/products/z-pass2

the downloaded file is a .zip file; extract the FW file from it; the FW file shall have a name like the following:

SW003900_xxx.bin

- 2) copy the file into the root of the USB pen
- 3) switch off the Z-PASS
- 4) insert the USB pen into the USB#1 port
- 5) switch on the Z-PASS; the upgrade procedure will take some minutes to be completed; during this time, the Z-PASS MUST NOT be switched off; during the procedure, the Z-PASS will be rebooted several times; also, during the procedure, several LEDS will blink simultaneously¹
- 6) the upgrade procedure is ended when only the LED "RUN" is $blinking^2$
- 7) remove the USB pen

5 Discovering the Z-PASS IP address

Z-PASS devices come out of the factory with the default IP address 192.168.90.101, on the Ethernet (LAN) network interface.

If this address is changed, *and forgotten*, it can be retrieved using the "Seneca Device Discovery" application (SDD), as shown in the following figure:

¹ This applies only to products with HW revisions IO and R01; in details: for IO HW revision, all LEDs will blink simultaneously, except for Power, LAN/WAN, COM and modem LEDs; for R01 HW revision, RUN, VPN and SERV LEDs will blink.

² Also SERV and VPN LEDs might blink, depending on the Device configuration and status.

MI00380-35

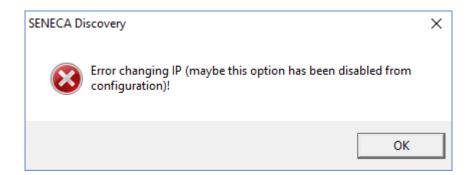
#	IP	Mode	MAC	Ping	Name	Hostname	Firmware	CRC	Comman
€	192.168.90.225	STATIC	C8:FA:81:16:00:03	Different Subnet	Z-TWS4	192.168.90.225	2940.310	OK	Assign
€	192.168.85.83	STATIC	C8:F9:81:0C:01:9E	1 ms	Z-KEY	192.168.85.83	113.1	ОК	Assign
₽	192.168.85.8	STATIC	C8:F9:81:0C:01:9D	2 ms	Z-KEY	192.168.85.8	110.0	OK	Assign
₽	192.168.85.200	STATIC	C8:F9:81:02:01:BD	2 ms	Z-TWS4	ZTWS4	2940.220	OK	
₽	192.168.84.192	STATIC	C8:F9:81:02:03:5F	1 ms	Z-TWS4	ZTWS4	2940.210	OK	
₽	192.168.85.7	STATIC	C8:F9:81:02:02:85	1 ms	Z-PASS	192.168.85.7	3900.122	OK	
₽	192.168.85.6	STATIC	C8:F9:81:11:00:02	2 ms	Z-PASS2-S	192.168.85.6	2940.221	OK	
₽	192.168.84.155	STATIC	00:22:4D:B6:D4:06	1 ms	Cloud BOX	cloud-dev.seneca	7800.106	OK	
₽	192.168.85.102	STATIC	C8:F9:81:02:01:5B	1 ms	Z-TWS4	ZTWS4	2940.222	ОК	
₽	192.168.85.103	STATIC	C8:FA:81:16:00:02	8 ms	Z-PASS	192.168.85.103	3900.205	ОК	Assign
€	192.168.85.69	STATIC	08:00:27:5B:CB:12	2 ms	Cloud BOX	192.168.85.69	7800.106	OK	

This application shows the IP address, MAC address, FW version and some other useful information, for every Z-PASS device (and other Seneca products) found in the LAN.

Moreover, by clicking on the "Assign" button, it is possible to change the network configuration parameters of a device, as shown in the following figure:

Assign IP	×
	IP
Static IP	192.168.95.101
Netmask	Gateway
255.255.255.0	192.168.95.1
Assign	Cancel

For security reasons, this feature can be disabled on the device (see paragraph 21.1.2); in this case, the following error message is shown, after clicking on the "Assign" button".



The SDD can be easily installed by running the installer program available at the following link:

http://www.seneca.it/products/sdd

NOTE:

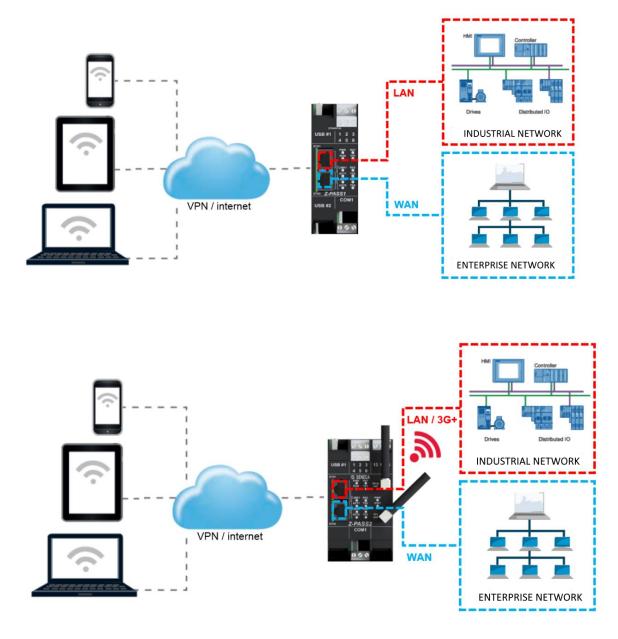
- when Z-PASS is working in "Switch" mode, the IP Address shown by the SDD is the same regardless of the Ethernet port which the PC running the SDD is connected to;

- when Z-PASS is working in "LAN/WAN" mode, the IP Address shown by the SDD is the LAN IP Address when the PC is connected to the LAN port, the WAN IP Address when the PC is connected to the WAN port; moreover, the network configuration parameter changes apply to the relevant port.

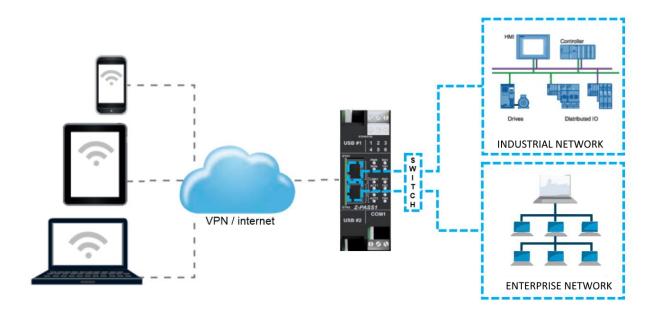
6 Ethernet Mode

In Z-PASS products, the two available Ethernet ports can be configured as two fully separated network interfaces ("LAN" and "WAN") or, as in the older versions, they can work as ports of an Ethernet switch; the user can choose between the "LAN/WAN" mode and the "Switch" mode, by means of a new configuration parameter ("Ethernet Mode") (see paragraph 21.1.2).

The "LAN/WAN" mode is needed when the "industrial" network connected to the LAN interface (comprising e.g. HMI and PLC devices) shall be separated from the "enterprise" network connected to the WAN interface (comprising enterprise PCs and servers); when the Z-PASS is remotely accessed through the WAN interface, only devices connected to the LAN interface can be reached, while access to machines lying in the enterprise network is forbidden; this is depicted in the following two figures.



When this separation is not needed or when the Internet access is achieved only through the mobile (3G+) interface, the "Switch" mode still lets the Z-PASS to be used as an Ethernet switch, as shown in the following figure.



7 Modbus Ethernet to Serial Gateway

Z-PASS can be configured to run as a Modbus Ethernet to Serial Gateway: Modbus TCP requests received from the Ethernet interface (but also from the PPP [Mobile Network] and VPN interfaces) are converted into Modbus RTU requests and sent to the serial interface; in the same way, the Modbus RTU responses received from the serial interface are converted to Modbus TCP responses and sent back to the source network interface.

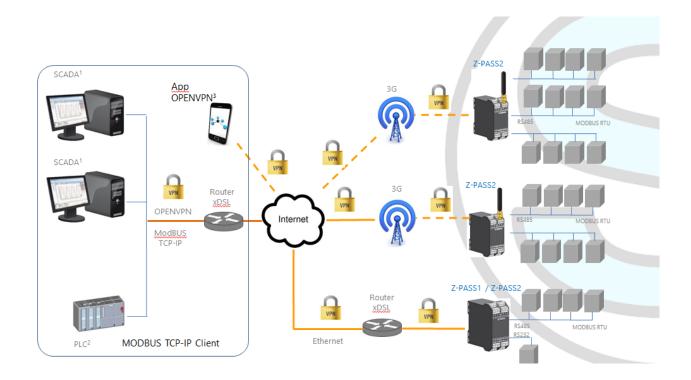
A Modbus Ethernet to Serial Gateway instance can be activated for each of the three available serial ports: COM1 (RS232/RS485), COM2 (RS485) and COM4 (RS485); each one can receive the Modbus TCP requests on a different TCP port (e.g.: 501, 502, 503).

Another possible configuration is to run a Modbus Ethernet to Serial Gateway instance, receiving Modbus TCP requests on a single TCP port (e.g.: 502) and handling two or all the three serial ports. In this case, Modbus RTU requests are simultaneously sent to all the configured ports; obviously, in this configuration, each slave module on the two or three buses shall have a distinct Modbus address;

Each Modbus Ethernet to Serial Gateway instance can support up to 32 simultaneous TCP connections.

The TCP connection can be established over a VPN tunnel, as shown in the following figure.

A detailed description of the Modbus Ethernet to Serial Gateway configuration can be found in 21.1.6.1 paragraph.



8 Transparent Gateway

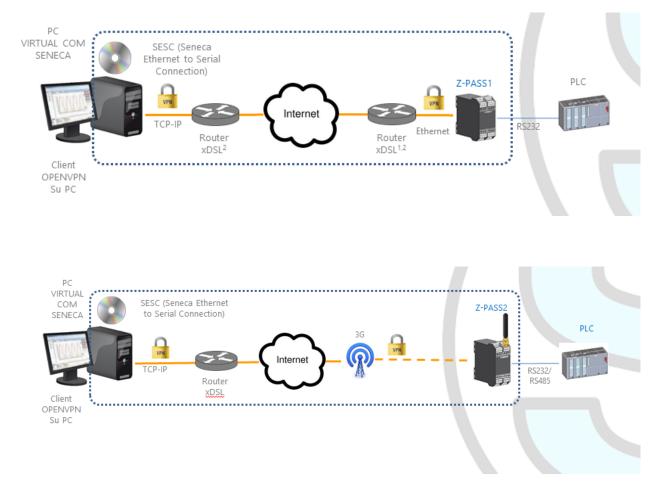
As an alternative to Modbus Ethernet to Serial Gateway, Z-PASS can be configured to run as a "Transparent Gateway". The big difference between these two modes is that, while the first works just with the Modbus protocol, the second could virtually be applied to any serial protocol that can be transported over the TCP/IP stack.

As a Transparent Gateway, Z-PASS provides the following operating modes:

- Virtual COM (with RFC 2217 support)
- Serial Tunnel Point-to-Point on TCP
- Serial Tunnel Point-to-Point on UDP
- Serial Tunnel Point-to-Multipoint on UDP

Each mode will be fully described in a specific paragraph below.





The Virtual COM functionality lets to a PC Application, which transmits data only over a serial line, to communicate with a remote serial device, using Ethernet/Internet; in other word, through a Z-PASS, a PC and a serial device, placed in sites distant from each other, can communicate as they are directly connected.

In this mode, data sent over the LAN or WAN network, are received by the Z-PASS and sent to the serial port; response packets follow the reverse path.

RFC 2217 defines some features that let the PC remotely set the properties (baud rate, data bits, stop bits and parity) of the Z-PASS serial port; so, when the Virtual COM operating mode is selected for one port, the port is reconfigured regardless of the previous settings and the values configured by means of the "Serial Ports" web page are overwritten.

To let the Virtual COM work, an utility called "Seneca Ethernet to Serial Connection" shall be installed on the PC; this is explained in details in 8.1.1 paragraph.

The TCP connection can be established over a VPN tunnel, as shown in the figures at the beginning of the paragraph.

Once the connection is established, a program using the virtual COM port will transmit data to the Z-PASS serial port; for example, Modbus RTU requests sent by a Modbus Master program will reach Modbus slave devices connected to the COM2 RS485 bus.

A particular notice shall be given about the "Data Packing Interval" parameter, that can be set when Virtual COM operating mode is selected: this parameter lets you define the time interval, in milliseconds, used by Z-PASS as a criterion to pack the data bytes received from the serial port before sending them to the network; in other words, when Z-PASS does not receive any more bytes from the serial port for the given time interval, it packs the received bytes and send them over the established TCP connection; the optimal value to be set for this parameter depends on the protocol that is transparently routed from the TCP/IP network to the serial line and vice versa.

WARNING!

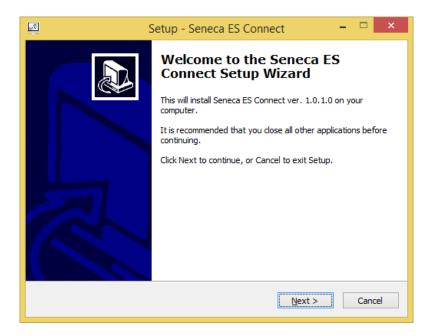
In the Virtual COM operating mode, just one connection is accepted for a given serial port.

8.1.1 Seneca Serial to Ethernet Connect

8.1.1.1 Installing Seneca Serial to Ethernet Connect driver

Seneca Ethernet to Serial Connect runs on Windows Vista[™], Windows 7[™] and Windows 8.1[™].

Double click the installer:



After that, the com0com driver will be installed:



Select the CNCAO<->CNCBO and the COM#<->COM# virtual port names:

😡 Null-modem emulator (com0cor	n) Setup 🗕 🗆 🗙
Choose Components Choose which features of Null-modem emulator (com0com) you	want to install.
Check the components you want to install and uncheck the com install. Click Next to continue.	ponents you don't want to
Select components to install: Start Menu Shortcuts CNCA0 <-> CNCB0 COM# <-> COM#	Description Position your mouse over a component to see its description,
Space required: 344.0KB	
Nullsoft Install System v2.46	Next > Cancel

Now Click on "Launch Setup":

🕞 Null-mo	dem emulator (com0com) Setup 🛛 – 🗖 🛛 🗙	
	Completing the Null-modem emulator (com0com) Setup Wizard	
	Null-modem emulator (com0com) has been installed on your computer.	
	Click Finish to dose this wizard.	
	Launch Setup	
R	Show Readme	
	Visit com0com homepage	
	< Back Einish Cancel	

Press Finish, the com0com setup will open:

₽	Setup for com0com – 🗆 🗙
Image: Second system Image: Second system Image: Secon	CNCA0 CNCB0 use Ports class emulate baud rate enable buffer overun enable plug-in mode enable exclusive mode enable exclusive mode enable hidden mode RX TX TX TX TX TX DTR DSR CDD RTS CTS RI CTS RI CTS RI CTS RI CTS RI CTS RI CTS CTS RI CTS CTS RI CTS CTS CTS CTS CTS CTS CTS CT
Add Pair Remove	Reset Apply

We have installed two pairs of Virtual Ports:

CNCA0, CNCB0

and also:

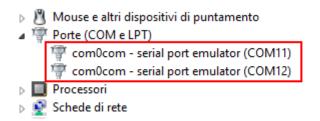
COM11, COM12 (note that in your system the com# can be different).

The first pair can be used in software that support the CNCA names, the other in software that support only the Ports class.

If you need to add more virtual ports, press the "Add Pair" button, then select if you need or not a port class.

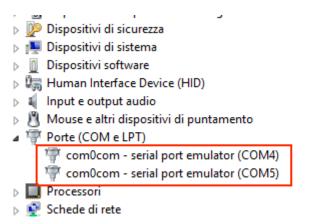
Confirm the driver installation with "Apply".

The serial port emulator couple COM11-COM12 will be available:



8.1.1.2 Select the COM port for Seneca Serial to Ethernet Connect

The driver installation will use the first 2 serial ports that are free (in our case the driver has created the COM4 and COM5 pair):



The Ethernet to Serial Connection software will use only one port (the right port in the com0com setup), only the com0com ports will be displayed.

We connect the COM5 to the Seneca ES Connector:

Seneca Ethernet to Serial Connection – 🗆 🗙
Seneca Ethernet to Serial Connection rev. 1.04
SENECA [®]
Select PC Virtual Com Port COM5
Select Z-PASS / Z-KEY IP address 192 . 168 . 90 . 101
Select Z-PASS / Z-KEY PORT 8000
CONNECT PORT DISCONNECT ALL PORTS Open Debug Window
Local port connected to remote ip 192.168.90.101
DEVICE MANAGER

Now use the same COM5 (for example in a terminal software):

	Connetti a	?	×		
Test					
Immettere i dettagli per il numero telefonico da comporre:					
<u>P</u> aese:	Italia (39)		V		
<u>I</u> ndicativo località:					
<u>N</u> umero di telefono:					
C <u>o</u> nnetti:	COM5		~		
	ОК	Annulla	3		

The COM5 is now connected to Z-PASS, on the TCP port 8000:

M	003	80-	-35
1 4 1 1	005	00	55

8.1.1.3 Configuring Seneca Serial to Ethernet Connect

<u></u>	Seneca Ethernet to Serial Connection 🛛 – 🗖 🗙					
	Seneca Ethemet to Serial Connection rev. 1.01					
	SENECA [®]					
	Select PC Virtual Com Port					
	Select Z-PASS / Z-KEY IP address 192 . 168 . 90 . 101					
Select Z-PASS / Z-KEY PORT 8000						
	CONNECT PORT DISCONNECT ALL PORTS Open Debug Window					

- Select the Virtual COM Port
- Select the Z-PASS IP address (default 192.168.90.101).
- Select the TCP-IP port (default 8000).

Then click on "CONNECT PORT".

If you need to connect another serial com to another Z-PASS, configure the new com port and the new IP address, then click on "CONNECT PORT".

To disconnect all ports, click on "DISCONNECT ALL PORTS".

8.1.1.4 Debugging the Connection

Before clicking on "CONNECT PORT", you can choose to open a debug window to verify the connection:



Then click on "CONNECT PORT":

If you see "Connect Error" like here:

nect(98) TCP(1) ERROR 10060 - (null) (1): Close(98) - OK (1): Close(98) - C4 (1): Connect(c4, 192.168.90.101:8000) nect(c4) TCP(1) ERROR 10060 - (null) (1): Close(c4) - OK (c4): Connect(17c, 192.168.90.101:8000) nect(17c) TCP(1) ERROR 10060 - (null) (1): Close(17c) - OK (c4): Connect(17c, 192.168.90.101:8000) (1): Connect(17c, 192.168.90.101:8000) (1): Connect(17c, 192.168.90.101:8000) (1): Connect(17c, 192.168.90.101:8000) (1): Connect(17c, 192.168.90.101:8000)	^
:Ket(0,0,0,0,0,0) = c4 ?<1): Connect(c4, 192.168.90.101:8000) inect(c4) ICP(1) ERROR 10060 - (null) ?(1): Close(c4) - OK Ket(0,0,0,0:0) = 1?c ?(1): Connect(1?c, 192.168.90.101:8000) inect(1?c) ICP(1) ERROR 10060 - (null) ?<1): Close(1?c) - OK :ket(0,0,0,0:0) = 1?c ?(1): Connect(1?c, 192.168.90.101:8000)	r
<pre>%(1): Connect(c4, 192.168.90.101:8000) nect(c4) ICP(1) EBROR 10060 - (null) %(1): Close(c4) - 0K %tet(0.0.0.00) = 17c %(1): Connect(17c, 192.168.90.101:8000) nect(17c) ICP(1) EBROR 10060 - (null) %tet(0.0.0.000) - 0K %tet(0.0.0.000) = 17c %tet(0.0.000) = 17c %tet(0.0000) = 17c %tet(0.00000) = 17c %tet(0.0000</pre>	r
nect(c4) TCP(1) ERROR 10060 - (null) ?(1): Close(c4) - OK ket(0.0.0.0:0) = 17c ?(1): Connect(17c, 192.168.90.101:8000) nect(17c) TCP(1) ERROR 10060 - (null) ?(1): Close(17c) - OK ket(0.0.0.0:0) = 17c ?(1): Cnnect(17c, 192.168.90.101:8000)	
Y(1): Close(c4) - OK Net(0.0.0.0.0) = 17c Y(1): Connect(17c, 192.168.90.101:8000) nect(17c) TCP(1) ERROR 10060 - (null) Y(1): Close(17c) - OK Y(1): Close(17c) - OK Y(1): Connect(17c, 192.168.90.101:8000)	
:ket(0.0.0.0:0) = 17c <(1): Connect(17c, 192.168.90.101:8000) nect(17c) TCP(1) ERROR 10060 - (null) <(1): Close(17c) - OK :ket(0.0.0.0:0) = 17c <(1): Connect(17c, 192.168.90.101:8000)	
<pre>>(1): Connect(1?c, 192.168.90.101:8000) inect(1?c) ICP(1) ERROR 10060 - (null) <(1): Close(1?c) - OK iket(0.0.0.0:0) = 1?c ((1): Connect(1?c, 192.168.90.101:8000)</pre>	
nnect(17c) TCP(1) ERROR 10060 - (null) (1): Close(17c) - OK ;ket(0.0.0.0:0) = 17c (1): Connect(17c, 192.168.90.101:8000)	
<pre>(1): Close(17c) - OK ket(0.0.00) = 17c (1): Connect(17c, 192.168.90.101:8000)</pre>	
sket(0.0.0.0:0) = 17c P(1): Connect(17c, 192.168.90.101:8000)	
P<1): Connect<17c, 192.168.90.101:8000>	
NECT(1/C/ IGF(1/ EAROA 10000 - (NULL/	
P(1): Close(17c) - OK	
ket(0.0.0.0:0) = c4	
P(1): Connect(c4, 192.168.90.101:8000)	
nnect(c4) TCP(1) ERROR 10060 - (null)	
P(1): Close(c4) - OK	
ket(0.0.0:0) = c4	
2(1): Connect(c4, 192.168.90.101:8000)	
nect(c4) TCP(1) ERROR 10060 - (null)	
C(1): Close(c4) - 0K	
ket(0.0.0.0:0) = 98	
P(1): Connect(98, 192.168.90.101:8000)	

check the configuration (Z-PASS IP address and TCP port).

8.1.1.5 Changing the COM port number

Old software applications can use only a little range of COM ports, so you may need to change the virtual COM number.

In our case the COM pair created is COM4/COM5, but we want to change it to COM2/COM3:

Click on "DEVICE MANAGER" button:

Seneca Ethernet to Serial Connection -	×				
Seneca Ethemet to Serial Connection rev. 1.04					
S SENECA [®]					
Select PC Virtual Com Port COM4 V					
Select Z-PASS / Z-KEY IP address 192 . 168 . 90 . 101					
Select Z-PASS / Z-KEY PORT 8000					
CONNECT PORT DISCONNECT ALL PORTS Open Debug Window					
DEVICE					
MANAGER					

The com0com setup window will open:

₽	Setup for com0com	- 🗆 🗙
⊡- Virtual Port Pair 0 ⊕ COM5 ⊕ COM4	enable buffer overrun e enable plug-in mode e enable exclusive mode e	COM4 use Ports class imulate baud rate inable buffer overun inable plug-in mode inable exclusive mode inable hidden mode RX TX TX TX DTR DTR DSR DCD RTS CTS RTS CTS OUT1 OUT2 OPEN
Add Pair Remove	Reset	Apply

Now change COM5 to COM3 and COM4 to COM2, then click "Apply":

₽	Setup for com0com	– 🗆 🗙
⊡- Virtual Port Pair 0 ⊕ COM5 ⊕ COM4	emulate baud rate enable buffer overun enable plug-in mode enable exclusive mode	COM2 use Ports class emulate baud rate enable buffer overrun enable plug in mode enable hidden mode RX TX DTR DTR DCD RTS CTS RI OUT1 OUT2 OPEN
Add Pair Remove	Reset	Apply

Sometimes the COM can be marked as "in use":

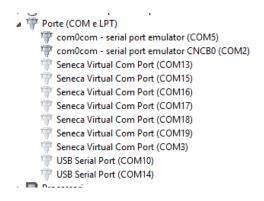
Setup for com0com (CHANGE)				
The port name COM3 is already logged as "in use" in the COM port database.				
Annulla <u>R</u> iprova <u>C</u> ontinua				

If you need to use this COM number, click on "Continue", then go to the device manager.

We must uncheck the "in use" flag by uninstalling the port. Since the port is not connected, click on "Show hidden peripherals":

4			Gestione dispositivi
File Azione	Visualizza	?	
	• Dispo	sitivi per tipo	
🔺 🚔 PC-Mos	Dispo	sitivi per connessione	
🕞 🦢 Batte	Risors	e per tipo	
Blue	Risors	e per connessione	
🛛 🕁 👘 Cod			
⊳ 🐺 com	Mostr	a dispositivi nascosti	
👂 🌉 Com	Perso	nalizza	
b Cont.	- II Ii I		1

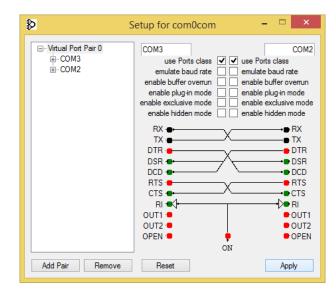
Now all the ports that are not in use are displayed in transparent (also our COM3):



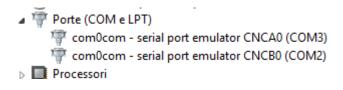
Now select the COM3 port and click on "Uninstall":

💮 Seneca Virtual Com Port (COM19)				
🕎 Seneca Virtual Com Port (CO	M3)	1		
🚏 USB Serial Port (COM10)		Aggiornamer	nto software driver	
🚏 USB Serial Port (COM14)		Disinstalla		
Processori				
👰 Schede di rete		Rileva modifi	che hardware	
Schede video		Proprietà		
SCHEIMU				

Now the COM3 is free and we can use it on the com0com setup:



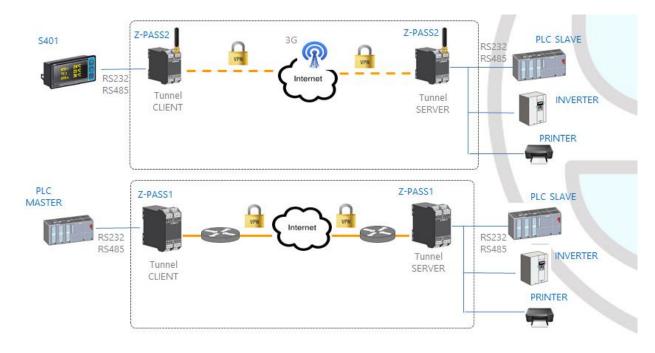
Finally click on "Apply", now the COM3/COM2 pair is created:



WARNING!

Seneca Serial to Ethernet connector always uses the right port in the com0com setup (in our case COM2).





8.2 Serial Tunnel Point-to-Point on TCP

The Serial Tunnel Point-to-Point allows to extend a serial connection between two serial devices that support the same serial protocol by a TCP/UDP connection.

In TCP operating mode, one Z-PASS is defined as the "Master" and another Z-PASS is the "Slave": the first is a Tunnel Client, which receives data from the serial line and sends them to an outgoing TCP connection, while the second is a Tunnel Server, which receives data from an incoming TCP connection and sends them to the serial line; in this mode a "tunnel" is established between the two serial ports.

In configuration phase, on the Master it is necessary to set the Destination IP Address and the Destination Port that defines the outgoing TCP connection; on the Slave, you have to set the Listen Port on which the incoming TCP connection is accepted.

The tunnel can be established through the LAN (Ethernet) or through the WAN (Mobile Network), also exploiting VPN connectivity.

WARNING!

In the Serial Tunnel Point-to-Point on TCP operating mode, just one connection is accepted for a given serial port.

8.3 Serial Tunnel Point-to-Point on UDP

The Serial Tunnel Point-to-Point on UDP operating mode is much like that on TCP.

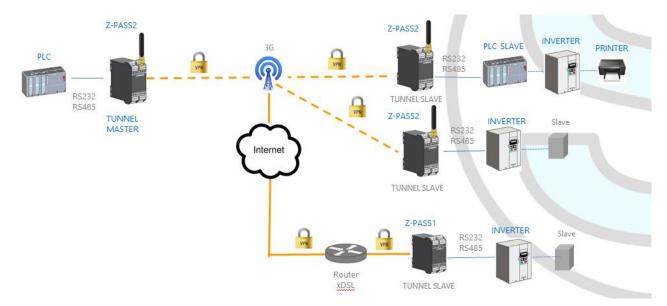
The only difference is that no TCP connection is established and serial data are transported by UDP packets.

The configuration parameters are the same as those for the serial tunnel on TCP.

Also in this case, the tunnel can be established through the LAN (Ethernet) or through the WAN (Mobile Network), also exploiting VPN connectivity.

WARNING!

In the Serial Tunnel Point-to-Point on UDP operating mode, just one connection is accepted for a given serial port.



8.4 Serial Tunnel Point-to-Multipoint

The Serial Tunnel Point-to-Multipoint allows to create a tunnel with a master and more than one slave; on the master side, the data received from the serial line are sent to all the slaves, by means of *multicast* transmission mode, in UDP packets.

To let the multicast work, the master and the slaves shall be part of the same *multicast group*, so there is a "Multicast Group" parameter that shall be properly set; furthermore, for the Master Configuration have to be defined "Destination Port" and "Multicast Interface" parameters, the latter shall be set to select the network interface that allows to send the packets; for the slave configuration, "Listen Port" and "Multicast Interface" are requested; the latter shall be set to select the network interface which allows to receive the packets.

The tunnel can be established through the LAN (Ethernet) or through the VPN (Ethernet or 3G based).

WARNING!

In the Serial Tunnel Point-to-Multipoint operating mode, just one connection is accepted for a given serial port.

9 Modbus Shared Memory Gateway

Z-PASS can be configured to run as a Modbus Shared Memory Gateway: in this mode, a set of configured tags are periodically and continuously read from Modbus RTU Slaves or Modbus TCP Servers; these values are always available in a shared memory, readable via Modbus TCP/RTU.

Z-PASS Modbus Shared Memory Gateway supports up to 2000 tags and up to 32 Modbus TCP Client simultaneously.

In the Z-PASS Modbus Shared Memory Gateway, a Modbus TCP/IP Server (or slave) is always running on a configured TCP port.

As for Modbus Ethernet to Serial Gateway functionality (see chapter 7), the Modbus TCP requests can be forwarded through the Ethernet interface or through the Mobile/VPN interface.

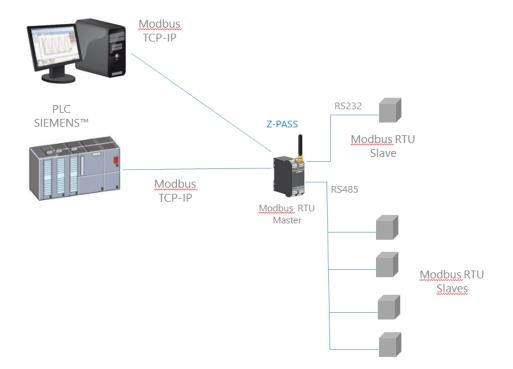
For each of the three available serial ports (COM1, COM2, COM4), the kind of "Task" can be defined: a serial port can be configured as a Modbus RTU Master or Modbus RTU Slave or not running at all.

In this manner, a number of possible combinations are available, to a maximum of three Modbus RTU Masters or three Modbus RTU Slaves; normally, a combination of the two will be chosen, for example: Modbus RTU Slave on COM1 and Modbus RTU Masters on COM2,COM4.

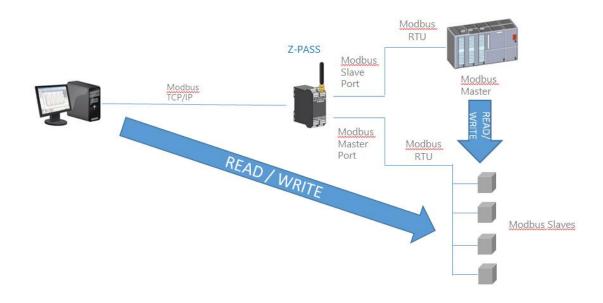
Furthermore, tags can be read from/written to up to 25 Modbus TCP Servers.

Finally, <u>some tags can be defined which are related to "embedded" digital I/Os and to GPS information</u> (only for Z-PASS2).

In the following pictures, some typical scenarios are shown.



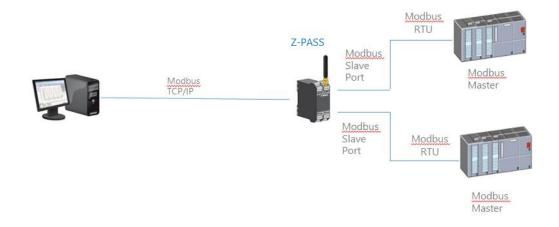
In the above picture, two serial ports (RS232 – COM1, RS485 – COM2) are configured as Modbus RTU Master.



In this case, one serial port (e.g. COM1) is configured as Modbus Slave and another (e.g. COM2) is configured as Modbus Master.

When some measures acquired from the Modbus Slaves must be available for a PLC, which supports only Modbus Master protocol, and also for a SCADA/Datalogger, the Z-PASS can be configured with one serial port defined as Modbus Slave (connected to the PLC) and another in Modbus Master (connected to the Modbus Slaves bus).

The PLC Modbus RTU Master and the Modbus TCP client(s) write/read the Z-PASS shared memory registers, while the Z-PASS Modbus Shared Memory Gateway keeps the shared memory aligned with the Modbus Slaves registers.



In the above picture, two serial ports (e.g. COM2 and COM4) are configured as Modbus Slave and connected to a PLC Modbus Master port; so, the two PLCs and the Modbus TCP Client can write/read the Z-PASS shared memory to share data among them.

The Z-PASS Modbus Shared Memory Gateway provides some interesting features as explained in the following.

Besides "classic" gateway behavior, tags can be configured to work in "Bridge" mode; this mode allows to acquire tag values from the serial side only when the gateway receives Modbus TCP/RTU Requests for those tags; this can be very useful when using RTU devices with "Fail safe" outputs³, as explained in details in 21.3.1 paragraph.

Z-PASS Modbus Shared Memory Gateway performs requests optimization, inserting as many tags as possible in a single read/write request; the maximum number of registers in a request can be set

³ This feature is available in many Seneca products. MI00380-35

independently for each serial port/TCP Server and for read and write operations; this option can be useful to connect RTU devices which support different maximum number of registers on different serial ports.

Tag configuration can be created using a Microsoft Excel[™] Template provided by Seneca (see paragraph 21.3.2.4); this can largely reduce configuration time, particularly when a large number of tags shall be configured.

10 Data Logger

When Modbus Shared Memory Gateway functionality is enabled, Z-PASS can act as a "Data Logger": Modbus Shared Memory Gateway tag values are periodically stored into files (called "log files"), which can then be transferred.

Tags can be associated to up to four Data Logger Groups, which can have different sample periods and transfer periods.

Three "transfer" methods are currently supported; log files can be:

- copied to the SD card;
- transferred to an FTP server;
- sent to one or more email addresses, as an attachment.

One or more of the above methods can be enabled.

Log files are stored in the Z-PASS (flash) memory so, if one of the active transfer methods should temporarily fail, they can be successfully transferred later; <u>for each data logger group, this internal log file</u> <u>"cache" can contain up to the limit which is reached first between the following two:</u>

- <u>1000 log files</u>
- (about) 100000/(number of enabled groups) samples (that is log file lines)

When the limit is reached, the log file "rotation" occurs, that is the oldest files are overwritten by the new ones.

Log files are standard "csv" files, which can be processed by Excel[™] or other PC software.

Each log file has an "header" line containing:

- the "INDEX" string (optional)
- the "TYPE" string (optional)
- the "TIMESTAMP" string
- the tag names

The following lines contain:

- a progressive line index (optional)
- the "LOG" string (optional)

- the timestamp value
- the tag values

Here is a portion of a log file:

INDEX;TYPE;TIMESTAMP;ZPASS DI;ZPASS DO;ZPASS DI 1;ZPASS DI 2;ZPASS DI 3;ZPASS DI 4;ZPASS DO 1;ZPASS DO 2; ZPASS DO 3; ZPASS DO 4; GPS ERROR; GPS HOUR; GPS MINUTE; GPS SECOND; GPS DAY; GPS MONTH; GPS YEAR; GPS L ATITUDE; GPS_LONGITUDE; GPS_HDOP; GPS_ALTITUDE; GPS_COG; GPS_SPEED_KM; GPS_SPEED_KN; GPS_FIX; GPS_NUM_SAT; SH M_TAG1;ZPASS2_105_TAG1;ZPASS2_106_TAG1;ZPASS2_106_TAG2 1;LOG;29/05/2018 09:49:00;0;0;0;0;0;0;0;0;0;0;0;0;0;0;0;7;48;31;29;5;18;45.37417;11.94554;1.5;12.7;249.56;0;0;2;5;0;32767;14; 11.5 2;LOG;29/05/2018 09:49:05;0;0;0;0;0;0;0;0;0;0;0;0;0;0;7;48;31;29;5;18;45.37417;11.94554;1.5;12.7;249.56;0;0;2;5;0;32767;14; 11.5 3;LOG;29/05/2018 09:49:10;0;0;0;0;0;0;0;0;0;0;0;0;0;0;0;0;7;48;31;29;5;18;45.37417;11.94554;1.5;12.7;249.56;0;0;2;5;0;32767;14; 11.5 4;LOG;29/05/2018 09:49:15;0;0;0;0;0;0;0;0;0;0;0;0;0;0;0;7;48;31;29;5;18;45.37417;11.94554;1.5;12.7;249.56;0;0;2;5;0;32767;14; 11.5 5;LOG;29/05/2018 09:49:20;0;0;0;0;0;0;0;0;0;0;0;0;0;0;0;7;48;31;29;5;18;45.37417;11.94554;1.5;12.7;249.56;0;0;2;5;0;32767;14; 11.5 6;LOG;29/05/2018 09:49:25;0;0;0;0;0;0;0;0;0;0;0;0;0;0;0;7;48;31;29;5;18;45.37417;11.94554;1.5;12.7;249.56;0;0;2;5;0;32767;14; 11.5 7;LOG;29/05/2018 09:49:30;0;0;0;0;0;0;0;0;0;0;0;0;0;0;7;48;31;29;5;18;45.37417;11.94554;1.5;12.7;249.56;0;0;2;5;0;32767;14; 11.5 8;LOG;29/05/2018 09:49:35;0;0;0;0;0;0;0;0;0;0;0;0;0;0;0;7;48;31;29;5;18;45.37417;11.94554;1.5;12.7;249.56;0;0;2;5;0;32767;14; 11.5 9:LOG:29/05/2018 09:49:40;0;0;0;0;0;0;0;0;0;0;0;0;0;0;7;49;31;29;5;18;45.37417;11.94554;1.5;12.7;249.56;0;0;2;4;0;32767;14; 11.5 10:LOG:29/05/2018 09:49:45;0;0;0;0;0;0;0;0;0;0;0;0;0;0;0;0;7;49;31;29;5;18;45.37417;11.94554;1.5;12.7;249.56;0;0;2;4;0;32767;14; 11.5 11;LOG;29/05/2018 09.49.50.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.7.49.31.29.5.18.45.37417.11.94554.1.5.12.7.249.56.0.0.2.4.0.32767.14. 11.5 12;LOG;29/05/2018 09:49:55;0;0;0;0;0;0;0;0;0;0;0;0;0;0;7;49;31;29;5;18;45.37417;11.94554;1.5;12.7;249.56;0;0;2;4;0;32767;14; 11.5 13;LOG;29/05/2018 09:50:00;0;0;0;0;0;0;0;0;0;0;0;0;0;7;49;31;29;5;18;45.37417;11.94554;1.5;12.7;249.56;0;0;2;4;0;32767;14; 11.5

If for a tag the actual value is not available (for example, if the tag corresponds to a register of a Modbus Station which is not responding to Modbus requests), the value written in the corresponding field of the log file can be (see 21.3.2.1 paragraph):

- the string "ERR!", if the "ERROR MODE" parameter for that tag is set to "LAST VALUE"
- the value defined in the "ERROR VALUE" parameter, if the "ERROR MODE" parameter for that tag is set to "ERROR VALUE"

Please note that any time a configuration change is made that affects the Data Logger functionality (from one of the pages in the "Data Logger" section), the following procedure is executed:

- the Data Logger processes are stopped
- the internal log file cache is cleaned
- the Data Logger processes are restarted

10.1 HTTP POST protocol

Z-PASS Data Logger is compatible with Seneca Cloud Box product⁴, by means of the HTTP POST Communication protocol developed by Seneca.

This protocol features a set of HTTP POST (RESTFUL) APIs; the related documentation can be provided by Seneca to customers who wish to develop their own server-side software; for information, please contact Seneca Service & Support at support@seneca.it.

The HTTP POST protocol can be enabled along with the other transfer methods (SD, FTP, EMAIL); however, when the HTTP POST protocol is enabled, the following changes apply to the Data Logger behavior:

- only one logging group can be enabled;
- the sampling period shall be a multiple of 30 seconds;
- each sample is sent to the server (namely, the Cloud Box) in a *LOG* message, carried by an HTTP POST request.

The Seneca HTTP POST protocol also lets the server perform the following actions on the Z-PASS:

- setting the values of one or more tags
- restarting the device
- saving the device configuration on the server FTP site
- loading the device configuration from the server FTP site
- starting the FW Upgrade; the FW file is downloaded from the server FTP site
- starting the VPN Box functionality
- stopping the VPN Box functionality

There is an internal cache also for LOG messages sent via HTTP POST requests, used to store log messages while it's not possible to send them to the server; this cache can contain up to 3000 messages.

11 Alarms and Logic Rules

The device can be configured with a maximum of 2000 logic rules.

A logic rule is based on the following basic concept:

⁴ For information about "Cloud Box" product, please see Seneca web site (www.seneca.it). MI00380-35

IF CONDITION(s)

ELSE ACTION(s)

The "Then Action" is executed if the "If Condition" is true.

THEN ACTION(s)

The "Else Action" is executed if the "If Condition" is false.

The "If Condition" can also be configured as an alarm.

A full set of parameters are available to define alarm behavior, as given in "Alarm Configuration" page (see paragraph 21.4.1); the whole alarm status can be viewed in "Alarm Summary" page (see paragraph 21.4.2) and the alarm history can be retrieved in "Alarm History" page (see paragraph 21.4.3).

Furthermore, in the "Tag View" page, the "ALARM" and "ANALOG DANGER ALARM" columns show the current alarm status for each tag (see paragraph 21.3.2.4).

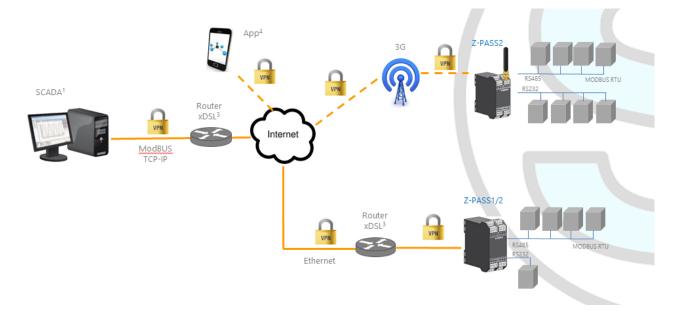
The Actions can be used for sending a SMS, EMAIL or HTTP POST;

In each rule can be configured:

- up to three logic conditions (based on alarm states) can be combined in an OR logic expression;
- up to three actions (sending alarms) can be executed.

For more info see chapter 21.6





Z-PASS supports the standard OpenVPN protocol.

The main advantages that come from using a VPN are:

• secure connections, since transported data are encrypted;

- the ability to establish connections without interfering with the corporate LAN;
- no need to have a static/public IP address on the WAN side;
- remote configurability by a built-in Web Server.

Two "VPN modes" are available, named "OpenVPN" and "VPN Box", respectively.

The "OpenVPN" mode can be used when the Z-PASS shall be installed in an already existing VPN. In this case, an OpenVPN server shall be available and the configuration, certificate and key files for the Z-PASS client shall be provided by the VPN administrator; the files can be uploaded to the Z-PASS using the "VPN configuration" page of Z-PASS Web Server.

If the VPN infrastructure does not exist yet, the advisable choice is to adopt the "VPN Box" solution, developed by Seneca. The "VPN Box" is an hardware appliance (or a virtual machine) which lets the user easily setup two alternative kinds of VPN:

- "Single LAN" VPN
- "Point-to-Point" VPN

In the "Single LAN" VPN, all devices and PCs (and associated local subnets) configured into VPN are always connected in the same network. In this scenario any PC Client can connect to any device (Z-PASS) and to other machines which lie in the Z-PASS LAN, but also any device/machine can connect to any other remote device/machine which belongs to the same VPN network. This VPN architecture puts some constraints on the device sub-networks definition, in fact all VPN clients must have a different IP address and different local LAN, to avoid conflicts. The software named "VPN BOX Manager" configures VPN BOX and will help you to avoid errors defining local subnet.

In the "Point-to-Point" VPN, a client PC, in a given moment, can perform a single connection, on demand, to only one device (Z-PASS) (and to machines which lie in the Z-PASS LAN) at time. Furthermore, devices can't communicate each other also if they belong to the same VPN. The advantage of this architecture is that the same sub-network can be used in all sites. Point to point mode makes it possible to define user groups and manage them. This VPN modality must be configured on "VPN Box" by VPN BOX Manager.

There are two kinds of "Point-to-Point" VPN:

- routing Layer 3 VPN
- bridging Layer 2 VPN

In "Routing Layer 3 VPN", only IP (Layer 3) packets are transported over the VPN tunnel and a new virtual LAN is created with a network subnet which must be different from the LAN subnets of the server and clients.

Conversely, in "Bridging Layer 2 VPN", all Ethernet frames are transported over the VPN tunnel and the clients are inserted in the server LAN.

Each of the two kinds has benefits and drawbacks:

Layer 2 benefits/drawbacks:

- can transport any network protocol
- broadcast traffic (e.g.: DHCP) is transported

> causes much more traffic overhead on the VPN tunnel

Layer 3 benefits/drawbacks:

- can transport only IP traffic
- broadcast traffic (e.g.: DHCP) is not transported
- Iower traffic overhead, transports only traffic which is destined for the VPN clients

The "VPN Box" is supplied with two Windows applications:

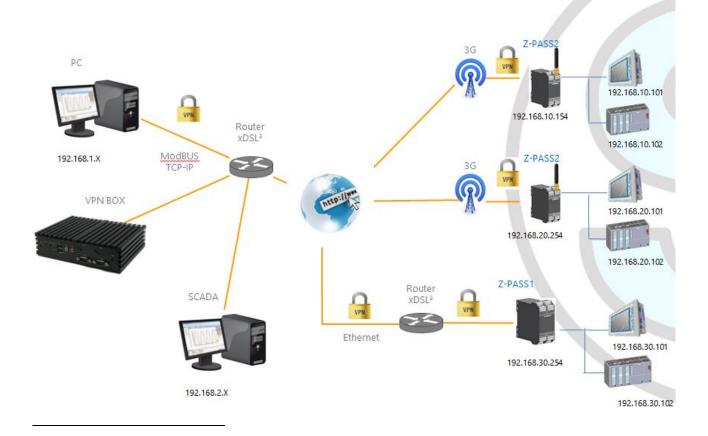
- the "VPN Box Manager", which allows to configure the VPN⁵ mode on the VPN Box and manage the devices
- the "VPN Client Communicator", which lets the user connect the PC to the network (in the "Single LAN" case) or to a specific device (in the "Point-to-Point" case)

A detailed description of "VPN Box" can be found in the "VPN Box User Manual".

A detailed description of Z-PASS VPN configuration parameters is given in 21.1.7 paragraph.

The following two sub-paragraphs give some more info about the two kinds of VPN.

12.1 "Single LAN" VPN



⁵ Only one of the two kinds of VPN can be configured on a given VPN Box. MI00380-35 The above figure gives an example of a "Single LAN" VPN.

The client PC (with IP address 192.168.1.X) can connect, just as an example, to the first Z-PASS2 by using its 192.168.10.154 IP address and to the PLC in the Z-PASS LAN by using its local IP address 192.168.10.102.

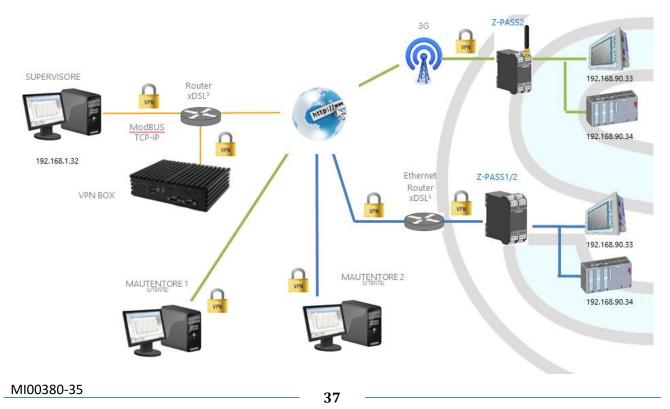
Also, two devices which lie in two different LANs of the same VPN network (e.g.: 192.168.10.101 and 192.168.20.102) can connect to each other, again using their local IP addresses.

To let this scenario work correctly, an essential rule must always be followed: <u>the Z-PASS LANs and the PC LAN shall have different and not colliding subnets</u>; so, in the above figure, the following subnets allocation has been depicted:

PC LAN	192.168.1.0/24
SCADA LAN	192.168.2.0/24
Z-PASS2 LAN	192.168.10.0/24
Z-PASS2 LAN	192.168.20.0/24
Z-PASS1 LAN	192.168.30.0/24

The "VPN Box Manager" application guides you in the configuration task, checking that no subnet/IP address conflict is present in the network.

If subnet/conflicts cannot be avoided, using a "Single LAN" VPN is still possible if local IP addresses are not used; devices can be reached by means of their VPN IP addresses and machines beyond them can be reached by configuring some "port forwarding" rules on the Device Router (see 21.1.8 paragraph).



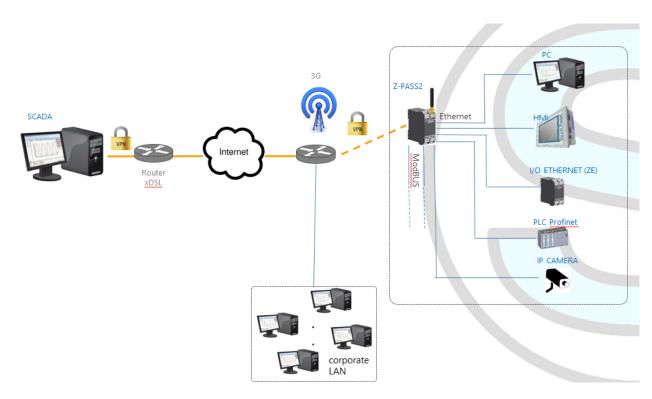
12.2 "Point-to-Point" VPN

The above figure gives an example of a "Point-to-Point" VPN.

In this scenario a PC (acting as a VPN Client) can connect, on demand, to only one Z-PASS and its subnet, using local IP addresses. Since the client "sees" just one Z-PASS (and attached devices) at time, the same subnet configuration can be assigned to different sites, without creating conflicts.

For this kind of VPN, the "VPN Box Manager" application lets define group of users that can connect only to assigned devices.

The "VPN Client Communicator" application retrieves the list of devices which are available for the logged user; then the user can select one device on the list and connect to it.



13 Router

As already told before, "Router" functionality routes packets between the LAN (Ethernet) interface and the WAN (Mobile Network) interface; so, this functionality specially makes sense when a mobile connection is active, which needs the availability of a 3G modem (true for Z-PASS2).

More specifically, an important feature of the Router is what is known as "IP forwarding"; this means that when Z-PASS receives a packet not targeted for it, it does not discard the packet but forwards it to its actual destination; when a packet is routed from the LAN to the WAN, Z-PASS also performs what is known as "IP masquerading", meaning that the original source IP address is replaced with the IP address of the WAN (PPP) interface.

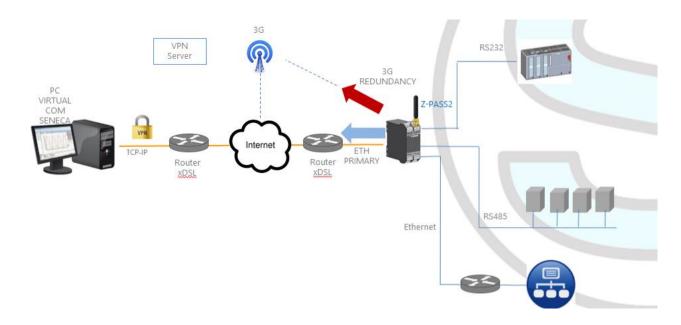
Another important feature is the availability of a DNS server/forwarder, which can resolve names either by itself or querying the external configured DNS server.

Also, a DHCP server is available which assigns IP addresses to clients connected on the Z-PASS LAN; here, you can configure the range of addresses used by the server and the lease time.

There is also the possibility to define up to five "Port Forwarding" rules or "Virtual Servers"; using these rules, you can, for example, redirect packets received from a TCP or UDP port to another Z-PASS port or to another machine, with a different IP address, on the same or another port.

As an alternative to using "Port Forwarding" rules, Router + VPN functionalities allow the use of local addresses, as shown in the previous chapter; in the router configuration, a flag is given to enable this feature.

A detailed description of the Router configuration can be found in 21.1.8 paragraph.



14 Network Redundancy

"Network Redundancy" is a functionality than can be enabled on Z-PASS2 devices, where a 3G modem is available.

This functionality is aimed at switching the network interface used to access the Internet from the Ethernet ("primary" interface) to the Mobile/3G ("secondary" interface), when Internet access through the primary interface becomes unavailable; when access through the primary interface become available again, the network interface is switched back to Ethernet.

The parameters provided to configure Network Redundancy are explained in paragraph 21.1.2 "Network and Services".

15 Remote Connection Disable

Z-PASS1 and Z-PASS2 products provide a dedicated digital input and a dedicated digital output to control and monitor remote connection to the device.

In details:

- when "Remote Connection Disable" digital input is set to HIGH state, remote connection to the device is disabled; conversely, when "Remote Connection Disable" digital input is set to LOW state, remote connection to the device is enabled; "Remote Connection Disable" digital input state is reported by the "RCD" LED;
- "Remote Connection Active" digital output is set to HIGH state when the device is remotely accessed (VPN connection is active); it is set to LOW state when VPN connection is not active.

Four levels of security can be configured to disable remote connection:

- Level 1 ("VPN Connection"): VPN connections are disabled in any VPN mode (VPN Box Point-to-Point, VPN Box Single LAN, OpenVPN), but VPN Box Service is still running, so the device can still be monitored on VPN Box Manager;
- Level 2 ("VPN Service"): VPN Box Service is disabled, but the device can still access the Internet and send/receive SMSs;
- Level 3 ("Internet Connection"): any Internet access is disabled, but the device can still send/receive SMSs;
- Level 4 ("SMS Service"): modem is off, so SMSs can't be sent/received.

See "Digital I/O Configuration" paragraph to learn how to set the desired security level.

16 Auto-APN

The Auto-APN feature lets the Z-PASS establish mobile data connections without requiring the user to configure APN data⁶ for the SIM in use.

This is accomplished by using the SIM IMSI and, possibly, some other data available on the SIM, to select the proper APN record in an internal DB⁷, containing APN records for all mobile operators in the world.

In some particular cases, however, when a "custom APN" shall be used, the Auto-APN feature can be disabled, setting the "APN Mode" parameter to "Manual", in the "Mobile Network" page (see paragraph 21.2).

⁶ APN data are: APN, Username, Password and Authentication Type.

⁷ This DB is updated to the one used in the last Android O.S. version. MI00380-35

17 HTTP POST Communication protocol

The communication between RTU and Cloud takes place on HTTP protocol by a POST-type call. The representation of the call is REST (REpresentational State Transfer) where data are configured as those of a classical web FORM but via JSON (JavaScript Object Notation). For more info on the HTTP POST Communication Protocol refers to "Seneca HTTP POST Communication Protocol" (you can request the document from support@seneca.it).

18 OPC Unified Architecture (OPC-UA) server protocol

OPC Unified Architecture (OPC-UA) is a standardized machine to machine communication protocol for industrial 4.0 automation developed by the OPC Foundation.

OPC-UA is a vendor-independent communication protocol and it's based on the client-server principle.

Z-PASS devices support the OPC-UA server protocol also with security policy.

In particular, Z-PASS OPC-UA server "exports" the Modbus Shared Memory Gateway tags; so, using an OPC-UA Client software, you can read/write the tags by means of the OPC-UA protocol

19 MQTT client protocol

The MQTT is the most used protocol for IOT applications:

"MQTT stands for MQ Telemetry Transport. It is a publish/subscribe, extremely simple and lightweight messaging protocol, designed for constrained devices and low-bandwidth, highlatency or unreliable networks. The design principles are to minimise network bandwidth and device resource requirements whilst also attempting to ensure reliability and some degree of assurance of delivery. These principles also turn out to make the protocol ideal of the emerging "machine-to-machine" (M2M) or "Internet of Things" world of connected devices, and for mobile applications where bandwidth and battery power are at a premium".

For more info on MQTT protocol see http://mqtt.org/



The MQTT version supported by the Z-PASS1/2 is the 3.1.1

20 SMS Commands

On Z-PASS devices, a number of features can be controlled by means of "SMS commands"; such features include setting up a mobile data (PPP) connection, activating the VPN Box functionality, setting a digital output etc.

SMS Commands can be sent by phone numbers that are present in the Z-PASS Phonebook as "admin" or "manager" users; as an alternative, any phone number can send an SMS command, provided that the command contains a "password"; <u>the password is made by the last four digits of the Z-PASS modem IMEI</u>; so the command will have the following format (there must be a blank character between the "password" and the command text):

<last four IMEI digits> <command text>

Example:

6172 PPP ON

Please note that the command text can be written in any letter case, all uppercase, all lowercase or a mix between the two.

Any SMS command received from a number that is not recognized as an "admin" or "manager" user and does not contain the password will be discarded; as an option, these messages and all messages that are not recognized as valid commands can be "relayed" to the "admin" user (see paragraph 21.6.2).

Example:

PPP ON RELAYED

SMS commands substantially fall into two categories:

- "set" commands which execute an action
- "get" commands which ask for some information

While "get" commands always have an answer, "set commands" can be given an answer ("acknowledge") or not, depending on a configuration parameter (see paragraph 21.6.2).

Any response to a command, both "set" or "get", will contain the original message text, plus a result string, which can be:

"EXECUTING"

meaning that the command has been correctly processed; the "ING" form is used to tell that the procedure started by the command might not be completed yet

"FAILED"

meaning that the command could not be processed or something failed; in this case, an error string is present giving the failure reason

Examples: MI00380-35

PPP ON EXECUTING (100.70.179.88)

PPP ON FAILED (System PPP ON)

Obviously, the response to a "get" command also contains the requested info, if the command has been successfully processed.

Example:

GET DIN EXECUTING (1,0,0,0)

Finally, the whole SMS commands functionality can be disabled, if not needed, by means of a configuration parameter (see paragraph 21.6.2).

Obviously, SMS commands are available only in Z-PASS2 product (for all HW revisions), where a GSM model is available.

In the following paragraphs, the full list of supported commands is given along with the corresponding responses.

20.1 PPP ON

This command can be used to setup the mobile data (PPP) connection; the connection is setup using system configuration parameters (APN Mode, APN, Auth Type etc.).

If the command is successfully processed, the response contains the IP address assigned to the PPP network interface.

This command is rejected in the following case:

- if "Remote Connection Disable" (RCD) digital input is HIGH and "Security Level/Service Disable" parameter is set to "Internet Connection", the command will fail with the "Security Level error" error.

Also, if the connection setup procedure is not completed after a timeout (currently fixed to 30 seconds), the command will fail with the "Timeout error" error.

Please note that <u>this command that does not enable the mobile data connection in a persistent way, so if</u> <u>the Z-PASS is restarted, the mobile data (PPP) connection is not re-established</u>.

Example:

→ PPP ON
 ← PPP ON EXECUTING (100.70.179.88)

20.2 PPP OFF

This command can be used to drop down the mobile data (PPP) connection setup by a previous "PPP ON" command.

Please note that <u>this command that does not disable the mobile data connection in a persistent way, so if</u> the Z-PASS is restarted, the mobile data (PPP) connection is re-established.

This command is never rejected.

Example:

→ PPP OFF ← PPP OFF EXECUTING

20.3 PPP IP

This command can be used to get the IP address assigned to the mobile data (PPP) connection; if the PPP connection is not active, the "dummy" IP address (0.0.0.0) will be given.

This command is never rejected.

Example:

```
    → PPP IP
    ← PPP IP EXECUTING (100.70.179.88)
```

20.4 PPP CNF

This command can be used to change the value of the system configuration parameters related to the mobile data (PPP) connection; <u>the changes are persistent</u>.

The command shall have the following format, where parameter values shall be separated by a blank character:

PPP CNF <APN mode> <APN> <Authentication Type> <Username> <Password> <PPP Connection Testing IP Address>

Please note that all the parameters shall be present, in the above order; no parameter can be left empty.

For the meaning of these parameters, please see 21.2 paragraph.

<APN> and <Authentication Type> are numeric fields with the following values.

```
APN Mode

0: Automatic

1: Manual

Authentication Type

0: None

1: CHAP/PAP

2: CHAP only

3: PAP only
```

This command is rejected in the following case:

- if any of the command parameters is missing or invalid, the command will fail with the "Command parameter error".

```
MI00380-35
```

Example:

→ PPP CNF 0 mobile.vodafone.it 0 user pass www.google.com
 ← PPP CNF EXECUTING

20.5 VPN ON

This command can be used to activate the VPN Box functionality; the functionality is activated using system configuration parameters (Server, Password, Tag Name).

The command has two optional parameters, so its format is the following:

VPN ON [PPP] [NOFWL]⁸

"PPP"

if this parameter is present, the mobile data (PPP) connection is setup (if it's not already active), before activating the VPN Box functionality

"NOFWL"

if this parameter is present, the "Mobile Network Firewall" is disabled, in the system configuration

This command is rejected in the following cases:

- if the "custom" VPN functionality is enabled in the system configuration (parameter "VPN/Enable" = ON, "VPN Mode" = "OpenVPN"), the command will fail with the "System VPN ON" error;
- if "Remote Connection Disable" (RCD) digital input is HIGH and "Security Level/Service Disable" parameter is set to "VPN Connection" or "VPN Service" or "Internet Connection", the command will fail with the "Security Level error" error.

Please note that <u>this command that does not activate the VPN Box functionality in a persistent way, so if</u> <u>the Z-PASS is restarted, the functionality is not re-activated</u>.

Examples:

- → VPN ON ← VPN ON EXECUTING
- → VPN ON PPP
- ← VPN ON PPP EXECUTING
- → VPN ON NOFWL
- ← VPN ON NOFWL EXECUTING
- \rightarrow VPN ON PPP NOFWL
- ← VPN ON PPP NOFWL EXECUTING

⁸ Square brackets tell that parameter is optional. MI00380-35

20.6 VPN OFF

This command can be used to deactivate the VPN Box functionality activated by a previous "VPN ON" command; it also drops down the mobile data (PPP) connection setup by a previous "VPN ON PPP" command or "PPP ON" command.

This command is never rejected.

Please note that <u>this command that does not de-activate the VPN Box functionality in a persistent way, so if</u> <u>the Z-PASS is restarted, the functionality is re-activated</u>.

Example:

→ VPN OFF ← VPN OFF EXECUTING

20.7 VPN CNF

This command can be used to change the value of the system configuration parameters related to the VPN Box; <u>the changes are persistent</u>.

The command shall have the following format, where parameter values shall be separated by a blank character:

VPN CNF <Server> <Password> <Tag Name>

Please note that all the parameters shall be present, in the above order; no parameter can be left empty.

For the meaning of these parameters, please see 21.1.7.2 paragraph.

This command is rejected in the following case:

- if any of the command parameters is missing or invalid, the command will fail with the "Command parameter error".

Example:

```
→ VPN CNF myvpnbox.seneca.it myvpnbox zpass2-GSP
```

← VPN CNF EXECUTING

20.8 FWL ON

This command can be used to enable the "Mobile Network Firewall" in the system configuration (parameter "Mobile Network Firewall/Enable" = ON).

This command is never rejected.

Example:

 \rightarrow FWL ON

 \leftarrow FWL ON EXECUTING

```
MI00380-35
```

20.9 FWL OFF

This command can be used to disable the "Mobile Network Firewall" in the system configuration (parameter "Mobile Network Firewall/Enable" = OFF).

This command is never rejected.

Example:

→ FWL OFF ← FWL OFF EXECUTING

20.10 GET DIN

This command can be used to get the status of one or all of the four digital inputs; if a digital input is not available (since it is used as an output)⁹, the "0" value is given.

The command can have two formats:

GET DIN <n></n>	with <n>=14</n>	get the status of a single digital input
GET DIN		get the status of all the digital inputs

This command is rejected in the following cases:

- if the command is received on a Z-PASS2, Z-PASS2-R01 device, which has no digital I/Os, the command will fail with the "Digital I/O not available" error;
- if the digital I/O number in the command is out of range (e.g.: 0 or 5), the command will fail with the "Command parameter error" error.

Examples:

- → GET DIN ← GET DIN EXECUTING (1,0,0,0)→ GET DIN1 CET DIN1 EXECUTING (1)
- \leftarrow GET DIN1 EXECUTING (1)
- \rightarrow GET DIN2
- $\leftarrow \qquad \text{GET DIN2 EXECUTING (0)}$

20.11 GET DOUT

This command can be used to get the status of one or all of the four digital outputs; if a digital output is not available (since it is used as an input)¹⁰, the "0" value is given.

⁹ This can be true for DI3 an DI4.

¹⁰ This can be true for DO3 an DO4.

The command can have two formats:

GET DOUT <n></n>	with <n>=14</n>	get the status of a single digital output
------------------	-----------------	---

GET DOUT

This command is rejected in the following cases:

- if the command is received on a Z-PASS2, Z-PASS2-R01 device, which has no digital I/Os, the command will fail with the "Digital I/O not available" error;

get the status of all the digital outputs

- if the digital I/O number in the command is out of range (e.g.: 0 or 5), the command will fail with the "Command parameter error" error.

Examples:

- → GET DOUT
 ← GET DOUT EXECUTING (0,1,0,0)
- → GET DOUT1
- \leftarrow GET DOUT1 EXECUTING (0)
- → GET DOUT2
- \leftarrow GET DOUT2 EXECUTING (1)

20.12 SET DOUT

This command can be used to set the status of one of the four digital outputs.

The command can have two formats:

SET DOUT <n>.CLOSE</n>	with <n>=14</n>	set the digital output to the HIGH state
SET DOUT <n>.OPEN</n>	with <n>=14</n>	set the digital output to the LOW state

This command is rejected in the following cases:

- if the command is received on a Z-PASS2, Z-PASS2-R01 device, which has no digital I/Os, the command will fail with the "Digital I/O not available" error;
- if the digital output is not configured as "General output" or the digital I/O is used as an input¹¹, the command will fail with the "Digital I/O mode error" error;
- if the digital I/O number in the command is out of range (e.g.: 0 or 5), the command will fail with the "Command parameter error" error;
- if the requested state is neither ".CLOSE", nor ".OPEN", the command will fail with the "Command parameter error" error.

Example:

→ SET DOUT2.CLOSE

¹¹ This can be true for DO3 and DO4. MI00380-35

← SET DOUT2.CLOSE EXECUTING

20.13 SET PULSE

This command can be used to generate a pulse on one of the four digital outputs.

The command can have two formats:

SET PULSE<n>.CLOSE <duration> with <n>=1..4
to generate a LOW-HIGH-LOW pulse, with the HIGH state set for the number of seconds given by the
<duration> parameter

SET PULSE<n>.OPEN <duration> with <n>=1..4

to generate a HIGH-LOW-HIGH pulse, with the LOW state set for the number of seconds given by the <duration> parameter

This command is rejected in the following cases:

- if the command is received on a Z-PASS2, Z-PASS2-R01 device, which has no digital I/Os, the command will fail with the "Digital I/O not available" error;
- if the digital output is not configured as "General output" or the digital I/O is used as an input¹², the command will fail with the "Digital I/O mode error" error;
- if the digital I/O number in the command is out of range (e.g.: 0 or 5), the command will fail with the "Command parameter error" error;
- if the requested state is neither ".CLOSE", nor ".OPEN", the command will fail with the "Command parameter error" error;
- if the <duration> parameter is missing or invalid, the command will fail with the "Command parameter error" error;
- if the ".CLOSE" parameter is given and the digital output is already in the HIGH state, the command will fail with the "No pulse generated" error;
- if the ".OPEN" parameter is given and the digital output is already in the LOW state, the command will fail with the "No pulse generated" error.

Example:

 \rightarrow SET PULSE2.CLOSE 10

← SET PULSE2.CLOSE 10 EXECUTING

20.14 SET USER.PHONE

This command can be used to insert a user with the specified telephone number, type and group list into the Phonebook; it can also be used to change the type and/or group list of an already existing user.

¹² This can be true for DO3 and DO4. MI00380-35

The command has the following format:

SET USER.PHONE +<number> <type> <group list>, with <type>=ADM|MGR|USR

Please note that the telephone number shall always be given in the "international format", so the initial '+' character shall always be present.

The "group list" is a list of non-negative integer numbers, separated by the "-" character, defining the groups which the user belongs to. Example of valid group lists are:

"1-2-3" "1-4" "1" "0"

The "0" value means that the user is part of any group.

This command is rejected in the following cases:

- if the specified <number> already exists in the Phonebook, with the specified <type> and <group list>, the command will fail with the "Item already exists" error;
- if the <number> parameter is missing or invalid (including the case when the '+' character is missing), the command will fail with the "Command parameter error" error;
- if the <type> parameter is missing or invalid, the command will fail with the "Command parameter error" error;
- if the <group list> parameter is missing or invalid, the command will fail with the "Command parameter error" error.

Example:

 \rightarrow SET USER.PHONE +390123456789 ADM 1-2-3

SET USER.PHONE +390123456789 ADM 1-2-3 EXECUTING

20.15 RESET PHONE

This command can be used to delete a user with the specified telephone number from the Phonebook.

The command has the following format:

RESET PHONE +<number>

Please note that <u>the telephone number shall always be given in the "international format"</u>, so the initial '+' <u>character shall always be present</u>.

This command is rejected in the following cases:

 if the specified <number> does not exist in the Phonebook, the command will fail with the "Item does not exist" error;

- if the <number> parameter is missing or invalid (including the case when the '+' character is missing), the command will fail with the "Command parameter error" error.

Example:

→ RESET PHONE +390123456789

← RESET PHONE +390123456789 EXECUTING

Please note that, <u>if the Phonebook user with the specified telephone number also has an email address</u>, <u>this will be deleted by the command too</u>.

20.16 SET USER.EMAIL

This command can be used to insert a user with the specified email address, type and group list into the Phonebook; it can also be used to change the type and/or group list of an already existing user.

The command has the following format:

```
SET USER.EMAIL <email address> <type> <group list>, with <type>=ADM|MGR|USR
```

The "group list" is a list of non-negative integer numbers, separated by the "-" character, defining the groups which the user belongs to. Example of valid group lists are:

"1-2-3" "1-4" "1" "0"

The "0" value means that the user is part of any group.

This command is rejected in the following cases:

- if the specified <email address> already exists in the Phonebook, with the specified <type> and
 <group list>, the command will fail with the "Item already exists" error;
- if the <email address> parameter is missing or invalid, the command will fail with the "Command parameter error" error;
- if the <type> parameter is missing or invalid, the command will fail with the "Command parameter error" error;
- if the <group list> parameter is missing or invalid, the command will fail with the "Command parameter error" error.

Example:

 \rightarrow SET USER.EMAIL admin@zpass.it ADM 1-2-3

SET USER.EMAIL admin@zpass.it ADM 1-2-3 EXECUTING

20.17 RESET EMAIL

This command can be used to delete a user with the specified email address from the Phonebook. MI00380-35

The command has the following format:

RESET EMAIL <email address>

This command is rejected in the following cases:

- if the specified <email address> does not exist in the Phonebook, the command will fail with the "Item does not exist" error;
- if the < email address > parameter is missing or invalid, the command will fail with the "Command parameter error" error.

Example:

→ RESET EMAIL admin@zpass.it
 ← RESET EMAIL admin@zpass.it EXECUTING

Please note that, if the Phonebook user with the specified email address also has a telephone number, this will be deleted by the command too.

20.18 STATUS

This command can be used to get some status information from the device.

The status info given in the response has the following format:

```
Z-PASS2<hwrev> <date> <time> RUNNING <service status>,<vpn status>
<DI1>,<DI2>,<D01>,<D02>,<DID01>,<DID02>
```

where:

<hwrev>: "", "-R01", "-IO" <date> is in the form "yyyy/mm/dd" <hour> is in the form "hh:mm:ss" <service status> reports the status of the "SERV" LED¹³ ("OFF" | "ON" | "FAIL") <vpn status> reports the status of the "VPN" LED ("OFF" | "ON" | "FAIL") <DI1>,<DI2>,<DO1>,<DID01>,<DID02> status ("LO" | "HI") of the digital I/Os (only for Z-PASS2–IO)

This command is never rejected.

Example:

→ STATUS

← STATUS EXECUTING (Z-PASS2-IO 2018/03/09 08:01:31 RUNNING OFF,OFF HI,LO,HI,LO,LO,LO)

¹³ See Chapter "LEDs signaling". MI00380-35

20.19 GET GPS

This command can be used to get GPS location info from the device.

The response is given as an URL to Google Maps[™]: <u>https://www.google.com/maps/?q=<latitude>,<longitude</u>>

This command is rejected in the following cases:

- if the command is received on a Z-PASS2, Z-PASS2-R01 device, which does not have a GPS module, the command will fail with the "GPS not available" error;
- If the GPS signal is not available, the command will fail with the "GPS not fixed" error.

Example:

→ GET GPS

← GET GPS EXECUTING (https://www.google.com/maps/?q=45.3742,11.94557)

20.20 RESET

This command can be used to restart ("reboot") the device.

This command is never rejected.

Example:

```
\rightarrow RESET

\leftarrow RESET EXECUTING
```

20.21 GET TAG

This command can be used to get the value of a tag (see "Modbus Shared Memory Gateway" functionality in chapter 9).

The command has the following format:

GET TAG <tag name>

Please note that <u>the "tag name" is case-sensitive</u>; also note that this command assumes that <u>each tag has a</u> <u>distinct name</u>; if more tags exist with the same name, this command returns the value of the first tag found with the given name.

The value is given in the response with the following format:

<tag value>,VALID

or:

```
<tag value>, INVALID
```

The "INVALID" status may occur for tags with "GATEWAY MODE"="GATEWAY", when the last Modbus read request has failed.

This command is rejected in the following cases:

- if no serial port has "Gateway Mode"="Modbus Shared Memory", the command will fail with the "Modbus Gateway not active" error;
- if no tag is found with the given name, the command will fail with the "Tag does not exist" error;
- if the requested tag has "GATEWAY MODE"="BRIDGE" and the Modbus read request fails, the command will fail with the "Tag operation failed" error.

Example:

- → GET TAG GPS_LONGITUDE
- ← GET TAG GPS_LONGITUDE EXECUTING (11.94528,VALID)

20.22 SET TAG

This command can be used to set the value of a tag (see "Modbus Shared Memory Gateway" functionality in chapter 9).

The command has the following format:

SET TAG <tag name> <tag value>

Please note that <u>the "tag name" is case-sensitive</u>; also note that this command assumes that <u>each tag has a</u> <u>distinct name</u>; if more tags exist with the same name, this command tries to set the value of the first tag found with the given name.

For non-integer tag values, the decimal point character '.' shall be used.

This command is rejected in the following cases:

- if no serial port has "Gateway Mode"="Modbus Shared Memory", the command will fail with the "Modbus Gateway not active" error;
- if no tag is found with the given name, the command will fail with the "Tag does not exist" error;
- if the given value does not fit the "Data Type" of the target tag (e.g. the "2" value for a "BOOL" tag), the command will fail with the "Invalid value for tag" error;
- if, for any reason, the write operation fails, the command will fail with the "Tag operation failed" error; this includes the following cases:
 - the Modbus write request fails, for "GATEWAY" or "BRIDGE" tags;
 - the tag value cannot be changed, since it is not a "General output", for Digital I/Os ("EMBEDDED") tags;
 - the tag value cannot be changed, since it is a "GPS info" ("EMBEDDED") tag.

Example:

- \rightarrow SET TAG ZPASS DO 10
- ← SET TAG ZPASS DO 10 EXECUTING

20.23 OVPN ON

This command can be used to activate the standard OPEN VPN functionality; the functionality is activated using system configuration parameters (Server, Password, Tag Name).

Please note that <u>this command that does not activate the OPEN VPN functionality in a persistent way, so if</u> <u>the Z-PASS is restarted, the functionality is not re-activated</u>.

Examples:

 \rightarrow VPN ON

20.24 OVPN OFF

This command can be used to deactivate the OPEN VPN functionality activated by a previous "OVPN ON" command.

Please note that this command that does not de-activate the OPEN VPN functionality in a persistent way, so if the Z-PASS is restarted, the functionality is re-activated.

Example:

 \rightarrow OVPN OFF

20.25 CLEAN LOGS

This command will delete all logs.

20.26 Initial Configuration

This paragraph describes a possible procedure to configure a new Z-PASS device, starting from "factory default" situation.

Firstly, a SIM with PIN check disabled is needed; this SIM shall also be usable with Auto-APN feature (that is it should not require a private custom APN); obviously, the SIM shall support SMS service.

Since no user is present in the Phonebook yet, SMS commands shall be sent with the password, so the modem IMEI shall be known.

If the previous conditions are satisfied, only two commands are needed to let the device connect to the VPN Box; these are:

<password> VPN CFG <parameters>
<password> VPN ON PPP

Once these commands are successfully processed, the new device appears in the device list presented by the VPN Box Manager SW; after inserting the device in a user's group (in case of Point-to-Point VPN Box) or applying the device configuration (in case of Single-LAN VPN Box), the device will be reachable via the VPN, letting the user fully configure it.

21 Web Configuration Pages

Z-PASS can be fully configured by means of a set of web configuration pages.

To access Z-PASS configuration site, you have to connect the browser to the Z-PASS IP address on port 8080, e.g.:

http://192.168.90.101:8080

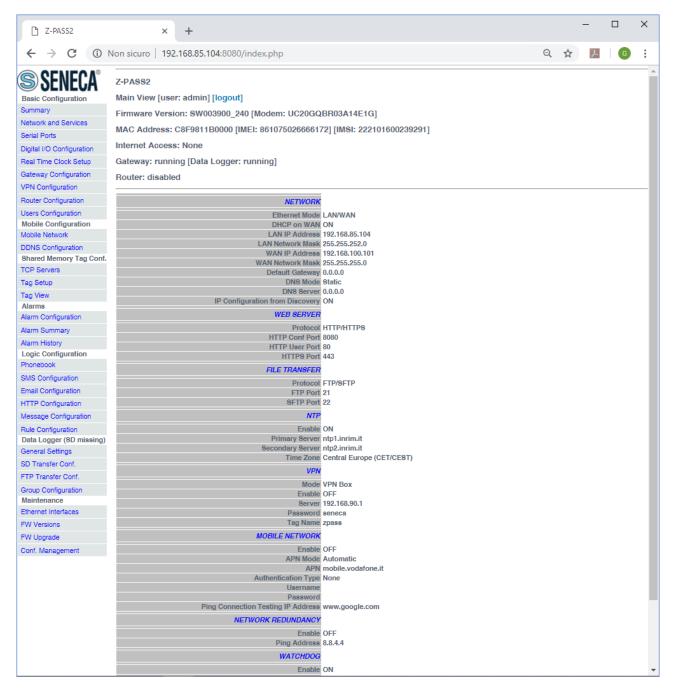
and, when asked, provide the following credentials (default values):

Username: admin Password: admin

You come to the "Summary" page, described in the following paragraph.

21.1 Basic Configuration

21.1.1 Summary



In this page, main Z-PASS configuration parameters are shown, with their current values.

On the left side of the page, like in any other page, a menu is shown which lets you access all the configuration pages; the menu is divided in several sections:

- Basic Configuration
- Mobile Configuration (not available on Z-PASS1)

- Shared Memory Tag Configuration (when Gateway Mode is set to Modbus Shared Memory Gateway, see paragraph 21.1.4)
- Alarms
- Logic Configuration
- Data Logger
- Maintenance

Furthermore, in this like in any other page, the following information are shown:

- the page name
- the Z-PASS FW version along with the modem FW revision, for Z-PASS2
- the Z-PASS MAC address; the modem IMEI, for Z-PASS2; the SIM IMSI, for Z-PASS2, when a SIM is
 present
- the network interface used for Internet Access (i.e.: "Ethernet" or "Mobile")
- the Modbus Ethernet to Serial/Transparent/Modbus Shared Memory Gateway status (i.e.: "running" or "stopped") along with the Data Logger status (i.e.: "running" or "stopped")
- the Router status (i.e.: "running" or "disabled")

The currently logged user (e.g.: "admin") and the "Logout" link are also present, near the page name.

In this page, two buttons are available:

- "RESTART", to perform Z-PASS reboot;
- "FACTORY DEFAULT", to reset Z-PASS to its factory state.

Probably, the first parameters you need to change when setting up a new Z-PASS device are those related to its network configuration.

You can accomplish this in the "Network and Services" page, described in the following paragraph.

21.1.2 Network and Services

The parameters shown in this page slightly change, depending on the HW version of the product and, for new HW versions, on the selected "Ethernet Mode"; this is shown in the following figures.

Z-PASS2	×	🗘 Giovanni — 🗆 🗙
	168.85.104:8080/setup.php	९ 🛧 🗾
seneca 🏐	Z-PASS2	
General Configuration	Network and Services [user: admin] [logout]	
Main View	Firmware Version: SW003900_224 [Modem: UC20GQ	3R03A14E1G]
Network and Services	MAC Address: C8F9811B0000 [IMEI: 86107502650097	51 [IMSI: 222101600237890]
Serial Ports	-	
Gateway Configuration	Internet Access: Mobile	
Real Time Clock Setup	Modbus Shared Memory Gateway: running	
VPN Configuration	Router: running	
Router Configuration		
Users Configuration	CURF	ENT UPDATED
FW Upgrade	NETWORK	
Conf. Management	Ethernet Mode (*) LAN/WAN	LAN/WAN V
Shared Memory Tag Conf.	DHCP on WAN OFF	OFF V
Tag Setup	LAN IP Address 192.168.90	101 192.168.90.101
Tag View Mobile Configuration	LAN Network Mask 255.255.25	5.0 255.255.255.0
Mobile Network	WAN IP Address 192.168.85	104 192.168.85.104
DDNS Configuration	WAN Network Mask 255.255.25	
Digital I/O	Default Gateway 192.168.85	
Digital I/O Configuration	Disaut Galeway 152,100,00	Static V
Diagnostics	DNS Mode Static DNS Server 192.168.84	
FW Versions		
Ethernet Interfaces	IP Configuration from Discovery ON	ON V
	WEB SERVER	
	Protocol (*) HTTP/HTT	PS HTTP/HTTPS V
	HTTP Conf Port (*) 8080	8080
	HTTP User Port (*) 80	80
	HTTP8 Port (*) 443	443
	FILE TRANSFER	
	Protocol FTP/SFTP	FTP/SFTP V
	FTP Port 21	21
	SFTP Port 22	22
		22
	NETWORK REDUNDANCY	
	Enable OFF	OFF V
	Ping Address 8.8.4.4	8.8.4.4
	WATCHDOG	
	Enable (^x) ON	ON V
	Timeout (s) 60	60
	DEBUG LOGS	
	Enable ON	ON V
	COM1	
	Mode R8485	RS485 •
	NOTE: changing fields marked with * will cause a system restart.	
	oyotom roduru	APPLY

The previous figure shows the "Network and Services" page for a Z-PASS2, when the "Ethernet Mode" parameter is set to "LAN/WAN"; it also applies to a Z-PASS1 in "LAN/WAN" mode.

Z-PASS2	×			💭 Ciovanni	_		×
$\boldsymbol{\leftarrow}$ \rightarrow \mathbf{C} (i) 192.	168.85.104:8080/setup.php				Q	☆ 🙏	
SENECA® General Configuration Main View Network and Services Serial Ports Gateway Configuration Real Time Clock Setup VPN Configuration Router Configuration	Z-PASS2 Network and Services [user: admin] [logout] Firmware Version: SW003900_224 [Modem: UC20 MAC Address: C8F9811B0000 [IMEI: 86107502650 Internet Access: Ethernet Modbus Shared Memory Gateway: running Router: running	-	1600237890]				
Users Configuration	C	URRENT	UPDATED				- 1
FW Upgrade	NETWORK						- 1
Conf. Management	Ethernet Mode (*) Switcl	h Switch	•				- 1
Shared Memory Tag Conf.	DHCP OFF	OFF V					- 1
Tag Setup	IP Address 192.10		3.95.101				- 1
Tag View Mobile Configuration	Network Mask 255.25						- 1
Mobile Network	IP Address 2 Enable ON	ON V					- 1
DDNS Configuration	IP Address 2 192.10		3.85.104				- 1
Digital I/O	Network Mask 2 255.25						- 1
Digital I/O Configuration	Default Gateway 192.16						- 1
Diagnostics	DNS Mode Static						- 1
FW Versions	DNS Server 192.10						- 1
Ethernet Interfaces	IP Configuration from Discovery ON	ON V	2				- 1
	WEB SERVER	on .	1				- 1
							- 1
	Protocol (*) HTTP/		ITTPS V				- 1
	HTTP Conf Port (*) 8080	8080					- 1
	HTTP User Port (*) 80	80					- 1
	HTTPS Port (*) 443	443					- 1
	FILE TRANSFER						- 1
	Protocol FTP/8	FTP/SF	TP V				- 1
	FTP Port 21	21					- 1
	SFTP Port 22	22					- 1
	NETWORK REDUNDANCY						- 1
	Enable OFF	OFF V	1				- 1
	Ping Address 8.8.4.4	4 8.8.4.4	, 				- 1
	WATCHDOG						- 1
	Enable (*) ON	ON V	1				- 1
	Timeout (s) 60]				- 1
		60					
	DEBUG LOGS		~				
	Enable ON	ON V]				
	COM1						
	Mode R8485	5 RS485	•				
	NOTE: changing fields marked with ^x will cause a system restart.						
	o you no tal ta		APPLY				-

The previous figure shows the "Network and Services" page for a Z-PASS2, when the "Ethernet Mode" parameter is set to "Switch"; it also applies to a Z-PASS1 in "Switch" mode.

🗋 Z-PASS2	×	😲 (diovenni) — 🗆
← → C 🛈 192	2.168.85.105:8080/setup.php	Q 🕁 🗾
SENECA® Beneral Configuration Iain View Jetwork and Services	Z-PASS2 Network and Services [user: admin] [logout] Firmware Version: SW003900_224 [Modem: 1231B02SIM MAC Address: C8FA81160002 [IMEI: 862264020406715]	-
erial Ports ateway Configuration leal Time Clock Setup	Internet Access: Ethernet Modbus Ethernet to Serial Gateway: running	[imol: 222101000201003]
PN Configuration outer Configuration	Router: disabled	
Isers Configuration	CURREN	T UPDATED
W Upgrade	NETWORK	
onf. Management		
Nobile Configuration	Ethernet Mode (*) LAN/WAN	
lobile Network	DHCP on WAN OFF	OFF V
DNS Configuration	LAN IP Address 192.168.90.10	192.168.90.101
Diagnostics	LAN Network Mask 255.255.255.0	255.255.255.0
W Versions	WAN IP Address 192.168.85.10	5 192.168.85.105
thernet Interfaces	WAN Network Mask 255.255.252.0	255.255.252.0
	Default Gateway 192.168.85.1	192.168.85.1
	DN8 Mode Static	Static v
	DNS Server 192.168.100.1	192.168.100.1
	IP Configuration from Discovery ON	ON V
	WEB SERVER	
	Protocol (x) HTTP/HTTPS	HTTP/HTTPS V
	HTTP Conf Port (*) 8080	8080
	HTTP User Port (x) 80	80
	HTTPS Port (x) 443	443
	FILE TRANSFER	
	Protocol FTP/SFTP	FTP/SFTP V
	FTP Port 21	
		21
	8FTP Port 22	22
	NETWORK REDUNDANCY	
	Enable OFF	OFF V
	Ping Address 8.8.4.4	8.8.4.4
		0.0.4.4
	WATCHDOG	
	Enable (*) ON	ON V
	Timeout (s) 60	60
	DEBUG LOGS	
	Enable OFF NOTE: changing fields marked with ^x will cause a system restart.	OFF V
	System restart.	APPLY
		AFFLI

The previous figure shows the "Network and Services" page for a Z-PASS2-R01, when the "Ethernet Mode" parameter is set to "LAN/WAN"; it also applies to a Z-PASS1-R01 in "LAN/WAN" mode.

🗋 Z-PASS2	×	🤃 Ciovanni	- 0	×
$\boldsymbol{\leftarrow}$ \rightarrow \mathbf{C} (i) 192	.168.85.105:8080/setup.php		ର ☆ 🛛	
	2:168.85.105:8080/setup.php Z-PASS2 Network and Services [user: admin] [logoul] Firmware Version: SW003900_224 [Modem: 1231B02SIM5350E] MAC Address: C8FA81160002 [IMEI: 862264020406715] [IMSI: 222101600237689 Internet Access: Ethernet Modbus Ethernet to Serial Gateway: running Router: disabled UPDATED NETWORK Bwitch UPDATED NETWORK Bouter: disabled UPDATED NETWORK Bouter: disabled UPDATED NETWORK BWIth Version: Switch V NETWORK Bouter: disabled IPAdress 2 Faabe ON ON ON ON T IPAdress 2 Faabe ON DNE Mode Batelic Date of () DNS Mode Batelic Dise SERVER Protocol () HTTP Conf Port () METWORK REDUNDANCY IPT Port 21			

The previous figure shows the "Network and Services" page for a Z-PASS2-R01, when the "Ethernet Mode" parameter is set to "Switch"; it also applies to a Z-PASS1-R01 in "Switch" mode.

│ 🗋 Z-PASS2	×	😲 Ciovanni	– 🗆 X
$\boldsymbol{\epsilon}$ \rightarrow \mathbf{C} (i) 192	2.168.85.105:8080/setup.php		ର୍ 🕁 📕
	2.168.85.105:8080/setup.php Z-PASS2 Network and Services [user: admin] [logout] Firmware Version: SW003900_224 [Modem: 1231B02SIM5350 MAC Address: C8F9810201D7 [IMEI: 862264020120878] Internet Access: Ethernet Modbus Ethernet to Serial Gateway: running Router: disabled CURRENT C	UPDATED OFF ▼ 192.168.85.105 255.255.252.0 OFF ▼ 192.168.85.1 Static ▼ 192.168.84.113 ON ▼ HTTP/HTTPS ▼ 8080 80 60 OFF ▼ APPLY	

The previous figure shows the "Network and Services" page for a Z-PASS2 (old version); it also applies to a Z-PASS1 (old version).

There is an important difference between the parameter values shown in this page and those shown in the "Summary" page: the former are <u>configured</u> values, whereas the latter are <u>actual</u> values.

To better explain this difference, let's consider the case when the DHCP parameter is set to ON; in the "Network and Services" page, you may see the 192.168.90.101 default value for the "IP Address" parameter, whereas the "Summary" page shows the actual IP Address, assigned by the DHCP server.

In the following table, all configuration parameters available in this page are listed, with a short explanation and the parameter default value for each of them.

Field	Meaning	Default value
NETWORK/Ethernet Mode	This parameter determines if the two Ethernet ports work as two fully separated network interfaces ("LAN/WAN") or as the ports of an Ethernet switch ("Switch"); depending on the value of this parameter, some other network parameters are hidden/shown or renamed as described below.	LAN/WAN
Ethernet Mode = "Switch"		
NETWORK/DHCP	Flag to enable/disable the DHCP functionality on the Ethernet interface.	OFF
NETWORK/IP Address	IP address of the Ethernet interface (disabled when "DHCP" is set to "ON")	192.168.90.101
NETWORK/Network Mask	Network mask of the Ethernet interface (disabled when "DHCP" is set to "ON")	255.255.255.0
NETWORK/IP Address 2 Enable	Flag to enable/disable the second IP address on the Ethernet interface. Note that the second IP address can be enabled also when the DHCP functionality is active.	OFF
NETWORK/IP Address 2	Second IP address of the Ethernet interface	192.168.100.101
NETWORK/Network Mask 2	Second network mask of the Ethernet interface	255.255.255.0
Ethernet Mode = "LAN/WAN"		
NETWORK/DHCP on WAN	Flag to enable/disable the DHCP functionality on the WAN Ethernet interface	ON
NETWORK/LAN IP Address	IP address of the LAN Ethernet interface	192.168.90.101
NETWORK/LAN Network Mask	Network mask of the LAN Ethernet interface	255.255.255.0
NETWORK/WAN IP Address	IP address of the WAN Ethernet interface (disabled when "DHCP on WAN" is set to "ON")	192.168.100.101
NETWORK/WAN Network Mask	Network mask of the WAN Ethernet	255.255.255.0
MI00380-35	64	

	interface (disabled when "DHCP on	
	WAN" is set to "ON")	
NETWORK/Default Gateway	Default Gateway IP address (disabled when DHCP functionality is enabled). When "Ethernet Mode" is set to "LAN/WAN", the Default Gateway shall be in the WAN subnet.	192.168.100.1 , for Z-PASS1-R0x and Z-PASS2-R0x (x=1,2) 192.168.90.1, for all other products
NETWORK/DNS Mode	Tells if the DNS Server shall be set statically (value: "Static") or dinamically assigned by the DHCP Server (value: "DHCP")	DHCP, for Z-PASS1-R0x and Z- PASS2-R0x (x=1,2) Static, for Z-PASS1 and Z-PASS2
NETWORK/DNS Server	DNS server IP address (disabled when DHCP functionality is enabled and DNS Mode = DHCP)	192.168.100.1 , for Z-PASS1-R0x and Z-PASS2-R0x (x=1,2) 192.168.90.1, for all other products
NETWORK/IP Configuration from Discovery	Flag to enable/disable the possibility of changing some of the network configuration parameters by means of the SDD application (see chapter 5)	ON
WEB SERVER/Protocol	Protocol used to access the web pages: HTTP/HTTPS, HTTPS, HTTP	HTTP/HTTPS
WEB SERVER/HTTP Conf Port	TCP port to access the configuration pages, using HTTP protocol. Please note that <u>if this parameter is set</u> <u>to 80 (standard HTTP port), the web</u> <u>user site won't be available anymore.</u>	8080
WEB SERVER/HTTP User Port	TCP port to access the user pages, using HTTP protocol.	80
WEB SERVER/HTTPS Port	TCP port to access the configuration and user pages, using HTTPS protocol.	44
FILE TRANSFER/Protocol	Protocol used for File Transfer: FTP/SFTP, SFTP, FTP	FTP/SFTP
FTP Port	TCP Port for FTP protocol	21
SFTP Port	TCP Port for SFTP protocol	22
NETWORK REDUNDANCY/Enable	Flag to enable/disable the "Network Redundancy" functionality, that is using the Ethernet interface as the primary interface to access the Internet and the Mobile interface as the secondary interface, if the access through the primary interface becomes unavailable	OFF
NETWORK REDUNDANCY/Ping Address	IP Address used as ping destination to check if access to the Internet through	8.8.4.4

	the primary interface (Ethernet) is available. This address shall be different from the one set for "DNS Server" parameter, otherwise an error is shown (see figure below).	
WATCHDOG/Enable	Flag to enable/disable the watchdog functionality	ON
WATCHDOG/Timeout (s)	Watchdog timeout, in seconds; when watchdog is enabled, if it's not refreshed for this amount of seconds, the system will be rebooted. Possible values are in the range [303600].	60
DEBUG LOGS/Enable	Flag to enable/disable the debug logs	OFF
COM1/Mode	Operating mode of the COM1 serial port Possible values: RS485 RS232	RS485

One note about the "DHCP" parameters:

• the "DHCP" parameter can be set to "ON" only if the "DHCP Server" parameter of the "Router Configuration" page is set to "OFF" (see paragraph 21.1.8).

In the "Network and Services" page, you can change any of the above parameters; to apply the changes, press the "APPLY" button; as warned by the note on the page, only for some parameters, the parameter change requires rebooting the Z-PASS; these parameters are:

- NETWORK/Ethernet Mode
- WEB SERVER/Port
- WATCHDOG/Enable, only when changing ON -> OFF
- DEBUG LOGS/Enable, only when changing ON -> OFF

🕒 Z-PASS2	× Elevend - X
$\leftarrow \rightarrow \mathbf{C}$ (i) 192.16	8.85.104:8080/changesetup.php?do=1 ☆ 🗵 :
SENECA General Configuration	Z-PASS2 Network and Services [user: admin] [logout]
Main View	Firmware Version: SW003900_224 [Modem: UC20GQBR03A14E1G]
Network and Services Serial Ports	MAC Address: C8F9811B0000 [IMEI: 861075026500975] [IMSI: 222101600237890]
Gateway Configuration	Internet Access: Mobile
Real Time Clock Setup	Modbus Shared Memory Gateway: running
VPN Configuration Router Configuration	Router: running
Users Configuration	
FW Upgrade	
Conf. Management Shared Memory Tag Conf.	DNS Server and Ping Address shall be different ! Configuration not changed.
Tag Setup	
Tag View	
Mobile Configuration	
Mobile Network	
DDNS Configuration	
Digital I/O	
Digital I/O Configuration	
Diagnostics	
FW Versions	
Ethernet Interfaces	

21.1.3 Serial Ports

By clicking on the "Serial Ports" link, in the "Basic Configuration" section, you come to the following page:

General Configuration Serial Ports [user: admin] [logout] Main View Firmware Version: SW003900_224 [Modem: UC20GQBR03A14E1G] Network and Services McC Address: C8F9811B0000 [IMEI: 861075026500975] [IMSI: 222101600237890] Serial Ports Internet Access: Mobile Modbus Shared Memory Gateway: running Modbus Shared Memory Gateway: running Router Configuration Router: running FW Uograde COM1 (R8232/R8489) Configuration Baud Rate FW Uograde COM1 (R8232/R8489) Configuration Baud Rate Mobile Network Parity Dignostics Service FW Versions Sevice Ethemet Interfaces Stop Bits Versions Parity Ethemet Interfaces Stop Bits More None More None COM4 (R8489) Sev Stop Bits 1 Stop Bits 1 More None Dignostics Sevice Stop Bits 1 1 Dignostics Baud Rate Sevice Stop Bits	☆ →						
Network and Services Serial Ports Gateway Configuration Real Time Clock Setup VPN Configuration Router : running Router : running Router : running Router : running CURRENT UPDATED VUPDateD Configuration Users Configuration Users Configuration Mobile Configuration Mobile Configuration Mobile Configuration Digital VO Digital VO Configuration Digital VO Digital VO Configuration Diagnostics FW Versions Ethemet Interfaces							
Bateway Configuration Internet Access: Mobile Real Time Clock Setup Modbus Shared Memory Gateway: running Router: running Router: running Buder Configuration CURRENT UPDATED TW Upgrade COM1 (RS23/RS485) UPDATED Conf. Management Shared Memory Tag Conf. Baud Rate 115200 • Shared Memory Tag Conf. Baud Rate 115200 • 115200 • Tag Setup Configuration None • None • Mobile Configuration None • None • None • Mobile Network COM2 (RS485) 1 • • Digital I/O Configuration Data Bits 8 • 8 • Digital I/O Configuration Baud Rate 18400 38400 • • Digital I/O Configuration Data Bits 8 • 8 • •							
PP N Configuration Router: running Router Configuration CURRENT UPDATED Update COM1 (R8232/R8489) UPDATED Conf. Management Baud Rate 116200 115200 Shared Memory Tag Conf. Baud Rate 116200 115200 Image: Configuration Mobile Configuration Mobile Configuration None None None None Mobile Configuration Stop Bits 1 1 Image: Configuration Image: Configuration None Image: Configuration None Image: Configuration Image: Configuration	Internet Access: Mobile						
Router Configuration CURRENT UPDATED WU Upgrade COM1 (R8232/R8480) Conf. Management Baud Rate 116200 115200 Shared Memory Tag Conf. Baud Rate 116200 115200 Gag Setup Data Bits 8 8 Gag View Parity None None Mobile Configuration Mobile Network 1 1 DDNS Configuration COM2 (R8485) 1 1 Digital I/O Baud Rate 38400 38400 Digital I/O Configuration Data Bits 8 8 Digital I/O Configuration Data Bits <td< td=""><td></td></td<>							
Upgrade CURRENT UPDATED WUpgrade COM1 (R8232/R8485) Conf. Management 115200 • Shared Memory Tag Conf. Baud Rate 115200 • Tag Setup Data Bits 8 8 • Tag View Parity None None • Mobile Configuration Stop Bits 1 1 • Mobile Network COM2 (R8485) 1 1 • DDNS Configuration COM2 (R8485) 38400 • Digital I/O Baud Rate 38400 38400 • Digital I/O Configuration Data Bits 8 8 • W Versions Stop Bits 1 1 • CoM4 (R8485) Stop Bits 1 1 • Ethernet Interfaces Stop Bits 38400 38400 • Generation Stop Bits 1 1 • Image: Stop Bits Stop Bits 1 1 •							
W Upgrade COM1 (R8232/R848) Conf. Management 115200 • Shared Memory Tag Conf. Baud Rate Tag Setup Data Bits Fag View Parity Mobile Configuration None Mobile Network 1 DDNS Configuration COM2 (R8485) Digital I/O Baud Rate Digital I/O Baud Rate SW Versions 8400 Ethernet Interfaces Stop Bits COM1 (R8485) 1 Common Mobile 1 Configuration 8400 Digital I/O Baud Rate Stop Bits 1 Versions 1 Ethernet Interfaces Stop Bits Stop Bits 1 Baud Rate 8400 Stop Bits 1 I 1 Mone None • Stop Bits 8							
Conf. Management COMP (Re220R3400) Shared Memory Tag Conf. Baud Rate 115200 • Tag Setup Data Bits 8 • Tag Setup Data Bits 8 • • Tag Setup Mone None • None • • Tag Setup Mohile Configuration None • None • • Mohile Configuration COM2 (RS485) 1 1 • Digital I/O Baud Rate 38400 38400 • • • Digital I/O Configuration Data Bits 8 •							
Shared Memory Tag Conf. Baud Rate 116200 115200 Tag Setup Data Bits 8 8 Tag View Parity None None Mobile Configuration Stop Bits 1 1 Mobile Network 1 1 1 DDIS Configuration COM2 (RS485) 1 1 Digital I/O Baud Rate 38400 38400 • Digital I/O Configuration Data Bits 8 8 • Digital I/O Configuration Data Bits 8 8 • Wersions Parity None None ▼ • Ethernet Interfaces Stop Bits 1 1 • Gound Action Stop Bits 1 1 • Baud Rate Stop Bits 1 1 • COM4 (RS485) Stop Bits 8 8 • Image: Stop Bits Stop Bits 1 1 •							
Fag View None None ▼ Mobile Configuration Stop Bits 1 1 Mobile Network COM2 (RS485) 1 1 DDNS Configuration COM2 (RS485) 38400 38400 ▼ Digital I/O Configuration Baud Rate 38400 38400 ▼ Digital I/O Configuration Data Bits 8 8 PW Versions Parity None None ▼ Ethernet Interfaces Stop Bits 1 1 COM4 (R8485) 1 1 1 Baud Rate S8400 38400 ▼ 38400 ▼ Baud Rate S8400 38400 ▼ 38400 ▼ COM4 (R8485) Stop Bits 1 1							
Mobile Configuration Stop Bits 1 Mobile Network COM2 (R8485) DDigital I/O Baud Rate Digital I/O Baud Rate Digital I/O Configuration Data Bits Diagnostics 8 W Versions None Ethernet Interfaces Stop Bits COM4 (R8485) 1 Baud Rate 38400 Stop Bits 1 Image: Communication Image: Communication Diagnostics Stop Bits Image: Communication Image: Communication Image: Communication Image: Communicat							
Adobile Network Stop Bits 1 1 DDNS Configuration COM2 (R8485) 38400 38400 ▼ Digital I/O Baud Rate 38400 38400 ▼ Digital I/O Configuration Data Bits 8 8 ▼ CW Versions Parity None None ▼ Ethernet Interfaces Stop Bits 1 1 ▼ Baud Rate 38400 38400 ▼ 38400 ▼ Baud Rate 38400 38400 ▼ 38400 ▼ Parity None None ▼ 1 Parity None None ▼ 1 Stop Bits 1 1 1							
DDNS Configuration COM2 (R8485) Digital I/O Configuration 38400 38400 • Diagnostics 8 FW Versions None None • Ethernet Interfaces Stop Bits Image: COM4 (R8485) 1 COM4 (R8485) 38400 • Image: Com4 (R8485) Stop Bits Image: Com4 (R8485) Stop Bits Image: Com4 (R8485) Stop Bits							
Digital I/O Baud Rate 38400 ▼ Digital I/O Configuration Data Bits 8 8 Diagnostics Parity None None ▼ Ethernet Interfaces Stop Bits 1 1 ▼ COM4 (R8485) S400 ▼ S400 ▼ S400 ▼ Baud Rate 38400 38400 ▼ S400 ▼ COM4 (R8485) S S400 ▼ S400 ▼ Data Bits S S S400 ▼ Baud Rate S400 S400 ▼ S400 ▼ Data Bits S S S Image: Stop Bits Stop Bits S S							
Digital I/O Configuration Data Bits 8 8 Diagnostics Parity None None ▼ FW Versions Parity None None ▼ Ethernet Interfaces Stop Bits 1 1 ▼ COM4 (RS486) S8400 ▼ S8400 ▼ S8400 ▼ Data Bits 8 8 ▼ S8400 ▼ S8400 ▼ Parity None None ▼ None ▼ Stop Bits 1 ▼							
Diagnostics Parity None None ▼ FW Versions Parity None ▼ 1 ▼ Ethernet Interfaces Stop Bits 1 ▼ COM4 (RS48s) Stop Bits 38400 ▼ Baud Rate 38400 38400 ▼ Data Bits 8 ▼ Parity None None ▼ Stop Bits 1 ▼							
Ethermet Interfaces Stop Bits 1 1 • 1 • 1 • 1 • 1 • 1 • 1 • 1 • 1 •							
COM4 (RS48s) Baud Rate 38400 38400 Data Bits 8 8 Parity None None ▼ Stop Bits 1 1							
Baud Rate3840038400 ▼Data Bits88 ▼ParityNoneNone ▼Stop Bits11 ▼							
Data Bits 8 8 ▼ Parity None None ▼ Stop Bits 1 1 ▼							
Parity None None ▼ Stop Bits 1 1							
Stop Bits 1							
Stop Bits 1							

This page is made up of three sections, corresponding to the three serial ports available in Z-PASS devices:

• COM1 RS232 or RS485¹⁴

¹⁴ Depending on the position of the SW2 DIP switch. MI00380-35

- COM2 RS485
- COM4 RS485

For each serial port, the following configuration parameters are available:

Field	Meaning	Default value			
Baud Rate	Baud rate (in bps); possible values are:	38400			
	200				
	300				
	600				
	1200				
	2400				
	4800				
	9600				
	19200				
	38400				
	57600				
	115200				
Data Bits	Data bits; possible values are: 5/6/7/8 8				
Parity	Parity; possible values are:	None			
	None/Even/Odd				
Stop Bits	Stop bits; possible values are: 1/2	1			

In the "Serial Ports" page, you can change any of the above parameters; to apply the changes, press the "APPLY" button.

Note that when you change the serial ports configuration, the Gateway services are automatically restarted, to actually apply the changes.

21.1.4 Digital I/O Configuration

By clicking on the "Digital I/O Configuration" link, in the "Basic Configuration" section, you come to the page described in the following sub-paragraphs; the page differs between Z-PASS1 and Z-PASS2:

21.1.4.1 Z-PASS2

Z-PASS2	×						(!) Ciovanni	-		×
	8.85.104:8080/digic	_conf.php						\$	1	:
S SENECA General Configuration Main View Network and Services Serial Ports Gateway Configuration Real Time Clock Setup VPN Configuration		on: SW00390 C8F9811B000 : Mobile Memory Gal	0_224 [Mod 00 [IMEI: 86	em: UC20GQBR 1075026500975]	03A14E1G] [IMSI: 2221016002	37890]				
Router Configuration Users Configuration				CURRENT	UPDATED)				
FW Upgrade Conf. Management		Digital I/O	Configuration		OPDATEL					
Shared Memory Tag Conf. Tag Setup			Input 1 Mode	Remote connection disable	Remote connection	n disable ▼				
Tag View Mobile Configuration		C	utput 1 Mode)	Remote connection active	Remote connection	active 🔻				
Mobile Network			Input 2 Mode	General input	General input v					
DDNS Configuration Digital I/O		Output 2 Mode General output General output								
Digital I/O Configuration		Input/Output 1 Mode General input General input								
Diagnostics		Input/Output 2 Mode General output General output V								
FW Versions			Security Level							
Ethernet Interfaces					VPN Connection	¥				
	APPLY	30	ervice Disable	VPN Connection	VPN Connection	•				
	_									
			Digital I/O	Status						
	DI 1	DO 1	DI 2	DO 2	DIDO 1	DIDO 2				
	LOW	LOW	LOW	LOW	LOW	LOW				
L										

In this page, you can configure the operating modes of the Digital I/Os and the security level applied by the "Remote Connection Disable" feature (see chapter 15).

Field	Meaning	Default value
Input 1 Mode	This parameter represents the operating	Remote connection disable
	mode of the Digital Input 1 (DI 1).	
	Since this is the digital input used for	
	"Remote Connection Disable" feature,	
	its value ("Remote connection disable")	

	cannot be changed.	
Output 1 Mode	This parameter represents the operating mode of the Digital Output 1 (DO 1).	Remote connection active
	Since this is the digital output used to	
	monitor remote connection, its value	
	("Remote connection active") cannot be	
	changed.	
Input 2 Mode	This parameter represents the operating mode of the Digital Input	General input
	2 (DI 2).	
	Possible modes are: "General input"	
	"Local alarm".	
Output 2 Mode	This parameter represents the operating	General output
	mode of the Digital Output 2 (DO 2).	
	Possible modes are: "General output"	
	"Remote toggle" ¹⁵ .	
Input/Output 1 Mode	This parameter represents the operating	General input
	mode of the Digital Input/Output 1 (first	
	configurable digital I/O) (DIDO 1).	
	Possible modes are: "General input"	
	"General output".	
Input/Output 2 Mode	This parameter represents the operating	General output
	mode of the Digital Input/Output 2	
	(second configurable digital I/O) (DIDO	
	2).	
	Possible modes are: "General input"	
	"General output".	
Service Disable	This parameter determines which access	VPN Connection
	services are disabled when "Remote	
	Connection Disable" digital input is	
	HIGH.	
	Possible values are: "VPN Connection"	
	"VPN Service" "Internet Connection"	
	"SMS Service".	
	See chapter 15, for a detailed	
	description of these values.	

The "Digital I/O Status" section of the page gives the current status values ("LOW"/"HIGH") for each of the six available digital I/Os.

From this page, you can also change the status of the digital outputs working as "General Output"; the procedure is the following:

¹⁵ "Remote toggle" function is still to be defined. MI00380-35

- when you move the mouse over one of the rectangles containing the digital I/O label (in the following figure, "DO 2"), the rectangle becomes red:

Z-PASS2	×						🤃 Giovanni –	- 🗆	×
	8.85.104:8080/digio	_conf.php						☆ 🛛	:
S SENECA General Configuration Main View Network and Services Serial Ports Gateway Configuration Real Time Clock Setup VPN Configuration Router Configuration	Z-PASS2 Digital I/O Confi Firmware Versio MAC Address: (Internet Access Modbus Shared Router: running	on: SW00390 C8F9811B000 : Mobile Memory Gat	0_224 [Modem: 00 [IMEI: 86107	: UC20GQBF 5026500975]	[IMSI: 222101600;	-			
Users Configuration FW Upgrade				CURRENT	UPDATE	D			
Conf. Management Shared Memory Tag Conf. Tag Setup			Input 1 Mode cor	mote nnection able	Remote connectio	n disable 🔻			
Tag View Mobile Configuration		0		mote nnection active	Remote connectio	n active 🔻			
Mobile Network			Input 2 Mode Ge		General input V				
DDNS Configuration		0	utput 2 Mode Ge	neral output	General output V				
Digital I/O			utput 1 Mode Ger		General input v				
Digital I/O Configuration			utput 2 Mode Ge		General output V				
Diagnostics FW Versions				noral output	oundrar output				
Ethernet Interfaces		8	Security Level						
		Se	rvice Disable VP	N Connection	VPN Connection	•			
	APPLY								
			Digital I/O Star						
			Digital VO Stat	103					
	DI 1	DO 1	DI 2	DO 2	DIDO 1	DIDO 2			
	LOW	LOW	LOW	LOW	LOW	LOW			

- when you click on the rectangle (only when I/O mode is "General Output"), a confirm pop-up is shown:

192.168.85.104:8080 dice:		×
Toggle 'DO 2' ?		
	ОК	Annulla

 if you click on "Cancel" button, no action is performed; if you click on "OK" button, the digital output status is toggled and a new pop-up is shown:



Please note that the above procedure applies also to Z-PASS1.

The status of the digital input configured as "Local Alarm" is reported in the "ALARM" column in the "Devices" tab of the "Seneca VPN Box Manager" and "Seneca VPN Client Communicator" applications.

	Jtente Connesso SUPERVI spositivi SENECA Accessi							SEN
s Dis	Spositivi SENECA Accessi	VPN						
lisposi	itivo/î, 2 nuovi, 0 in aggioma	mento, 5 configurati, 0 in alla	ime					€⊇ Aggioma
	TAG	MAC	IMEI	STATUS		SIGNAL	UPTIME	
۲	zpass1_C8F981160066	C8:F9:81:16:00:66	MODEM NON INSTALLA	SERVICE OFF - VPN DC		-	-	Reset
•	ELTECO	C8:F9:81:1B:00:06	861075026509463	SERVICE OFF - VPN DC		-	-	Reset
•	GREEN_METHANE2	C8:F9:81:02:01:D6	862264020120993	SERVICE ON - VPN UP		6/7	Last 06/10/2017 11.43.5	Reset
•	Demo	C8:F9:81:16:00:9E	862264020393319	SERVICE OFF - VPN DC		-	-	Reset
۲	zpass2s_C8F981160017	C8:F9:81:16:00:17	862264020382288	SERVICE OFF - VPN DC		-	-	Reset
•	ZEUS001	C8:F9:81:15:00:94	MODEM NON INSTALLA	SERVICE OFF - VPN DC		-	-	Reset
۲	TOPCO	C8:F9:81:11:00:6D	862264020400825	SERVICE OFF - VPN DC		-	-	Reset
Configu	urazione CONFIGURED, u	ltimo refresh 27/09/2017 14	1.17.08	- DI1 N	A	OFF	DIDO1 CONNECTION DISAE	🌣 Configura
- 7	nessione Network 192,168	.96.0/255.255.255.0 (VPN	10.9.1.133)	ON DO1	VPN STATUS	OFF	DIDO2 INPUT	
								Elimina

21.1.4.2 Z-PASS1

	×					(!) Giovanni	-		×
Z-PASS1								•	
← → C ① 192.16	8.85.177:8080/dig	io_conf.php						☆ 🗵	:
General Configuration	-	Z-PASS1 Digital I/O Configuration [user: admin] [logout] Firmware Version: SW003900_224							
Network and Services	MAC Address:								
Serial Ports	Internet Acces		0						
Gateway Configuration				ing					
Real Time Clock Setup VPN Configuration	Modbus Ether		ateway: runr	ling					
Router Configuration	Router: disable	ed							
Users Configuration				CURRENT	UPDATED				
FW Upgrade		Digital I/O (Configuration						
Conf. Management				Remote					
Digital I/O Digital I/O Configuration		0		connection active	Remote connection active V				
Diagnostics		0		General output	General output *				
FW Versions		Input/O	utput 1 Mode		Remote connection disable *				
Ethernet Interfaces		1 10		disable	Concerned automate m				
				General output	General output ▼				
			ecurity Level						
		Se	rvice Disable	VPN Connection	VPN Connection				
	APPLY								
			Digital I/O S	Itatus					
	DO 1	DO 2	DIDO 1	DIDO 2					
	LOW	LOW	LOW	LOW	_				

In this page, you can configure the operating modes of the Digital I/Os and the security level applied by the "Remote Connection Disable" feature (see chapter 15).

Field	Meaning	Default value
Output 1 Mode	This parameter represents the operating	Remote connection active
	mode of the Digital Output 1 (DO 1).	
	Since this is the digital output used to	
	monitor remote connection, its value	

MI00380-35

	("Remote connection active") cannot be	
	changed.	
Output 2 Mode	This parameter represents the operating	General output
	mode of the Digital Output 2 (DO 2).	
	Possible modes are: "General output"	
	"Remote toggle" ¹⁶ .	
Input/Output 1 Mode	This parameter represents the operating	Remote connection disable
	mode of the Digital Input/Output 1 (first	
	configurable digital I/O) (DIDO 1).	
	Since this is used as an input for	
	"Remote Connection Disable" feature,	
	its value ("Remote connection disable")	
	cannot be changed.	
Input/Output 2 Mode	This parameter represents the operating	General output
	mode of the Digital Input/Output 2	
	(second configurable digital I/O) (DIDO	
	2).	
	Possible modes are: "General input"	
	"General output" "Local alarm".	
Service Disable	This parameter determines which access	VPN Connection
	services are disabled when "Remote	
	Connection Disable" digital input is	
	HIGH.	
	Possible values are: "VPN Connection"	
	"VPN Service" "Internet Connection"	
	"SMS Service".	
	See chapter 15, for a detailed	
	description of these values.	

The "Digital I/O Status" section of the page gives the current status values ("LOW"/"HIGH") for each of the four available digital I/Os.

21.1.5 Real Time Clock Setup

By clicking on the "Real Time Clock Setup" link, in the "Basic Configuration" section, you come to the following page:

¹⁶ "Remote toggle" function is still to be defined. MI00380-35

Z-PASS2	×			(1) Ciovan	ni —		×
-						~ =	
C - C U 192.16						ж <u>М</u>	:
Seneral Configuration Main View Network and Services Serial Ports Gateway Configuration <i>Real Time Clock Setup</i> VPN Configuration Router Configuration Users Configuration FW Upgrade Conf. Management Shared Memory Tag Conf.	3.85.104:8080/rtc.php Z-PASS2 Real Time Clock Setup [user: add Firmware Version: SW003900_22 MAC Address: C8F9811B0000 [II Internet Access: Mobile Modbus Shared Memory Gatewa Router: running NTP Enable	24 [Modem: UC MEI: 861075026 y: running CURRENT	500975] [IMS	-			
Tag Setup	Primary Server	-	ntp1.inrim.it				
Tag View Mobile Configuration	Secondary Server		ntp2.inrim.it				
Mobile Network	Time Zone	Central Europe (CET/CEST)	Central Europ	e (CET/CEST) V			
DDNS Configuration Digital I/O Digital I/O Configuration Diagnostics FW Versions Ethernet Interfaces		RTC YEAR 2 MONTH D DAY 1 HOUR 1 MINUTE 0 SECOND 5	lecember 9 2 2	APPLY 2017 December ▼ 19 12 02 58 SET CLOCK			

This page is made up of two sections: "NTP" and "RTC".

In the "NTP" section, you can change the parameters related to the Network Time Protocol and to the Time Zone, as listed in the following table:

Field	Meaning	Default value

MI00380-35

NTP/Enable	Flag to enable/disable time	ON
	synchronization by means of NTP	
	protocol	
NTP/Primary Server	IP address or FQDN ¹⁷ of the Primary NTP	ntp1.inrim.it
	Server	
NTP/Secondary Server	IP address or FQDN of the Secondary	ntp2.inrim.it
	NTP Server	
NTP/Time Zone	Time Zone	Central Europe (CET/CEST)

When the "Time Zone" parameter is set to "Central Europe (CET/CEST)" value, the Device automatically enables (CEST) / disables (CET) the "Daylight Saving Time" setting.

A large number of Time Zones are available, as partially shown in the following figure:

¹⁷ FQDN: Fully Qualified Domain Name, e.g.: "pool.ntp.org". MI00380-35

Z-PASS2	×			(!) Giovanni	-		×
	3.85.104:8080/rtc.php					☆ 🔎	:
S SENECA General Configuration Main View Network and Services Serial Ports Gateway Configuration Real Time Clock Setup VPN Configuration Router Configuration Users Configuration FW Upgrade	Z-PASS2 Real Time Clock Setup [user: add Firmware Version: SW003900_22 MAC Address: C8F9811B0000 [IM Internet Access: Mobile Modbus Shared Memory Gatewa Router: running	24 [Modem: UC: MEI: 861075026	-	7890]			
FW Upgrade Conf. Management Shared Memory Tag Conf. Tag Setup Tag View Mobile Configuration Mobile Network DDNS Configuration Digital I/O Digital I/O Digital I/O Digital I/O Eigenostics FW Versions Ethernet Interfaces	NTP Enable Primary Server Secondary Server Time Zone	ntp1.inrim.it ntp2.inrim.it Central Europe (CET/CEST)	UTC-06:00 Central Zone UTC-06:00 Mexico City UTC-05:00 Bogota	CK			

The "RTC" section of the page lets you manually change the Z-PASS date/time settings; since this makes sense only if NTP time synchronization is not enabled, when "NTP/Enable" parameter is "ON" the input fields and the "SET CLOCK" button are disabled and the parameters are only for viewing.

Instead, when "NTP/Enable" parameter is "OFF", the input fields in the "NTP" section are still enabled; this lets you change and save the parameter values, even if they are not actually used.

MI00380-35

21.1.6 Gateway Configuration

By clicking on the "Gateway Configuration" link, in the "Basic Configuration" section, you come to the following page:

Network and Services	MAC Address: C8F9811B0001			
Serial Ports				
Digital I/O Configuration	Internet Access: Ethernet			
Real Time Clock Setup	Gateway: running [Data Logger: running]			
Gateway Configuration	Router: disabled			
VPN Configuration				
Router Configuration	CURRENT UPDATED			
Users Configuration	COM1 (RS232/RS485) Gateway Mode Modbus Shared Modbus Shared Memory V			
Mobile Configuration	Memory			
Mobile Network	COM2 (RS485) Gateway Mode Modbus Shared Memory Modbus Shared Memory			
DDNS Configuration	COM4 (RS485) Gateway Mode Modbus Ethernet Modbus Ethernet to Serial			
Shared Memory Tag Conf.	to Serial			
TCP Servers				

The first thing you have to do in this page is to select, for each serial port, the type of gateway bound to the port, by means of the corresponding "Gateway Mode" parameter; the possible modes are "Modbus Ethernet to Serial", "Transparent" and "Modbus Shared Memory".

The page is substantially made up of three sections, corresponding to the three serial ports available in Z-PASS devices.

The configuration parameters available in each of these sections depend on the selected mode, as described in the following sub-paragraphs.

21.1.6.1 Modbus Ethernet to Serial Gateway

For each serial port with "Gateway Mode" = "Modbus Ethernet to Serial", the following configuration parameters are available:

Field	Meaning	Default value
Enable	Flag to enable/disable the Modbus	ON
	Ethernet to Serial Gateway functionality	
	on the port	
Port	TCP port to access the Modbus Ethernet	COM1: 501
	to Serial Gateway	COM2: 502
	If three distinct values are set, three	COM4: 503
	Modbus Ethernet to Serial Gateway	
	instances are run, each handling a single	
	serial port.	

	If the same port value is set for more	
	than one serial port, the same Modbus	
	Ethernet to Serial Gateway instance will	
	handle two or three serial ports, that is	
	the Modbus RTU requests will be	
	simultaneously sent to the serial ports.	
Response Wait Time	Timeout on the reception of the Modbus	1000
	RTU responses	
	The value is in milliseconds; possible	
	values are in the range [10 - 10000].	

The following screen-shots give some examples of Modbus Ethernet to Serial Gateway configurations.

	Z-PASS2	×			(!) Ciavanni	- □ >
Current Configuration Current Configuration Main View Current Configuration Main View Current Configuration Main View Current Configuration Real The Clock Configuration Current Configuration Real The Clock Configuration Current Configuration Real The Clock Configuration Configuration Real The Clock Configuration Configuration Route Configuration Stave ID for Embedded ID 254 254 Route Configuration Stave ID for Embedded ID 254 254 Route Configuration Stave ID for Embedded ID 254 252 Response Walt Time (ms) [16-100	\leftrightarrow \rightarrow C \bigcirc 192	.168.85.104:8080/gateway_conf.php				ର ☆ 🗡
Jeers Configuration W Uggade OoM Management OoM Configuration Oom	Vain View Network and Services Serial Ports Gateway Configuration Real Time Clock Setup	Gateway Configuration [user: admin] [log Firmware Version: SW003900_228 [Mode MAC Address: C8F9811B0000 [IMEI: 8610 Internet Access: Mobile Gateway: running	m: UC20GQBR0	-		
VL Upgrade COM1 Gateway Mode Modbus Ethernet to Serial ▼ Cont. Management COM2 Gateway Mode Modbus Ethernet to Serial ▼ Mobile Network COM2 Gateway Mode Modbus Ethernet to Serial ▼ DDNS Configuration COM4 Gateway Mode Modbus Ethernet to Serial ▼ Digital I/O Configuration Modbus Ethernet to Serial ▼ Modbus Ethernet to Serial ▼ Sils Configuration Modbus Ethernet to Serial ▼ Modbus Ethernet to Serial ▼ Sils Configuration Modbus Shared Memory Ethernet to Serial ▼ Sils Configuration Modbus Shared Memory Ethernet to Serial ▼ Phonebook Modbus Shared Memory Ethernet to Serial ▼ Ethernet Interfaces If Modbus Shared Memory functionality is needed If Secoption ▼ Ethernet Interfaces If Modbus Shared Memory functionality is needed If Secoption ▼ If Response Mode when Resource in Tail Exception ▼ Exception ▼ If Response Wait Time (ms) [10-10000 It Secoption ▼ It Secoptio			OUDDENT	100 1750		
Conf. Management Mobile Configuration Mobile Network DDNS Configuration Digital VO Configuration Digital VO Configuration Digital VO Configuration SMS Configuration SMS Configuration Phonebook Modbus Stherent to Serial Save ID for Embedded VO Save ID for Embedded VD Save ID for Embe				UPDATED		
Mobile Network COMM Gateway Mode Modbus Ethernet Modbus Ethernet DDNS Configuration Modbus Ethernet to Serial Modbus Ethernet Modbus Ethernet Digital VO Configuration Slave ID for Embedded V0 254 254 Dispositice Modbus Shared Memory Enable OFF • FW Versions Modbus Shared Memory Enable OFF • I' Modbus Shared Memory functionality is parameter shal be set to 0M OFF • I FW Versions TCP Connections Max Number [1-50] 32 32 TCP Connections Max Number [1-50] 32 32 Image: TCP Connections Max Number [1-50] Final Enception Final Enception Exception Exception Image: TCP Connections Max Number [1-50] 32 32 Response Mode when Resource in Fail Exception Exception Image: TCP Connections Max Number [1-50] 32 32 Response Wait Time (ms) [10-10000] 1000 1000 1000 Image: TCP Connections Max Number [1-50] 32 32 Response Wait Time (ms) [10-10000] 1000 1000 1000 1000 Image: TCP Connections Max Number [1-50] 502 502 502 <	Conf. Management		to Serial Modbus Ethernet			
DUPS of Ungutation Digital UC Configuration Digital UC Configuration SIAS Configuration Phonebook Diagnotics EWW Versions Ethemet Interfaces			to senai			
SMS Configuration Slave ID for Embedded I/O 254 254 Phonebook Modbus Shared Memory Diagnostics Emable FW Versions Emable Ethernet Interfaces If Modbus Shared Memory functionality is needed TCP Connections Max Number [1-50] 32 32 Response Mode when Resource in Fail Exception Exception Ethernet Interfaces COMI Image: State St	Digital I/O Configuration Digital I/O Configuration			moduus Ethemet to Senar V		
Diagnostics Enable FW Versions Enable Ethernet Interfaces NOTE: this parameter shall be set to ON OFF OFF If Modbus Shared Memory functionality is needed 502 TCP Connections Max Number [1-50] 32 Response Mode when Resource in Fail Exception Exception • COMM ON • Enable For 502 Response Wait Time (ms) [10-10000] 1000 COMM ON • Enable ON • Enable ON • COMM ON • Enable ON • Enable ON • Enable ON • Port 502 Scott Scott COMM ON • Enable ON • Port 502 Scott Scott Enable ON • Port 502 Scott Scott Enable ON • Port 502 Scott Scott Enable ON • Port 502	SMS Configuration			254		
PW Versions NOTE: this parameter shall be set to ON OFF OFF Ethernet Interfaces if Modbus Shared Memory functionality is needed 502 TCP Port 502 502 TCP Connections Max Number [1-50] 32 32 Response Mode when Resource in Fail Exception Exception COM1 COM1 Enable ON Response Wait Time (ms) [10-1000] 1000 1000 1000 COM2 502 Response Wait Time (ms) [10-1000] 1000 1000 1000 COM4 COM4 Enable ON ON N Response Wait Time (ms) [10-1000] 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000						
Ethernet Interfaces if Modbus Shared Memory functionality is needed TCP Port 502 TCP Connections Max Number [1-50] 32 Response Mode when Resource in Fail Exception COM1 Image: Comparison of the Compari				OFF		
TCP Connections Max Number [1-50] 32 32 Response Mode when Resource in Fail Exception Exception COMT Image: Comt of the text of	Ethernet Interfaces	-				
Response Mode when Resource in Fail Exception ▼ Exception ▼ COMT ON ▼ Enable ON ▼ Port 502 502 Response Wait Time (ms) [10-10000 1000 1000 COM2 COM2 COM2 Response Wait Time (ms) [10-10000 0N ▼ 502 502 Port 502 502 502 Response Wait Time (ms) [10-10000 1000 0N ▼ COM4 ON ▼ Feasponse Wait Time (ms) [10-10000 1000 1000 COM4 ON ▼ Feasponse Wait Time (ms) [10-10000 1000 1000		TC	P Port 502	502		
COM1 Enable ON Port 502 Port 502 Response Wait Time (ms) [10-10000] 1000 COM2 COM2 Enable ON N Port 502 502 Response Wait Time (ms) [10-10000] 0N ▼ Port 502 502 Response Wait Time (ms) [10-10000] 1000 1000 COM4 COM4 F Port 502 502 Response Wait Time (ms) [10-10000] 1000 1000		TCP Connections Max Number	[1-50] 32	32		
Enable ON ▼ Port 502 502 Response Wait Time (ms) [10-10000] 1000 1000 COM2 COM2 COM3 Enable ON ▼ Port 502 502 Response Wait Time (ms) [10-10000] 1000 1000 Response Wait Time (ms) [10-10000] 1000 1000 COM4 COM4 V Port 502 502 Response Wait Time (ms) [10-10000] 1000 1000		Response Mode when Resource i	n Fail Exception	Exception •		
Port 502 502 Response Wait Time (ms) [10-10000] 1000 COM2 COM2 Enable ON ON ▼ Port 502 502 Response Wait Time (ms) [10-10000] 1000 COM4 COM4 COM4 COM4 Response Wait Time (ms) [10-10000] 1000 Response Wait Time (ms) [10-10000] 0N ▼ Port 502 502 Response Wait Time (ms) [10-10000] 1000			COM1			
Port 502 502 Response Wait Time (ms) [10-10000] 1000 COM2 COM2 Enable ON ▼ Port 502 502 Response Wait Time (ms) [10-10000] 1000 COM4 COM4 COM4 V Port 502 502 Response Wait Time (ms) [10-10000] 1000 COM4 V Port 502 502 Response Wait Time (ms) [10-10000] 1000		E	nable ON	ON V		
Response Wait Time (ms) [10-10000] 1000 1000 COM2 Enable ON Port 502 Response Wait Time (ms) [10-10000] 1000 COM4 COM4 COM4 Image: Company (Company (Com						
COM2 Enable ON ON ▼ Port 502 502 Response Wait Time (ms) [10-10000] 1000 1000 COM4 COM4 F Enable ON ON ▼ Port 502 502 502 Response Wait Time (ms) [10-10000] 1000 1000 1000		Response Wait Time (ms) [10-1	00001 1000			
Enable ON ON Port 502 502 Response Wait Time (ms) [10-10000] 1000 1000 COM4 ON ✓ Enable ON ON Port 602 502 Response Wait Time (ms) [10-10000] 1000 1000						
Port 502 502 Response Wait Time (ms) [10-10000] 1000 COM4 COM4 Enable ON ON ▼ Port 502 502 Response Wait Time (ms) [10-10000] 1000				ON T		
Response Wait Time (ms) [10-10000] 1000 COM4 COM4 Enable ON ON ▼ Port 502 502 Response Wait Time (ms) [10-10000] 1000		E				
COM4 Enable ON ON ▼ Port 502 502 Response Wait Time (ms) [10-10000] 1000 1000		Deeponee Weit Time (ma) 110.1				
Enable ON ▼ Port 502 502 Response Wait Time (ms) [10-10000] 1000 1000				1000		
Port 502 502 Response Wait Time (ms) [10-10000] 1000						
Response Wait Time (ms) [10-10000] 1000 1000		E				
		_				
APPLY			0000] 1000	1000		
		APPLY				

In the above configuration, all the Modbus requests received on the 502 TCP port will be sent to all the three serial ports (COM1, COM2 and COM4); the communication parameters on the serial ports are those set in the "Serial Ports" page (see 21.1.3).

Sector Z-PASE General Configuration General Configuration (user: admin) [logouf] Firmware Version: SW003900_Z28 [Modem: UC200QBR03A14E10] Mar Maw Firmware Version: SW003900_Z28 [Modem: UC200QBR03A14E10] Mac Address: C6F9811B0000 [MEI: 961075026666172] [IMSI: 222101600237691] Internet Access: Mobile Cases Configuration Road: Co	Z-PASS2	×	🥴 Govanni	_		×
Contract Configuration Gateway Configuration [user: admin] [logoul] Nain Veix Firmware Version: SW003900_228 [Modem: UC20GQBB03A14E1G] Maxe Navok and Savies MAC Address: CBF9B11B0000 [MBE: 861075026666172] [IMSI: 222101600237891] Maxe Navok and Savies MAC Address: CBF9B11B0000 [IMEI: 861075026666172] [IMSI: 222101600237891] Maxe Navok and Savies MAC Address: CBF9B11B0000 [IMEI: 861075026666172] [IMSI: 222101600237891] Maxe Navok and Savies MAC Address: CBF9B11B0000 [IMEI: 861075026666172] [IMSI: 222101600237891] Maxe Navok and Savies Machae Element Info Ware Configuration Router: running Router Configuration COM1 Gateway Mode Modbus Element Io Serial T Modibue Network COM2 Gateway Mode Modbus Element Io Serial T Modbue Network COM4 Gateway Mode Modbus Element Io Serial T Modbue Network COM4 Gateway Mode Modbue Element Io Serial T Modbue Network COM4 Gateway Mode Modbue Element Io Serial T Digital IO Configuration Modbue Stherent Io Serial T Modbue Stherent Io Serial T NOTE: This parameter shale be set Io NO CFF CFF T Image State Marco Ma	\leftrightarrow \rightarrow C (i) 192	.168.85.104:8080/gateway_conf.php		Q	☆ J.	:
Users Configuration CURRENT UPDATED RV Upgade COM1 Gateway Mode Mobiles Configuration Modbus Ethernet to Serial ▼ Mobile Configuration DDNS Configuration COM2 Gateway Mode Serial Modbus Ethernet to Serial ▼ Mobile Configuration Digital I/O Configuration Digital I/O Configuration Digital I/O Configuration Modbus Ethernet to Serial Modbus Ethernet to Serial ▼ SMS Configuration Digital I/O Configuration Digital I/O Configuration Digital I/O Configuration Modbus Shared Memory Digital I/O Configuration Enable SMS Configuration Digital I/O Configuration Digital I/O Configuration Modbus Shared Memory Digital I/O Configuration Enable FW Versions MOTE: this parameter shall be set to 0N I/O CPC Connections Max Number (1-6) 32 32 TCP Connections Max Number (1-6) 32 32 Response Mode when Resource in Fail Enable COM1 GOM1 GOM1 Response Wait Time (ms) (10-10000 1000 GOM2 GOM2 Response Wait Time (ms) (10-10001 1000 GOM2 GOM2 Response Wait Time (ms) (10-10001 1000 Response Wait Time (ms) (10-10001 1000	Main View Network and Services Serial Ports Gateway Configuration Real Time Clock Setup VPN Configuration	Gateway Configuration [user: admin] [logout] Firmware Version: SW003900_228 [Modem: UC20GQBR03A14E1G] MAC Address: C8F9811B0000 [IMEI: 861075026666172] [IMSI: 222101600237891] Internet Access: Mobile Gateway: running				
PW Ubgnade COMI Gateway Mode Modbus Ethermet to Serial Modbus Ethernet to Serial Mobile Configuration COM4 Gateway Mode Modbus Ethernet to Serial Modbus Ethernet to Serial DDNS Configuration Digital I/C Configuration Modbus Ethernet to Serial Modbus Ethernet to Serial Digital I/C Configuration Modbus Ethernet to Serial Modbus Ethernet to Serial Modbus Ethernet to Serial Sids Configuration Modbus Ethernet to Serial Modbus Ethernet to Serial Modbus Ethernet to Serial Phonebook Modbus Ethernet to Serial Modbus Ethernet to Serial Modbus Ethernet to Serial Phonebook Modbus Ethernet to Serial Modbus Ethernet to Serial Modbus Ethernet to Serial Phonebook Modbus Ethernet to Serial Modbus Ethernet to Serial Modbus Ethernet to Serial Phonebook Modbus Ethernet to Serial Modbus Ethernet to Serial Modbus Ethernet to Serial Phonebook Modbus Ethernet to Serial Ethernet to Serial Modbus Ethernet to Serial Phonebook Modbus Ethernet to Serial Ethernet to Serial Modbus Ethernet to Serial Phonebook Modbus Ethernet to Serial Ethernet to Serial Modbus Ethernet to Serial Ph		CURRENT UPDATED				
Digital Of Configuration Slave ID for Embedded V0 254 254 Phonebook Modbus Shared Memory Diagnostics Enable OFF ▼ FW Versions NOTE: this parameter shall be set to 00 oFF ○ OFF ▼ Ethernet Interfaces If Modbus Shared Memory functionality is needed 502 502 TCP Connections Max Number [1-50] 32 32 Response Mode when Resource in Fail Exception ▼ Image: Configuration Image: Configuration Image: Configuration Image: Configuration Image: Configuration	Conf. Management Mobile Configuration Mobile Network DDNS Configuration Digital I/O Configuration	COM2 Gateway Mode Modbus Ethernet to Serial Modbus Ethernet to Serial ▼ COM4 Gateway Mode Modbus Ethernet to Serial ▼ Modbus Ethernet to Serial ▼				
FW Versions Enable Ethernet Interfaces NOTE: this parameter shall be set to NO OFF OFF If Modbus Shared Memory functionality is needed 502 502 TCP Port 502 502 It Modbus Shared Memory functionality is needed 32 32 TCP Connections Max Number [1-50] 32 32 Response Mode when Resource in Fail Exception It could be an exception COMM It could be an exception It could be an exception It could be an exception Response Wait Time (ms) [10-10000] 1000 1000 1000 Response Wait Time (ms) [10-10000] 1000 1000 1000 Response Wait Time (ms) [10-10000] 1000 1000 1000 Response Wait Time (ms) [10-10000] 1000 1000 It could be an exception Response Wait Time (ms) [10-10000] 1000 1000 It could be an exception It could be an exception Response Wait Time (ms) [10-10000] 1000 It could be an exception It could be an exception It could be an exception Response Wait Time (ms) [10-10000] 1000 It could be an exception It could be an exception It could be an exception	Logic Configuration SMS Configuration Phonebook	Slave ID for Embedded I/O 254 254 Modbus Shared Memory				
Ethernet Interfaces if Modbus Shared Memory functionality is needed TCP Port 502 502 TCP Connections Max Number [1-50] 32 32 Response Mode when Resource in Fail Exception Exception COMI Image: Comparison of the						
APPLY		TCP Connections Max Number [1-50] 32 32 Response Mode when Resource in Fail Exception COMT COMT Enable ON ON Port 501 501 Response Wait Time (ms) [10-10000] 1000 1000 COM2 Enable ON ▼ Port 602 502 502 Response Wait Time (ms) [10-10000] 1000 1000 1000 COM4 COM4 Enable ON ▼ Port 502 502 502 502 COM4 Enable ON ON ▼ Port 502 502 502 502				

In the above configuration, the Modbus requests received on the 501 TCP port will be sent to the COM1 port, while those received on the 502 TCP port will be sent to the COM2 and COM4 ports.

← → C ① 192. ← → C ② 192. S SENECA [®] General Configuration Main View Network and Services	X 168.85.104:8080/gateway_conf.php Z-PASS2 Gateway Configuration [user: admin] [log			 ९☆ 🛛 :
Main View				
Serial Ports Gateway Configuration Real Time Clock Setup VPN Configuration Router Configuration Users Configuration FW Upgrade	Firmware Version: SW003900_228 [Model MAC Address: C8F9811B0000 [IMEI: 8610 Internet Access: Mobile Gateway: running Router: running COM1 Gateway Mode	UC20GQBR0 075026666172] [I CURRENT Modbus Ethernet	-	
Conf. Management Mobile Configuration Mobile Network DDNS Configuration	COM2 Gateway Mode	Modbus Ethernet	Modbus Ethernet to Serial Modbus Ethernet to Serial	
Digital I/O Configuration Digital I/O Configuration Logic Configuration SMS Configuration	Modbus Ethernet to Slave ID for Embedde		254	
Phonebook Diagnostics FW Versions	Modbus Shared Me E NOTE: this parameter shall be set	nable	OFF V	
	TCP Connections Max Number Response Mode when Resource i C E Response Wait Time (ms) [10-1 C Response Wait Time (ms) [10-1	In Fail Exception COM1 inable ON Port 501 0000] 1000 COM2 inable ON Port 502 0000] 1000 COM4 inable ON Port 503	502 32 Exception V 501 1000 ON V 502 1000 ON V 503 1000	

Finally, in the above configuration, each TCP port corresponds to a single serial port, that is Modbus requests received on a TCP port are sent to a single serial port.

Please note that if you set the same TCP port value for more than one serial port, the "Response Wait Time" values shall also be the same for those serial ports; otherwise, clicking on the "APPLY" button, the following error message is shown.

Z-PASS2 Z	x (i) Gov	anni —		×
	.168.85.104:8080/gateway_conf_save.php?do=1	Q	. ☆ 🎩	:
S SENECA General Configuration	Z-PASS2 Gateway Configuration [user: admin] [logout]			
Main View Network and Services	Firmware Version: SW003900_228 [Modem: UC20GQBR03A14E1G]			
Serial Ports Gateway Configuration	MAC Address: C8F9811B0000 [IMEI: 861075026666172] [IMSI: 222101600237891] Internet Access: Mobile			
Real Time Clock Setup VPN Configuration	Gateway: running			
Router Configuration Users Configuration	Router: running			
FW Upgrade Conf. Management Mobile Configuration	'Response Wait Time' values must be equal for COMs having the same 'Port' values !			
Mobile Network DDNS Configuration	Configuration not changed.			
Digital I/O Configuration Digital I/O Configuration Logic Configuration				
SMS Configuration Phonebook Diagnostics				
FW Versions Ethernet Interfaces				

21.1.6.1.1 Embedded I/O

As shown in the above figures, when at least one port has "Gateway Mode" = "Modbus Ethernet to Serial", the "Gateway Configuration" page contains the following parameter:

Field	Meaning	Default value
Slave ID for Embedded I/O	Slave ID used to access the Modbus	254
	Registers corresponding to the	

"embedded" digital I/Os (for "IO" HW	
revision).	
In Z-PASS2, this id can also be used to	
access Modbus Registers containing GPS	
information.	
Possible values: [1255].	

The Modbus Registers representing the Digital I/Os are given in the following table:

Data Type	Digital I/Os	Address
Holding Registers	Bit 0: DI1 (LSB)	0 (40001)
	Bit 1: DI2	
	Bit 2: DI3	
	Bit 3: DI4	
Holding Registers	Bit 0: DO1 (LSB)	0 (40002)
	Bit 1: DO2	
	Bit 2: DO3	
	Bit 3: DO4	
Discrete Inputs	DI1	0 (10001)
Discrete Inputs	DI2	1 (10002)
Discrete Inputs	DI3	2 (10003)
Discrete Inputs	DI4	3 (10004)
Coils	DO1	0
Coils	DO2	1
Coils	DO3	2
Coils	DO4	3

The mapping between DI1..DI4, DO1..DO4 and the Digital I/O names described in the "Digital I/O Configuration" paragraph is as follows:

DI1	DI 1
DI2	DI 2
DI3	DIDO 1, if input
DI4	DIDO 2, if input
DO1	DO 1
DO2	DO 2
DO3	DIDO 1, if output
DO4	DIDO 2, if output

If DIx or DOx is not available (e.g.: DI4, when DIDO 2 is configured as an output), the corresponding bit value is always 0.

DOx can be actually set only if the corresponding Digital I/O Mode is "General Output" (see "Digital I/O Configuration" paragraph); otherwise, the write request will have no effect.

The Modbus Registers containing the GPS information are given in the following table (all Holding Registers):

Info	Address	Data Type
GPS_ERROR	9 (40010)	INT
		(0: OK,
		-1: Not fixed
		-2: Internal error)
GPS_UTC_HH	10 (40011)	UINT
GPS_UTC_MM	11 (40012)	UINT
GPS_UTC_SS	12 (40013)	UINT
GPS_DATE_DD	13 (40014)	UINT
GPS_DATE_MM	14 (40015)	UINT
GPS_DATE_YY	15 (40016)	UINT
GPS_LATITUDE	16 – 19 (40017 – 40020)	LREAL
GPS_LONGITUDE	20 – 23 (40021 – 40024)	LREAL
GPS_HDOP	24 – 27 (40025 – 40028)	LREAL
GPS_ALTITUDE	28 – 31 (40029 – 40032)	LREAL
GPS_COG	32 – 35 (40033 – 40036)	LREAL
GPS_SPEED_KM	36 – 39 (40037 – 40040)	LREAL
GPS_SPEED_KN	40 - 43 (40041 - 40044)	LREAL
GPS_FIX	44 (40045)	UINT
GPS_NSAT	45 (40046)	UINT

21.1.6.2 Transparent Gateway

Selecting "Transparent" as the gateway mode for one of the serial ports, e.g. "COM1", the "Gateway Configuration" page will change to look like the one shown in the following figure:

🗋 Z-PASS2	×	😲 Ciovanni	_			×
← → C 🛈 192.	168.85.104:8080/gateway_conf.php		Q	☆	J.	
SENECA [®]	Z-PASS2					
General Configuration	Gateway Configuration [user: admin] [logout]					
Main View	Firmware Version: SW003900_228 [Modem: UC20GQBR03A14E1G]					
Network and Services	MAC Address: C8F9811B0000 [IMEI: 861075026666172] [IMSI: 222101600237891]					
Serial Ports						
Gateway Configuration	Internet Access: Mobile					
Real Time Clock Setup	Gateway: running					
/PN Configuration	Router: running					
Router Configuration						
Users Configuration	CURRENT UPDATED					
FW Upgrade	COM1 Gateway Mode Transparent Transparent T					
Conf. Management						
Mobile Configuration	COM2 Gateway Mode to Serial Modbus Ethernet to Serial ▼					
Mobile Network	COM4 Gateway Mode to Serial Modbus Ethernet to Serial					
DDNS Configuration						
Digital I/O Configuration	Modbus Ethernet to Serial					
Digital I/O Configuration						
Logic Configuration	Slave ID for Embedded I/O 254 254					
SMS Configuration						
Phonebook	Modbus Shared Memory					
Diagnostics	Enable					
FW Versions	NOTE: this parameter shall be set to ON OFF OFF ▼ if Modbus Shared Memory functionality is needed					
Ethernet Interfaces	TCP Port 502 502					
	TCP Connections Max Number [1-50] 32 32					
	Response Mode when Resource in Fail Exception Exception					
	COM1					
	Operating Mode Virtual COM Virtual COM V					
	Listen Port 8000 8000					
	Destination Address 192.168.90.102 192.168.90.102					
	Multicast Group 224.1.0.1 224.1.0.1					
	Multicast Interface Ethernet Ethernet					
	Tunnel Role Master Master					
	Data Packing Interval (ms) [0-1000] 20 20					
	COM2					
	Enable ON ON V					
	Port 502 502					
	Response Wait Time (ms) [10-10000] 1000 1000					
	COM4					
	Enable ON ON V					
	Port 503 503					
	Response Wait Time (ms) [10-10000] 1000 1000					
	APPLY					

For each serial port with "Gateway Mode" = "Transparent", the available configuration parameters depend on the value of the "Operating Mode" parameter selected for the port.

The possible values for the "Operating Mode" parameter are:

- None (default value)
- Virtual COM
- Serial Tunnel Point-to-Point on TCP

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- Serial Tunnel Point-to-Point on UDP
- Serial Tunnel Point-to-Multipoint

Furthermore, for the "Serial Tunnel" operating modes, the available parameters depend on the selected "Tunnel Role" (Master or Slave).

The following tables describe the relevant parameters for the various operating modes.

Virtual COM

Field	Meaning	Default value
Listen Port	TCP port to access the transparent	COM1: 8000
	gateway	COM2: 8001
		COM4: 8002
Data Packing Interval	Time interval used as a criterion to pack	20
	data bytes received from the serial port,	
	before sending them to the network; that	
	is, if no byte is received for this time,	
	available bytes are sent to the network.	
	The value is in milliseconds; possible	
	values are in the range [0 - 1000].	

Serial Tunnel Point-to-Point on TCP (Slave)

Serial Tunnel Point-to-Point on UDP (Slave)

Field	Meaning	Default value
Listen Port	TCP/UDP port to access the transparent	COM1: 8000
	gateway	COM2: 8001
		COM4: 8002

Serial Tunnel Point-to-Point on TCP (Master)

Serial Tunnel Point-to-Point on UDP (Master)

Field	Meaning	Default value
Destination Address	The IP Address which the transparent	COM1: 192.168.90.102
	gateway will connect to	COM2: 192.168.90.103
		COM4: 192.168.90.104
Destination Port	The TCP/UDP port which the transparent	COM1: 8000
	gateway will connect to	COM2: 8001
		COM4: 8002

Serial Tunnel Point-to-Multipoint (Master)

Field	Meaning	Default value
Destination Port	The UDP port which the packets will be	COM1: 8000
	sent to	COM2: 8001

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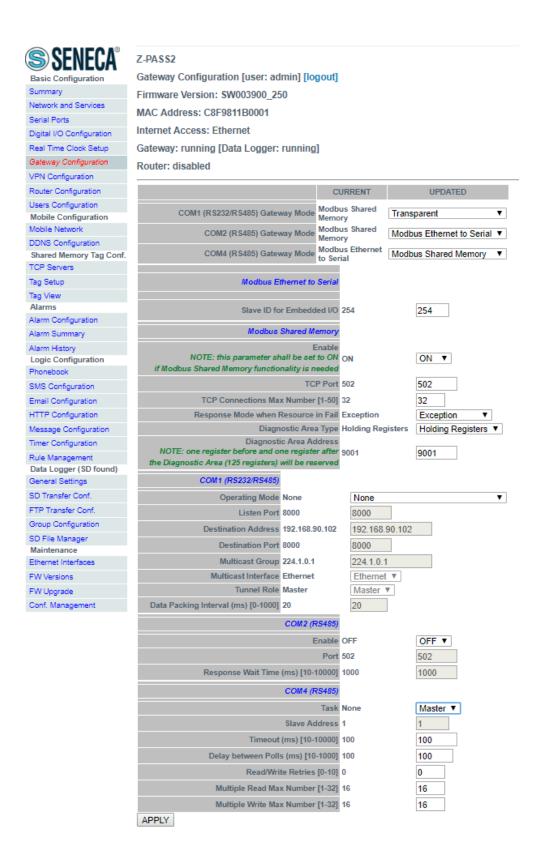
		COM4: 8002
Multicast Group	IP Address which identifies the Multicast	224.1.0.1
	Group	
Multicast Interface	Network Interface which the UDP packets	Ethernet
	are sent to; possible values:	
	Ethernet VPN; "VPN" option is available	
	only when VPN is active	

Serial Tunnel Point-to-Multipoint (Slave)

Field	Meaning	Default value
Listen Port	The UDP port which the packets will be	COM1: 8000
	received from	COM2: 8001
		COM4: 8002
Multicast Group	IP Address which identifies the Multicast	224.1.0.1
	Group	
Multicast Interface	Network Interface which the UDP packets	Ethernet
	are received from; possible values:	
	Ethernet VPN; "VPN" option is available	
	only when VPN is active	

21.1.6.3 Modbus Shared Memory Gateway (Use for Datalogging and Logic Rules)

Selecting "Modbus Shared Memory" as the gateway mode for one of the serial ports, e.g. "COM4", the "Gateway Configuration" page will change to look like the one shown in the following figure:



As shown in the previous figures, the "Gateway Configuration" page always contains the following parameters, related to the "Modbus Shared Memory Gateway" mode; these parameters are always shown MI00380-35

since this functionality makes sense even when no serial port is assigned to it, that is using only Modbus <u>TCP protocol</u>.

Field	Meaning	Default value
Enable	This parameter enables/disables the	OFF
	Modbus Shared Memory Gateway	
	service.	
	It is important to note that, when this	
	parameter is set to OFF, the service is not	
	running even if some serial ports are	
	assigned to it.	
TCP Port	Listening port for the Modbus TCP server	502
TCP Connections Max Number [1-50]	Maximum number of TCP connections	32
	that can be accepted by the Modbus TCP	
	server	
Response Mode when Resource in Fail	This parameter defines how the response	Exception
	to a Modbus (read) request is built for a	
	tag corresponding to a Modbus station	
	which is not responding; when mode is	
	"Tag error value", the value in the	
	Modbus response is given according to	
	the "Error Mode"/"Error Value"	
	parameters in the tag definition; when	
	mode is "Exception", the response	
	contains an exception with the value 11	
	("Gateway target device failed to	
	respond").	
Diagnostic Area Type	Select if the diagnostic are can be	
0 //	accessed by Holding or Input Modbus	
	Registers.	
Diagnostic Area Address	The diagnostic area reserve a bit for each	
	tag (125 registers):	
	Bit value to 0 -> means Tag Reading Error	
	(or tag not configured)	
	Bit value to 1 -> means Tag Reading OK	
	So if you need to check the fail status of	
	the first 10 tags using the default Area	
	(9001 Holding Registers) you must read	
	the register 49001.	
	For example if the regsiter value is:	
	0x3DB = 987 = 0000 0011 1101 1011	
	Tag 1 = OK	

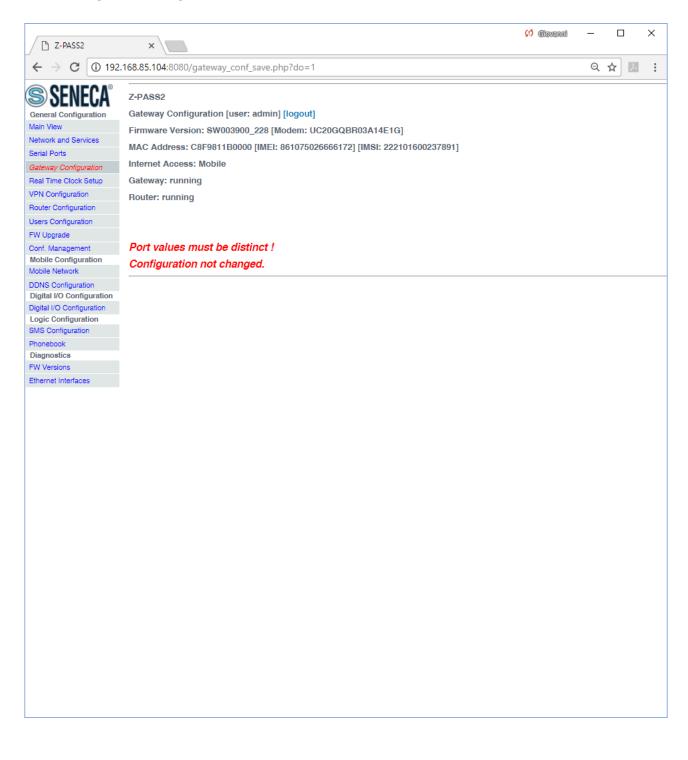
Tag 2 = OK	
Tag 3 = FAIL	
Tag 4 = OK	
Tag 5 = OK	
Tag 6 = FAIL	
Note that one register before and one register after the Diagnostic Area will be reserved (by default the register 49000 and 49126).	

Then, for each serial port with "Gateway Mode" = "Modbus Shared Memory", the parameters described in the following table are available.

Field	Meaning	Default value
Task	This parameter defines which Modbus	None
	Shared Memory Gateway task is running	
	on the serial port; possibile values are:	
	None, Master, Slave	
Slave Address	Modbus Address for the RTU Slave; this is	1
	the only parameter available when	
	Task=Slave	
Timeout (ms) [10 – 10000]	Response timeout for Modbus RTU	100
	requests, in milliseconds (available only	
	when Task=Master)	
Delay between Polls (ms) [10 – 1000]	Interval between Modbus RTU requests,	100
	in milliseconds (available only when	
	Task=Master)	
Read/Write Retries [0 – 10]	Maximum number of retries for Modbus	0
	RTU requests; this always applies to write	
	requests; for read requests, it applies	
	only to tags with "Gateway Tag	
	Mode"="BRIDGE" (see 21.3.2.1	
	paragraph)	
Multiple Read Max Number [1 – 32]	Maximum number of Modbus registers	16
	that can be read in a single Modbus RTU	
	request; this is used to reduce the	
	number of read requests sent on the	
	serial bus, thus performing optimization	
Multiple Write Max Number [1 – 32]	Maximum number of Modbus registers	16
	that can be written in a single Modbus	

RTU request; this is used to reduce the	
number of write requests sent on the	
serial bus, thus performing optimization	

Please note that, if any of the configured TCP/UDP port values collide, the configuration is not applied and the following error message is shown:



21.1.7 VPN Configuration

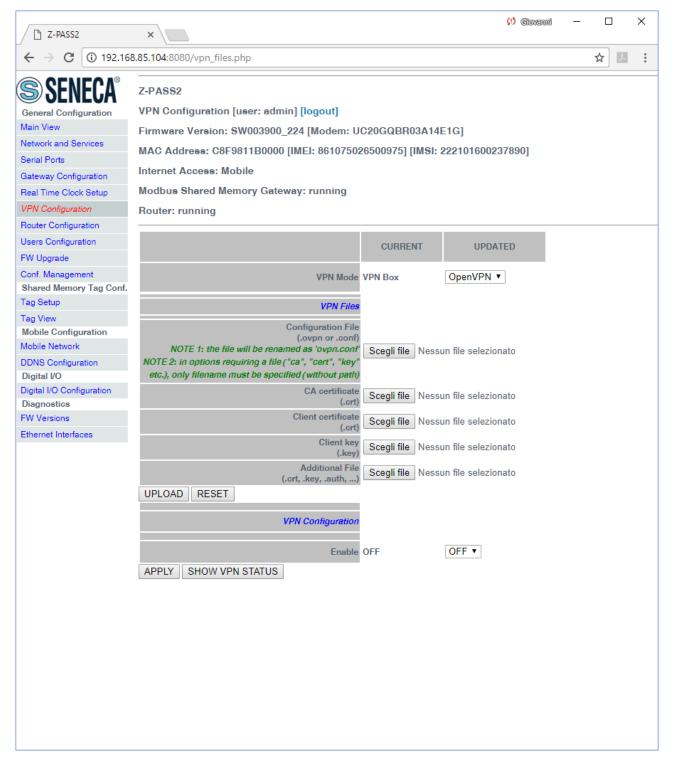
By clicking on the "VPN Configuration" link, in the "Basic Configuration" section, you come to the following page:

Th Z-PASS2	(!) Giovandi	– 🗆 X
	3.85.104:8080/vpn_files.php	☆ ↗ :
S SENECA General Configuration Main View Network and Services Serial Ports Gateway Configuration Real Time Clock Setup VPN Configuration	Z-PASS2 VPN Configuration [user: admin] [logout] Firmware Version: SW003900_224 [Modem: UC20GQBR03A14E1G] MAC Address: C8F9811B0000 [IMEI: 861075026500975] [IMSI: 222101600237890] Internet Access: Mobile Modbus Shared Memory Gateway: running Router: running	
Router Configuration Users Configuration FW Upgrade	CURRENT UPDATED	
FW Upgrade Conf. Management Shared Memory Tag Conf. Tag Setup Tag View Mobile Configuration Mobile Network DDNS Configuration Digital I/O Digital I/O Digital I/O Digital I/O Ethernet Interfaces	VPN Mode VPN Box VPN Box Image: Constraint of the second sec	

The page has a different layout depending on the value of the "VPN Mode" parameter, which can be "OpenVPN" or "VPN Box".

21.1.7.1 OpenVPN

The page is made up of two sections: "VPN Files" and "VPN Configuration".



The "VPN Files" section lets you load the files needed to configure Open VPN and establish a secure VPN connection on the Z-PASS; these files are described in the following.

21.1.7.1.1 Configuration File

This file shall contain all the information needed to configure the Open VPN behaviour; the main configuration options are¹⁸:

- if Z-PASS shall act as a client or a server (typically, it will be a client)
- the transport protocol (UDP or TCP)
- the server IP address/host name and port
- the files needed to perform authentication procedures
- etc.

This file has the *.ovpn* extension (in Windows systems) or *.conf* extension (in Linux systems); regardless of the original name, it will be renamed as *ovpn.conf* on the Z-PASS.

This is the only mandatory file, that is if this file has not been loaded on the Z-PASS, VPN can't be enabled.

As reminded in the web page, <u>in options requiring a file argument</u>, <u>only the file name shall be given</u>, <u>with</u> <u>no path</u>, as in the following example:

ca ca.crt OK

ca /home/config/vpn/ca.crt KO!

Other two important rules that shall be followed are:

- the "dev" option shall be: "dev tun0" or "dev tap0"
- the "log" option shall be omitted (so that, logs are written to syslog)

An example of a client configuration file is given in paragraph 21.1.7.1.7.

21.1.7.1.2 CA certificate

This file shall contain the Certification Authority (CA) certificate and has the .crt extension.

It is needed when the configuration file contains the "ca" option.

21.1.7.1.3 Client certificate

This file shall contain the client certificate and has the *.crt* extension.

It is needed when the configuration file contains the "cert" option.

¹⁸ For more information about configuration options, please refer to the OpenVPN web page ("openvpn.net"). MI00380-35

21.1.7.1.4 Client key

This file shall contain the client key and has the .key extension.

It is needed when the configuration file contains the *"key"* option.

21.1.7.1.5 Additional file

This file can be of any type and may be needed for configuration options other than "ca", "cert" and "key".

Please note that more than one additional file can be loaded.

You can browse your PC to select the above files and send them to the Z-PASS by pressing the "UPLOAD" button.

Once the upload is done, a result page is shown like in the following figure.

🗋 Z-PASS2	(1) @iovanni — X
\leftarrow \rightarrow C (i) 192.16	88.85.104:8080/vpn_upload_files_cust.php
SFNFCA [®]	Z-PASS2
General Configuration	VPN Configuration [user: admin] [logout]
Main View	Firmware Version: SW003900_224 [Modem: UC20GQBR03A14E1G]
Network and Services	MAC Address: C8F9811B0000 [IMEI: 861075026500975] [IMSI: 222101600237890]
Serial Ports	
Gateway Configuration	Internet Access: Mobile
Real Time Clock Setup	Modbus Shared Memory Gateway: running
VPN Configuration	Router: running
Router Configuration	
Users Configuration	Upload: CLIENT1a.conf
FW Upgrade	Size: 193 bytes
Conf. Management Shared Memory Tag Conf.	Stored in: /home/config/vpn/ovpn.conf
Tag Setup	Upload: ca.crt
Tag View	Size: 1139 bytes
Mobile Configuration Mobile Network	Stored in: /home/config/vpn/ca.crt
DDNS Configuration	Upload: CLIENT1.crt
Digital I/O	Size: 3600 bytes
Digital I/O Configuration Diagnostics	Stored in: /home/config/vpn/CLIENT1.crt
FW Versions	Upload: CLIENT1.key
Ethernet Interfaces	
	Size: 912 bytes
	Stored in: /home/config/vpn/CLIENT1.key

You can check which VPN files are stored on the Z-PASS by clicking on the "SHOW VPN STATUS" button, as shown in the following figure (remember that the configuration file is renamed as "ovpn.conf"):

		😲 Giovanni	-			×
Z-PASS2	×					
$\boldsymbol{\leftarrow} \rightarrow \mathbf{C}$ (i) 192	.168.85.104:8080/vpn_files.php?showinfo=1		Q	☆│	<i>J.</i> .	:
Seneral Configuration Main View Network and Services Serial Ports Gateway Configuration Real Time Clock Setup VPN Configuration Router Configuration Users Configuration	Z-PASS2 VPN Configuration [user: admin] [logout] Firmware Version: SW003900_224 [Modem: UC20GQBR03A14E1G] MAC Address: C8F9811B0000 [IMEI: 861075026500975] [IMSI: 222101600237890] Internet Access: Mobile Modbus Shared Memory Gateway: running Router: running					
FW Upgrade	CURRENT UPDATED					
PW Opgrade Conf. Management Shared Memory Tag Conf. Tag Setup Tag View Mobile Configuration Mobile Network DDNS Configuration Digital I/O Digital I/O Configuration Diagnostics FW Versions Ethernet Interfaces	VPN Mode OpenVPN VPN Files Configuration File (.orgn or .conf) NOTE 1: the file will be renamed as 'oyn.conf' NOTE 2: in options requiring a file ("ca", "cert", "keyr etc.), only filename must be specified (without path) CA certificate (.crt) Scegli file Nessun file selezionato Client certificate (.crt) Scegli file Nessun file selezionato Client key (.crt), key, auth, Scegli file Nessun file selezionato VPN Configuration Enable OFF OFF APPLY HIDE VPN STATUS Disconnected UP Address 0.0.0.0 Stopped OpenVPN Status Stopped 0/0 TX Packets / Bytes 0/0 0/0 VPN Files (size in bytes) NOTE: these files can be downloaded via FIP iron 'home-config/ym' directory, CLIENTI.key (912) CLIENTI.key (912) CLIENTI.key (912) CLIENTI.key (912) Outentils Openconf (193) oynn.conf (

As reminded by the web page, the VPN files can be downloaded from the Z-PASS, if needed, via FTP/SFTP; they can be found in the */home/config/vpn* directory, as shown in the following figure.

OpenVPN_Client - user@192.168.85	.117 - WinSCP								-		\rightarrow
ocale Seleziona File Comandi Ses	sione Opzioni Remo	oto Aiuto									
🐉 🎒 Coda 👻 🖶 🔀 📚 Sincro	onizza 🗾 🧬 🛃		Impostazioni trasferim	ento Predefinito	• 💋 •						
📮 user@192.168.85.117 📑 Nuova s	essione										
Desktop 🔹 🚰 🔽	🦛 • 🔿 • 🗈 🖻	1 🎧 🌮 😘			vpn 🔹 🚰	😨 🖛 • 🐟 - 💼 🔁	🏫 🧶 🔝 Trova file	P			
🖟 Upload 👻 📝 Modifica 👻 📷	🖌 🕞 Proprietà 📑				🔛 Download 👻 📝 Modifica	- 🗙 🚜 🕞 Proprietà 📑					
\Users\Spagiari\Desktop\OpenVPN_C					/home/config/vpn						
lome	Dimensi	Тіро	Modificato	Attr	Nome	Dimensi	Modificato	Diritti	Proprietario	,	
		Cartella superi	16/09/2016 15.56.06		e.		20/09/2016 09.26.52	rwxr-xr-x	root		
ca.crt	2 KB	Certificato di s	04/05/2015 09.30.28	a	a.crt	2 KB	20/09/2016 10.42.53	rw-rr	root		
CLIENT1.conf	1 KB	File CONF	06/09/2016 14.19.40	a	CLIENT1.crt	4 KB	20/09/2016 10.42.53	rw-rr	root		
CLIENT1.crt	4 KB	Certificato di s	04/05/2015 09.30.42	а	CLIENT1.key	1 KB	20/09/2016 10.42.53	rw	root		
CLIENT1.key	1 KB	File KEY	04/05/2015 09.30.40	а	vpn.conf	1 KB	20/09/2016 10.42.53	rw-rr	root		
CLIENT1a.conf	1 KB	File CONF	07/09/2016 08.26.05	а							
CLIENT1a.ovpn	1 KB	File OVPN	07/09/2016 08.26.05	a							
CLIENT2.crt	4 KB	Certificato di s	04/05/2015 09.30.44	a							
CLIENT2.key	1 KB	File KEY	04/05/2015 09.30.44	a							
CLIENT53.crt	4 KB	Certificato di s	04/05/2015 09.33.54	а							
CLIENT53.key	1 KB	File KEY	04/05/2015 09.33.52	a							
CLIENT54.ovpn	1 KB	File OVPN	06/05/2015 15.23.11	a							
					<						
di 15.504 B in 0 di 11					0 B di 5.844 B in 0 di 4						

Is is possible to clear all the VPN files, by clicking on the "RESET" button; a pop-up will appear, requiring a confirmation:

	192.168.85.117:8080 dice:		×	
e	This will delete VPN files. Are you sure ?			
•				
9		ОК	Annulla	
i.				

If VPN is enabled, the user is not allowed to delete VPN files, as warned by the following pop-up:

	192.168.85.117:8080 dice:	×
	VPN is enabled: files can't be deleted.	
e	OF	(
٤		

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In the "VPN Configuration" section, there is only one parameter, as described in the following table:

Field	Meaning	Default value
VPN Configuration/Enable	Flag to enable/disable the VPN	OFF
	connectivity; when enabled, Z-PASS will	
	run the Open VPN process with the	
	loaded configuration	

As already told above, if you try to enable the VPN connectivity, but no configuration file has been uploaded to the Z-PASS yet, an error is given as shown in the following figure:

🗋 Z-PASS2	K ¹ Giovanni —			×
\leftarrow \rightarrow C (i) 192.168	3.85.104:8080/vpn_save.php?do=1	☆	J.	:
SENEC A®	Z-PASS2			
	VPN Configuration [user: admin] [logout]			
General Configuration Main View				
Network and Services	Firmware Version: SW003900_224 [Modem: UC20GQBR03A14E1G]			
Serial Ports	MAC Address: C8F9811B0000 [IMEI: 861075026500975] [IMSI: 222101600237890]			
Bateway Configuration	Internet Access: Mobile			
Real Time Clock Setup	Modbus Shared Memory Gateway: running			
VPN Configuration				
Router Configuration	Router: running			
Jsers Configuration				
FW Upgrade	VPN files are not loaded yet ! Configuration not changed.			
Conf. Management				
Shared Memory Tag Conf.				
Tag Setup				
Tag View Mobile Configuration				
Mobile Configuration				
DDNS Configuration				
Digital I/O				
Digital I/O Configuration				
Diagnostics				
FW Versions				
Ethernet Interfaces				

When you click on the "SHOW VPN STATUS" button, a third section appears, named "VPN Status", showing:

- the VPN "Connection Status" (i.e.: "Disconnected" or "Connected")
- the IP address assigned to the VPN interface when "Connected", the "dummy" IP address "0.0.0.0" when "Disconnected"
- the "OpenVPN Status" (i.e.: "Stopped" or "Running")

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- the number of packets/bytes received from the VPN interface, when connected; "0/0" when disconnected
- the number of packets/bytes sent to the VPN interface, when connected; "0/0" when disconnected
- the VPN files stored on the Z-PASS (see above)

as shown in the following couple of figures:

Z-PASS2	×	(1) Giovanni — 🗆 🗙
\leftarrow \rightarrow C (i) 192.	168.85.104:8080/vpn_files.php?showinfo=1	Q☆ 🗾
SENECA General Configuration Main View Network and Services Serial Ports Gateway Configuration Real Time Clock Setup VPN Configuration Router Configuration	Z-PASS2 VPN Configuration [user: admin] [logout] Firmware Version: SW003900_224 [Modem: UC20GQBR03A14E1G] MAC Address: C8F9811B0000 [IMEI: 861075026500975] [IMSI: 222101600237 Internet Access: Mobile Modbus Shared Memory Gateway: running Router: running	890]
Users Configuration	CURRENT UPDATE	D
FW Upgrade Conf. Management Shared Memory Tag Conf. Tag Setup	VPN Mode OpenVPN OpenVPN	
Tag Setup Tag View Mobile Configuration Mobile Network DDNS Configuration Digital I/O Digital I/O Configuration Diagnostics FW Versions Ethernet Interfaces	VPN Files Configuration File (ovpn or .conf) NOTE 1: the file will be renamed as 'ovpn.conf NOTE 2: in options requiring a file ("ca", "cert", "key" etc.), only filename must be specified (without path) CA certificate (.crt) CA certificate (.crt) Cegli file Nessun file selezional (.crt) Citent certificate (.crt) Scegli file Nessun file selezional (.crt, key, .auth,) Scegli file Nessun file selezional (.crt, key, .auth,) VPN Configuration IVPLOAD RESET VPN Configuration Connection Status Disconnected Query N Status Connection Status Disconnected Query N Status Stopped RX Packets / Bytes Q/0 VPN Files (size in bytes) NOTE: these files can be downloaded via FTP from 'home/config/vpn' directory, CLIENT1.crt (3600) CLIENT1.crt (3600) CLIENT1.crt (213) ovpn.conf (218)	to to

		🤃 Giovanni	- 🗆 X
C Z-PASS1 / Z-PASS			
$\leftarrow \rightarrow C$ (192	2.168.85.103:8080/vpn_files.php?showinfo=1		९☆ 🗵 :
SERVECA® General Configuration Main View Network and Services Serial Ports Gateway Configuration Real Time Clock Setup VPN Configuration Users Configuration FW Upgrade Mobile Configuration Mobile Network Diagnostics Ethernet Interfaces	Z-PASS1 / Z-PASS2 VPN Configuration [user: admin] [logout] Firmware Version: SW003900_205 [Modem: 1231B02SIM5350E] MAC Address: C8FA81160002 Internet Access: Mobile Modbus Bridge: running Router: disabled CURRENT UPDATED VPN Mode OpenVPN OpenVPN OpenVPN VPN Files Configuration File (oxpn or .conf) NOTE 1: the file will be renamed as you, conf NOTE 2: in options requiring a file ("ce", "cert", Scegil file Nessun file selezionato Client certificate Scegil file Nessun file selezionato Client key, Scegil file Nessun file selezionato UPLOAD RESET VPN Configuration Finable NOTE : HiDE VPN STATUS VPN Statu Connected Status RP Anciests / Systes 20 / 1.6K VPN Files (size in Systes) NOTE: these files (in Systes) NOTE: these files (size in Systes) NOTE: these fil		

An important status information is given by the "OpenVPN Status" field; <u>if VPN is enabled ("ON")</u>, <u>but this</u> <u>status is "Stopped"</u>, <u>this means that Open VPN process could not be correctly started: probably, the</u> <u>configuration file contains some errors or, maybe, some options not supported by the Z-PASS Open VPN implementation.</u>

You can refresh the VPN status, by clicking on the "REFRESH" button.

Finally, you can hide the "VPN Status" section, by clicking on the "HIDE VPN STATUS" button.

21.1.7.1.6 OpenVPN Server configuration file

This paragraph gives an example of OpenVPN server configuration; this is the server configuration typically used with Z-PASS devices.

```
port 1194
proto udp
dev tun
ca ca.crt
cert server.crt
key server.key
dh dh1024.pem
server 10.9.7.0 255.255.255.0
ifconfig-pool-persist ipp.txt
client-config-dir ccd
client-to-client
keepalive 10 120
comp-lzo
persist-key
persist-tun
status openvpn-status.log
verb 3
```

21.1.7.1.7 OpenVPN Client configuration file

This paragraph gives an example of OpenVPN client configuration; this is the client configuration typically loaded on Z-PASS devices.

client dev tun port 1194 proto udp remote 2.192.5.105 1194 nobind ca ca.crt cert tws4.crt key tws4.key comp-lzo persist-key persist-tun script-security 3 system verb 3

21.1.7.1.8 LED signalling

In Z-PASS products, when VPN functionality is enabled in "OpenVPN" mode, the "SERV" and "VPN" LEDs give the following status information:

LED	Status	Meaning
VPN Yellow	ON	VPN connection is working properly
	Blinking	VPN connection is not working properly
	OFF	VPN functionality is disabled
SERV Green	-	Not used

21.1.7.2 VPN Box

The page contains only ony section: "VPN Box", as shown in the following figure.

Z-PASS2	×	🤨 Ciovanui — 🗆 🗙
$\boldsymbol{\leftarrow}$ \rightarrow \boldsymbol{C} (i) 192.168	8.85.104:8080/vpn_files.php	☆ 🗵 :
Seneral Configuration Main View Network and Services Serial Ports Gateway Configuration Real Time Clock Setup VPN Configuration	Z-PASS2 VPN Configuration [user: admin] [logout] Firmware Version: SW003900_224 [Modem: UC20GQBR03A14E1G] MAC Address: C8F9811B0000 [IMEI: 861075026500975] [IMSI: 2221016002374 Internet Access: Mobile Modbus Shared Memory Gateway: running Router: running	890]
Router Configuration Users Configuration FW Upgrade	CURRENT UPDATE	D
Conf. Management Shared Memory Tag Conf. Tag Setup Tag View Mobile Configuration Mobile Network DDNS Configuration Digital I/O Digital I/O Digital I/O Configuration Diagnostics FW Versions Ethernet Interfaces	VPN Mode VPN Box VPN Box Image: Constraint of the second	

The "VPN Box" section contains the following parameters:

Field	Meaning	Default value
VPN BOX/Enable	Flag to enable/disable the "VPN Box"	OFF
	functionality, that is the	
	procedure/protocol that lets the Z-PASS	

	setup the VPN, by interacting with the "VPN Box" server (see "VPN Box User	
	Manual")	
VPN BOX/Server	IP address or FQDN of the "VPN Box"	192.168.90.1
	server	
VPN BOX/Password	Password to access the "VPN Box"	seneca
	server	
VPN BOX/Tag Name	Mnemonic name used to uniquely	zpass
	identify the Z-PASS; if the default	
	("zpass") value is left, the Device will	
	register as "zpass_ <macaddress>" on</macaddress>	
	the VPN Box	

When you click on the "SHOW VPN STATUS" button, a new section appears, named "VPN Status", showing:

- the VPN "Connection Status" (i.e.: "Disconnected" or "Connected")
- the VPN IP address assigned to the Z-PASS when "Connected", the "dummy" IP address "0.0.0.0" when "Disconnected"; this row is not shown for "Point-to-Point (L2)" VPN Box, since no IP address is assigned to the VPN interface
- the "OpenVPN Status" (i.e.: "Stopped" or "Running")
- the number of packets/bytes received from the VPN interface, when connected; "0/0" when disconnected
- the number of packets/bytes sent to the VPN interface, when connected; "0/0" when disconnected
- the "VPN Box Type", which can be "Point-to-Point", "Point-to-Point (L2)" or "Single LAN", if VPN Box is enabled
- the "VPN Box Status", if VPN Box is enabled
- the username of the connected user, if any

as shown in the following three figures:

√ □ Z-PASS2	×		(!) Ciovan	ni —		×
/ -	8.85.104:8080/vpn_files.php?showinfo=1				☆ 🗡	:
						•
SENECA General Configuration	Z-PASS2 VPN Configuration [user: admin] [logout]					
Main View	Firmware Version: SW003900_224 [Modem: U	C20GQBR03A14	IE1G]			
Network and Services Serial Ports	MAC Address: C8F9811B0000 [IMEI: 8610750	26500975] [IMSI:	222101600237890]			
Gateway Configuration	Internet Access: Mobile					
Real Time Clock Setup	Modbus Shared Memory Gateway: running					
VPN Configuration	Router: running					
Router Configuration						
Users Configuration		CURRENT	UPDATED			
FW Upgrade Conf. Management			VPN Box 🔻			
Shared Memory Tag Conf.	VPN Mode	VPN Box	VPN Box V			
Tag Setup	VPN Box					
Tag View Mobile Configuration	Enable OFF	OFF v				
Mobile Network	Server 192.168.85.176	192.168.85.176	;			
DDNS Configuration	Password seneca	seneca				
Digital I/O	Tag Name zpass	zpass				
Digital I/O Configuration Diagnostics	APPLY HIDE VPN STATUS					
FW Versions	VPN Status					
Ethernet Interfaces	Connection Status		Disconnected			
	IP Address		0.0.0.0			
	OpenVPN Status		Stopped			
	RX Packets / Bytes		0/0			
	TX Packets / Bytes		0/0			
	REIREOIT					

Z-PASS2	×		(1) Govan	đ —		×
	8.85.104:8080/vpn_files.php?showinfo=1				☆ 🗡	:
						•
SENECA SENECA	Z-PASS2					
General Configuration	VPN Configuration [user: admin] [logout]					
Main View	Firmware Version: SW003900_224 [Modem: UC2	0GQBR03A14	E1G]			
Network and Services	MAC Address: C8F9811B0000 [IMEI: 8610750265	009751 [IMSI:	2221016002378901			
Serial Ports	-	ooor of functi	222101000201000]			
Gateway Configuration	Internet Access: Mobile					
Real Time Clock Setup	Modbus Shared Memory Gateway: running					
VPN Configuration	Router: running					
Router Configuration						
Users Configuration		CURRENT	UPDATED			
FW Upgrade						
Conf. Management	VPN Mode VP	N Box	VPN Box 🔻			
Shared Memory Tag Conf.						
Tag Setup	VPN Box					
Tag View Mobile Configuration	Enable ON	ON 🔻				
Mobile Network	Server 192,168,85,176	192.168.85.176				
DDNS Configuration	Password seneca	seneca				
Digital I/O						
Digital I/O Configuration		zpass				
Diagnostics	APPLY HIDE VPN STATUS					
FW Versions	VPN Status					
Ethernet Interfaces	Connection Status	(Connected			
	IP Address	f	10.9.0.1			
	OpenVPN Status		Running			
	RX Packets / Bytes		0/0			
	TX Packets / Bytes		0/0			
	VPN Box Type		Point-to-Point			
	VPN Box Status		OK (Configured)			
	REFRESH					

☐ Z-PASS2	× (j)	Ciovenni – 🗆 🗙
	58.85.104:8080/vpn_files.php?showinfo=1	☆ 24 :
Seneral Configuration Main View Network and Services Serial Ports Gateway Configuration Real Time Clock Setup VPN Configuration	Z-PASS2 VPN Configuration [user: admin] [logout] Firmware Version: SW003900_224 [Modem: UC20GQBR03A14E1G] MAC Address: C8F9811B0000 [IMEI: 861075026500975] [IMSI: 22210160023789 Internet Access: Mobile Modbus Shared Memory Gateway: running	90]
Router Configuration Users Configuration FW Upgrade	CURRENT UPDATED	
Conf. Management Shared Memory Tag Conf. Tag Setup Tag View Mobile Configuration Mobile Network DDNS Configuration Digital I/O Digital I/O Digital I/O Configuration Diagnostics FW Versions Ethernet Interfaces	VPN Mode VPN Box VPN Box Image: Connected Series Series Series Tag Name zpass Zpass APPLY HIDE VPN STATUS Series Image: Connected Series 10.9.0.1 Image: Connected Series 0.70 Image: Connected User Series Image: Connected User Series Image: Connected User Series Image: Connected User Series	

For an explanation of the differences between a "Single LAN" VPN and a "Point-to-Point" VPN, see chapter 10.

The "VPN Box Status" string has the following format:

Result (Status)

The following table gives a short explanation of the possible "Result" and "Status" strings:

Result	Status	Meaning	
Error (Unexpected response)		A response code has been received that is not	
		handled by the Z-PASS (it should never occur)	
Error (No response from VPN		No response has been received from the VPN Box	
Box)		(response timeout)	
Error (Invalid response from		A response has been received whose content is	
VPN Box)		not valid for the Z-PASS (it should never occur)	
Error (Wrong password)		The password set on Z-PASS is wrong	
Error (License Limit Reached)		The maximum number of devices allowed by the	
		license are already registered on VPN Box	
Error (VPN Box not configured)		The VPN Box has not been configured yet	
Error (Generic error)		A generic error has occurred on the VPN Box	
ОК		The Z-PASS has just been registered on the VPN	
		Box	
ОК	New	The Z-PASS is registered on the VPN Box, but it is	
		not configured yet ("Single LAN" only)	
ОК	Configuration updated	The Z-PASS configuration has just been updated	
ОК	Configured	The Z-PASS is properly configured and available	
		for VPN connection	
ОК	Ban	The Z-PASS has been banned	
ОК	Not found	The Z-PASS is unknown for the VPN Box; this	
		happens when Z-PASS registration is deleted on	
		the VPN Box	
ОК	Unknown	The Z-PASS has an "unknown" status in the VPN	
		Box (it should never occur)	
ОК	Not bound	The "tunnel" between the Z-PASS and the VPN	
		Box is not up; this may occur when the tunnel	
		port is blocked ("not open") in the ADSL router	
		on the VPN Box side ("Point-to-Point" only)	
ОК	Unexpected status	A status code has been received that is not	
		handled by the Z-PASS (it should never occur)	

You can refresh the VPN status, by clicking on the "REFRESH" button.

Finally, you can hide the "VPN Status" section, by clicking on the "HIDE VPN STATUS" button.

21.1.7.2.1 LED signalling

In Z-PASS products, when VPN functionality is enabled in "VPN Box/Single LAN" mode, the "SERV" and "VPN" LEDs give the following status information:

LED	Status	Meaning
VPN Yellow	ON	VPN connection is working properly
	Blinking	VPN connection is not working properly
	OFF	The Device has not been configured by the VPN Box yet or VPN Box functionality is disabled
SERV Green	ON	VPN Box "SERVICE" connection is working properly
	Blinking	VPN Box "SERVICE" connection is not working properly
	OFF	VPN Box functionality is disabled

Similarly, when VPN functionality is enabled in "VPN Box/Point-to-Point" mode, the "SERV" and "VPN" LEDs give the following status information:

LED	Status	Meaning	
VPN Yellow	ON	A VPN client is connected to the Device	
	OFF	No VPN client is connected to the Device or VPN Box functionality is disabled	
SERV Green	ON	VPN Box "SERVICE" connection is working properly	
	Blinking	VPN Box "SERVICE" connection is not working properly	
	OFF	VPN Box functionality is disabled	

21.1.8 Router Configuration

By clicking on the "Router Configuration" link, in the "Basic Configuration" section, you come to the following page:

Z-PASS2	×			Ciovanni	-		×
	92.168.85.104:8080/mobile_router.php				Q	☆ 🛛	
	Z-PASS2						
🥯 JEINEUA							
General Configuration	Router Configuration [user: admin] [logout]						
Main View	Firmware Version: SW003900_232 [Modem: U	JC20GQBR03A	14E1G]				
Network and Services	MAC Address: C8F9811B0000 [IMEI: 8610760	26666172] [IMS	il: 222101600237893]				
Serial Ports	Internet Access: Ethernet						
Sateway Configuration Real Time Clock Setup			1				
/PN Configuration	Gateway: running [Data Logger: running (no	group enabled)	1				
Router Configuration	Router: disabled						
Jsers Configuration		CURRENT	UPDATED				
FW Upgrade	Router Enable		OFF V				
Conf. Management	Ethernet Bandwidth Limitation		Unlimited V				
Shared Memory Tag Conf.	DNS-DHCP		Offiniting -				
Tag Setup							
Tag View	DNS Enable		ON V				
TCP Servers	DHCP Server Enable		OFF V				
Mobile Configuration	DHCP First Address		192.168.90.201				
Mobile Network	DHCP Last Address	192.168.90.210	192.168.90.210				
DDNS Configuration Digital I/O Configuration	DHCP Lease Time (min)	15	15				
Digital I/O Configuration	Use Local Addresses through VPN						
Logic Configuration	Enable	OFF	OFF V				
SMS Configuration	Mobile Network Firewall						
Phonebook	Enable	01					
Diagnostics FW Versions		ON	ON V				
Ethernet Interfaces	Port Mapping / Virtual Server 1						
Data Logger (SD found)	Protocol	TCP/UDP	TCP/UDP V				
General Settings	External Port						
Group Configuration	Server IP Address						
SD File Manager	Internal Port						
	Port Mapping / Virtual Server 2						
		TCP/UDP	TCP/UDP V				
	External Port	1017021					
	Server IP Address						
	Internal Port						
	Port Mapping / Virtual Server 3						
	Protocol	TCP/UDP	TCP/UDP V				
	External Port						
	Server IP Address						
	Internal Port						
	Port Mapping / Virtual Server 4						
		TCP/UDP	TCP/UDP V				
	External Port						
	Server IP Address						
	Internal Port						
	Port Mapping / Virtual Server 5						
	Protocol	TCP/UDP	TCP/UDP V				
	External Port						
	Server IP Address						
	Internal Port						

In this page, you can change the parameters related to the Z-PASS Router functionality.

First, you have a set of general parameters, as listed in the following table:

Field	Meaning	Default value
Router Enable	Flag to enable/disable the Router	OFF
	functionality	
Ethernet Bandwidth Limitation	This parameter can be used to limit the	Unlimited
	bandwidth on the ethernet interfaces;	

	this may be needed to avoid overloading	
	the CPU, when a large amount of data is	
	forwarded from one interface to the	
	other (LAN \leftrightarrow WAN).	
	Since this does not occur when the two	
	ethernet interfaces work in "switch"	
	mode, the parameter is not shown	
	when "Ethernet Mode" parameter is set	
	to "Switch" (see paragraph 21.1.2).	
	Possible values are:	
	Unlimited	
	20 Mbit/s	
	10 Mbit/s	
	1 Mbit/s	
DNS Enable	Flag to enable/disable the DNS	ON
	forwarding service	
DHCP Server Enable	Flag to enable/disable the DHCP service	OFF
	(DHCP server)	
	NOTE: this parameter can be set to	
	"ON" only if the "DHCP" parameter of	
	the "Network and Services" page is set	
	<u>to "OFF"</u> .	
DHCP First Address	These parameters define the range of IP	192.168.90.201
DHCP Last Address	addresses assigned by the DHCP server	192.168.90.210
	to requesting clients	
DHCP Lease Time (min)	Validity time interval for the IP address	15
	assignment, in minutes.	
	Possible values are in the range [160].	

Then, you have the parameter shown in the following table.

Field				Meaning	Default value
Use	Local	Addresses	Through	Flag to enable/disable the access to the	OFF
VPN/	Enable			Z-PASS and other devices which are in	
				the Z-PASS LAN, by using their local	
				(LAN) IP addresses	

Then, you have another important parameter, which is shown in the following table.

Field	Meaning	Default value
Mobile Network Firewall/Enable	Flag to enable/disable the "Mobile	OFF
	Network Firewall", that is	
	disable/enable access to the Z-PASS and	
	other devices which are in the Z-PASS	
	LAN, by using the IP address assigned to	
	the Mobile Network (3G) interface.	
	To open a port in the firewall, a "Port	

Mapping / Virtual Server" rule shall be	
defined.	

The above parameter shall be set to ON, to protect the Z-PASS against undesired (maybe malicious) accesses.

This is the only parameter in the "Router Configuration" page that is working also when the Router functionality is disabled (Router Enable = OFF).

It is important to note that, when the VPN is activated (see 21.1.7 paragraph), the parameter is automatically set to ON, as warned by the message shown in the following figure.

🗋 Z-PASS2	× Giovanni — 🗆	×
← → C 🛈 192.16	8.85.104:8080/vpn_save.php?do=2 ☆	
SENECA®	Z-PASS2	
General Configuration	VPN Configuration [user: admin] [logout]	
Main View	Firmware Version: SW003900_224 [Modem: UC20GQBR03A14E1G]	
Network and Services		
Serial Ports	MAC Address: C8F9811B0000 [IMEI: 861075026500975] [IMSI: 222101600237890]	
Gateway Configuration	Internet Access: Ethernet	
Real Time Clock Setup	Modbus Shared Memory Gateway: running	
VPN Configuration	Router: running	
Router Configuration		
Users Configuration	VDN Day application charged	
FW Upgrade	VPN Box configuration changed.	
Conf. Management	Mobile Network Firewall has been enabled.	
Shared Memory Tag Conf.		
Tag Setup		
Tag View Mobile Configuration		
Mobile Network		
DDNS Configuration		
Digital I/O		
Digital I/O Configuration		
Diagnostics		
FW Versions		
Ethernet Interfaces		

Finally, there are 5 sections which let you define up to 5 "Port Mapping" rules (also known as "Virtual Servers"); for each section, the available parameters are the following:

Field	Meaning	Default value
Protocol	This parameter defines the transport	TCP/UDP
	protocol (or kind of port) which is	
	affected by the rule: TCP, UDP or both	
External Port	TCP or UDP port which a packet was	Empty
	originally sent to	
Server IP Address	IP address which the received packet is	Empty
	forwarded to	
Internal Port	TCP or UDP port which the received	Empty
	packet is forwarded to	

If Router is left disabled (Router Enabled = OFF), you can still change parameters; changes will be saved without actually applying them (except for the "Mobile Network Firewall" parameter, as told before); the following message will be given, after clicking the "APPLY" button:

 	🗋 Z-PASS2	× Giovanni — — ×
General Configuration Router Configuration [user: admin] [logout] Main View Firmware Version: SW003900_224 [Modem: UC20GQBR03A14E1G] Network and Services MAC Address: C8F9811B0000 [IMEI: 861075026500975] [IMSI: 222101600237890] Serial Ports MAC Address: C8F9811B0000 [IMEI: 861075026500975] [IMSI: 222101600237890] Gateway Configuration Modbus Shared Memory Gateway: running Router: disabled Router Configuration (router not active). FW Upgrade Router Configuration changed (router not active). Tag Setup Router Configuration (router not active). Dista I/O Configuration Nobile Configuration Digital I/O Configuration Firmwork Firmwork Firmwork Firmwork Firmwork Firmwork	← → C 🛈 192.168	8.85.104:8080/mobile_router_save.php?do=1
Main ViewFirmware Version: SW003900_224 [Modem: UC20GQBR03A14E1G]Network and ServicesFirmware Version: SW003900_224 [Modem: UC20GQBR03A14E1G]Serial PortsMAC Address: C8F9811B0000 [IMEI: 861075026500975] [IMSI: 222101600237890]Gateway ConfigurationInternet Access: EthernetModbus Shared Memory Gateway: runningRouter: disabledRouter: disabledRouter: disabledRouter ConfigurationRouter Configuration changed (router not active).FW UpgradePorter Configuration changed (router not active).Conf. ManagementShared Memory Tag Conf.Shared Memory Tag StupNobile ConfigurationMobile NetworkDDNS ConfigurationDigital I/ODigital I/ODigital I/ODigital I/ODigital I/OFW Versions	SENFCA ®	Z-PASS2
Main ViewFirmware Version: SW003900_224 [Modem: UC20GQBR03A14E1G]Network and ServicesFirmware Version: SW003900_224 [Modem: UC20GQBR03A14E1G]Serial PortsMAC Address: C8F9811B0000 [IMEI: 861075026500975] [IMSI: 222101600237890]Gateway ConfigurationInternet Access: EthernetReal Time Clock SetupModbus Shared Memory Gateway: runningVPN ConfigurationRouter: disabledRouter: disabledAccer Configuration changed (router not active).FW UpgradePouter Configuration changed (router not active).Conf. ManagementShared Memory Tag Conf.Shared Memory Tag SetupNobile ConfigurationMobile NetworkDDNS ConfigurationDigital I/ODigital I/ODigital I/ODigital I/ODigital I/OFW Versions	General Configuration	Router Configuration [user: admin] [logout]
Network and ServicesSerial PortsGateway ConfigurationGateway ConfigurationReal Time Clock SetupVPN ConfigurationRouter ConfigurationUsers ConfigurationFW UpgradeConf. ManagementShared Memory Tag Conf.Tag SetupTag ViewMobile NetworkDDNS ConfigurationDigital I/ODigital I/ODigital I/ODigital I/ODigital I/ODigital I/ODigital I/ODigital I/ODigital I/ODigital I/OTag SetupFW Versions		
Serial Ports Internet Access: Ethernet Gateway Configuration Modbus Shared Memory Gateway: running Real Time Clock Setup Router: disabled VPN Configuration Router: disabled Router Configuration Potter Configuration changed (router not active). FW Upgrade Router Configuration changed (router not active). Conf. Management Shared Memory Tag Conf. Tag Setup Shared Memory Tag Conf. Tag View Shared Network DDNS Configuration Shared Network Digital I/O Shared Network Digital I/O Configuration Shared Network Digital I/O Configuration Shared Network FW Versions Shared Network	Network and Services	
Gateway ConfigurationInternet Access: EthernetReal Time Clock SetupModbus Shared Memory Gateway: runningVPN ConfigurationRouter: disabledRouter ConfigurationRouter: configuration changed (router not active).FW UpgradeRouter Configuration changed (router not active).Conf. ManagementShared Memory Tag Conf.Shared Memory Tag Conf.Shared SetupTag SetupShared Memory Tag Conf.Tag ViewShared Memory Tag Conf.Mobile ConfigurationShared Memory Tag Conf.Digital VOStared Memory ConfigurationDigital VOStared MemoryDigital VOStared MemoryDigital VOStared MemoryDigital VOStared MemoryFW VersionsStared Memory	Serial Ports	MAC Address: C8F9811B0000 [IMEI: 861075026500975] [IMSI: 222101600237890]
Real Time Clock SetupModbus Shared Memory Gateway: runningVPN ConfigurationRouter: disabledRouter ConfigurationPouter Configuration changed (router not active).FW UpgradeRouter Configuration changed (router not active).Conf. ManagementShared Memory Tag Conf.Shared Memory Tag Conf.FW UpiradeTag SetupFW UpirationMobile ConfigurationFW UpirationMobile NetworkFW UpirationDigital I/OFW UpirationDigital I/O ConfigurationFW Versions		Internet Access: Ethernet
VPN Configuration Router: disabled Router Configuration Pouter Configuration changed (router not active). FW Upgrade Pouter Configuration changed (router not active). Conf. Management Shared Memory Tag Conf. Shared Memory Tag Conf. Tag Setup Tag Setup Tag View Mobile Configuration Pouter Configuration changed (router not active). DIS Configuration Pouter Configuration changed (router not active). Digital I/O Pouter Configuration changed (router not active). Digital I/O Configuration Pouter Configuration Pigital I/O Configuration Pouter Configuration Point I/O Configuration Pouter Configuration Pigital I/O Configuration Pouter Configurat		Modbus Shared Memory Gateway: running
Router Configuration Users Configuration FW Upgrade Conf. Management Shared Memory Tag Conf. Tag Setup Tag View Mobile Configuration Mobile Configuration Mobile Network DDNS Configuration Digital I/O Digital I/O Digital I/O FW Versions		
Users Configuration FW Upgrade Conf. Management Shared Memory Tag Conf. Tag Setup Tag View Mobile Configuration Mobile Configuration Mobile Network DDNS Configuration Digital I/O Digital I/O Configuration Digital I/O Configuration Digital I/O Configuration FW Versions		Router: disabled
FW Upgrade Router Configuration changed (router not active). Conf. Management Shared Memory Tag Conf. Tag Setup Tag View Tag View Mobile Configuration Mobile Network DDNS Configuration Digital I/O Digital I/O Configuration Digital I/O Configuration Her Configuration FW Versions FW Versions		
Conf. Management Shared Memory Tag Conf. Tag Setup Tag View Mobile Configuration Mobile Network DDNS Configuration Digital I/O Digital I/O Configuration Digital I/O Configuration Biagnostics FW Versions		Router Configuration changed (router not active).
Shared Memory Tag Conf.Tag SetupTag ViewMobile ConfigurationMobile NetworkDDNS ConfigurationDigital I/ODigital I/O ConfigurationDiagnosticsFW Versions		
Tag SetupTag ViewMobile ConfigurationMobile NetworkDDNS ConfigurationDigital I/ODigital I/O ConfigurationDiagnosticsFW Versions		
Tag ViewMobile ConfigurationMobile NetworkDDNS ConfigurationDigital I/ODigital I/O ConfigurationDiagnosticsFW Versions		
Mobile Configuration Mobile Network DDNS Configuration Digital I/O Digital I/O Configuration Diagnostics FW Versions		
Mobile Network DDNS Configuration Digital I/O Digital I/O Configuration Diagnostics FW Versions		
Digital I/O Digital I/O Configuration Diagnostics FW Versions		
Digital I/O Digital I/O Configuration Diagnostics FW Versions	DDNS Configuration	
Digital I/O Configuration Diagnostics FW Versions		
Diagnostics FW Versions		
Ethernet Interfaces	FW Versions	
	Ethernet Interfaces	

If you try to enable the DHCP server functionality (DHCP Enable = ON), but the "DHCP First Address" and "DHCP Last Address" parameters define an address range that is not congruent with the Ethernet configuration (IP address and network mask), an error is given, as shown in the following figure:

🗋 Z-PASS2	× Stovenni – Stovenni	×
$\boldsymbol{\leftarrow}$ \rightarrow \mathbf{C} (i) 192.168	8.85.104:8080/mobile_router_save.php?do=1	:
SENECA®	Z-PASS2	
General Configuration	Router Configuration [user: admin] [logout]	
Main View	Firmware Version: SW003900_224 [Modem: UC20GQBR03A14E1G]	
Network and Services	MAC Address: C8F9811B0000 [IMEI: 861075026500975] [IMSI: 222101600237890]	
Serial Ports		
Gateway Configuration	Internet Access: Ethernet	
Real Time Clock Setup	Modbus Shared Memory Gateway: running	
VPN Configuration	Bouter: disabled	
Router Configuration		
Users Configuration		
FW Upgrade	Invalid DHCP parameters ! Configuration not changed.	
Conf. Management		
Shared Memory Tag Conf.		
Fag Setup		
Tag View		
Mobile Configuration		
Aobile Network		
DNS Configuration		
Digital I/O		
Digital I/O Configuration		
Diagnostics		
FW Versions		
Ethernet Interfaces		

As already told before, the Router configuration page lets you define up to 5 "Port Forwarding" rules or "Virtual Servers".

An example is given in the following figure:

Th Z-PASS2	×			Ciovanti	-		×
← → C 0 1	92.168.85.104:8080/mobile_router.php				Q	☆ 7	1 1
	Z-PASS2 Router Configuration [user: admin] [logout]						Î
Main View	Firmware Version: SW003900_232 [Modem:]	JC20GQBR03A	14E1G]				
Network and Services	MAC Address: C8F9811B0000 [IMEI: 8610750						
Serial Ports	Internet Access: Ethernet						- 8
Gateway Configuration Real Time Clock Setup	Gateway: running [Data Logger: running (no	group enabled	1				- 8
VPN Configuration		group enabled	11				- 8
Router Configuration	Router: running						
Users Configuration		CURRENT	UPDATED				
FW Upgrade	Router Enable	ON	ON V				
Conf. Management	Ethernet Bandwidth Limitation	Unlimited	Unlimited V				
Shared Memory Tag Conf. Tag Setup	DNS-DHCF						
Tag View	DNS Enable	ON	ON V				
TCP Servers	DHCP Server Enable		OFF V				
Mobile Configuration	DHCP First Address		192.168.90.201				
Mobile Network DDNS Configuration	DHCP Last Address	192.168.90.210	192.168.90.210				
Digital I/O Configuration	DHCP Lease Time (min)	15	15				
Digital I/O Configuration	Use Local Addresses through VPN						
Logic Configuration SMS Configuration	Enable	ON	ON 🔻				
Phonebook	Mobile Network Firewall						
Diagnostics	Enable	ON	ON V				
FW Versions	Port Mapping / Virtual Server 1						
Ethernet Interfaces Data Logger (SD found)	Protocol	TCP	TCP V				
General Settings	External Port	80	80				
Group Configuration	Server IP Address						
SD File Manager	Internal Port	8080	8080				
	Port Mapping / Virtual Server 2						
	Protocol	TCP/UDP	TCP/UDP V				
	External Port	502	502				
	Server IP Address	192.168.85.103	192.168.85.103				
	Internal Port	502	502				
	Port Mapping / Virtual Server 3						
		TCP/UDP	TCP/UDP V				
	External Port						
	Server IP Address						
	Internal Port						
	Port Mapping / Virtual Server 4						
	Protocol	TCP/UDP	TCP/UDP V				
	External Port						
	Server IP Address						
	Internal Port						
	Port Mapping / Virtual Server 5						
		TCP/UDP	TCP/UDP V				
	External Port						
	Server IP Address						
	Internal Port						
							-

In this example, 2 rules have been set:

• the first rule tells Z-PASS that any TCP packet received on the 80 (HTTP) port has to be forwarded to the 8080 port, leaving the original destination IP address unchanged; so, this rule lets you access the Z-PASS configuration web site on the standard HTTP port;

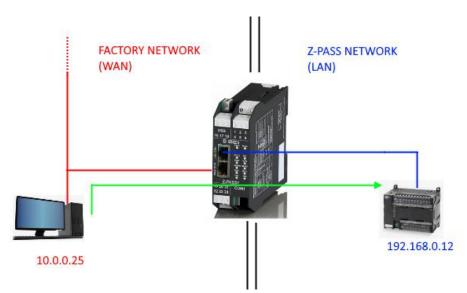
• the second rule tells Z-PASS that any TCP or UDP packet received on the 502 port (which is often used for Modbus TCP protocol) shall be forwarded to the 192.168.85.103 IP address (which corresponds to another device) on the same (502) destination port.

Another important aspect of "Port Mapping / Virtual Server" rules is that they let define <u>which ports are</u> <u>open in the "Mobile Network Firewall"</u>; for example, if you want to connect to the web configuration site and to the SSH console, through the public IP address assigned to the 3G interface, the 8080 and 22 TCP ports shall be open; this can be done as shown in the following figure.

🗋 Z-PASS2	×			Ciovanti	-		×
← → C ① 19	92.168.85.104:8080/mobile_router.php				Q	☆ 人	:
SENECA General Configuration Main View Network and Services Serial Ports Gateway Configuration	Z-PASS2 Router Configuration [user: admin] [logout] Firmware Version: SW003900_232 [Modem: U MAC Address: C8F9811B0000 [IMEI: 8610760 Internet Access: Ethernet	26666172] [IMS	: 222101600237893]				
Real Time Clock Setup VPN Configuration Router Configuration	Gateway: running [Data Logger: running (no Router: running	group enabled)	I				
Users Configuration FW Upgrade Conf. Management Shared Memory Tag Conf. Tag Setup Tag View	Router Enable Ethernet Bandwidth Limitation <i>DNS-DHOP</i> DNS Enable	Unlimited	UPDATED ON V Unlimited V				
TCP Servers Mobile Configuration Mobile Network DDNS Configuration Digital I/O Configuration Digital I/O Configuration	DHCP Server Enable DHCP First Address DHCP Last Address DHCP Last Address DHCP Lease Time (min) Use Local Addresses through VPN	192.168.90.201 192.168.90.210	OFF ▼ 192.168.90.201 192.168.90.210 15				
Logic Configuration SMS Configuration Phonebook Diagnostics FW Versions	Enable Mobile Network Firewall Enable Fort Mapping / Virtual Server 1		ON V				
Ethernet Interfaces Data Logger (SD found) General Settings Group Configuration SD File Manager	Protocol External Port Server IP Address Internal Port	8080	TCP 8080 8080 8080				
	Port Mapping / Virtual Server 2 Protocol External Port Server IP Address Internal Port	22	TCP 22 22 22				
	Port Mapping / Virtual Server 3 Protocol External Port Server IP Address Internal Port	TCP/UDP	TCP/UDP				
	Port Mapping / Virtual Server 4 Protocol External Port Server IP Address Internal Port	TCP/UDP	TCP/UDP V				
	Port Mapping / Virtual Server 5	TCP/UDP	TCP/UDP V				
	Internal Port						

21.1.9 NAT 1:1 RULES

You can use this feature for access a device (for example) from WAN to the LAN (a PC in the WAN network that must obtain data from a PLC in the LAN network):



For to do this you must create a new address (10.0.0.26) that is in a compatible network with the PC (10.0.0.25) so:

	CURRENT	UPDATED
NAT 1:1 Configuration		
Interface		WAN ~
Device IP Address		192.168.0.12
Mapped IP Address		10.0.0.26
Description		WAN to LAN ACCESS1
APPLY		

Now the PLC 192.168.0.12 is accessible from the WAN using the 10.0.0.26 address.

WARNING!

In SWITCH mode this feature is not available (only in LAN/WAN mode)!

21.1.10 STATIC ROUTES

Use this function for route an address or a range of addresses to different gateways.

For example if you must reach 2 different addresses: 192.168.85.23 and 192.168.82.56 but you need to pass from 2 different gateways.

1) For access to the 192.168.85.23 you must pass from the 192.168.80.1 Gateway

2) For access to the 192.168.82.56 you must pass from the 192.168.80.100 Gateway

So you must configure:

	CURRENT	UPDATED
Static Route Configuration		
Destination Address		192.168.85.23
Subnet Mask		255.255.255.255
Gateway		192.168.80.1
Interface		LAN V
Description		Go to 85

And then:

	CURRENT	UPDATED
Static Route Configuration		
Destination Address		192.168.82.56
Subnet Mask		255.255.255.255
Gateway		192.168.80.100
Interface		LAN V
Description		Go to 82

21.1.11 OPC-UA Server Configuration

By clicking on the "OPC-UA Server Conf." link, in the "Basic Configuration" menu, you come to the following page:

Z-PASS2

OPC-UA Server Conf. [user: admin] [logout]

Firmware Version: SW003900_280 [Modem: EC21EFAR02A03M4G]

MAC Address: C8F9811B0001 [IMEI: 861108030033046] [IMSI: 240422600279769]

Internet Access: Ethernet

Gateway: running [Data Logger: running (no group enabled)]

Router: disabled

	CURRENT	UPDATED
OPC-UA Server Conf.		
Enable NOTE: this parameter can be ON, only if Modbus Shared Memory Gateway is enabled NOTE: if ON, the server will be available at the following URL opc.tcp://IP_Address:Port/	ON	ON V
Port	4840	4840
Username	seneca	seneca
Password	seneca	seneca
Certificate Enable	OFF	OFF •
APPLY		
OPC-UA Serve .crt,.cer,.key,.pem files must be in .der files must be in DER (b	n PEM (ASCII) format.	
Ser	ver certificate	Scegli file Nessun file selezionato
Serv	er private key	Scegli file Nessun file selezionato
Truste	d certificate 1	Scegli file Nessun file selezionato
Truste	d certificate 2	Scegli file Nessun file selezionato
Truste	d certificate 3	Scegli file Nessun file selezionato
Truste	d certificate 4	Scegli file Nessun file selezionato
Truste	d certificate 5	Scegli file Nessun file selezionato

In this page, you can set the parameters related to the OPC Unified Architecture (OPC-UA) server, as listed in the following table:

Field	Meaning	Default value
Enable	Flag to enable/disable the OPC-UA	OFF
	server functionality	
Port	OPC-UA server TCP port	4840
Username	Username that an OPC-UA Client shall	empty
	use to connect to the server	
Password	Password that an OPC-UA Client shall	empty
	use to connect to the server	
Security Policy	Select between "None"	"None"
	Or "None, Basic128Rsa15,	
	Basic256Sha256"	
	Note: A predefined couple of certifates	

are inlcuded in the Z-PASS.		

You can add yours certificates with the buttons

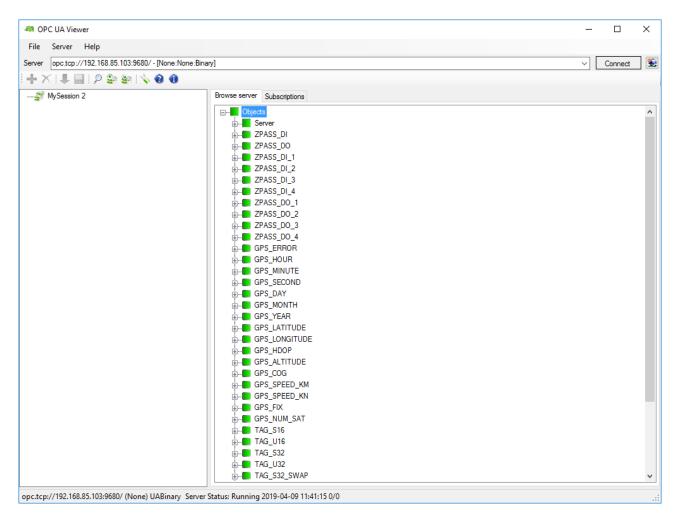
Note that, to access the Z-PASS OPC-UA server, a client shall use the following URL:

opc.tcp://IP_ADDR:PORT/

where: IP_ADDR is the Z-PASS IP address PORT is the TCP port configured for the OPC-UA server

Z-PASS OPC-UA server "exports" the Modbus Shared Memory Gateway tags; so, using an OPC-UA Client software, you can read/write the tags by means of the OPC-UA protocol.

The following figure shows the Z-PASS Modbus Shared Memory Gateway tags as seen by the Comm Server OPC UA Viewer SW.



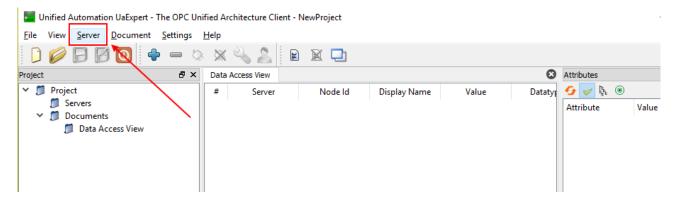
Since the Z-PASS OPC-UA server is used to "export" the Modbus Shared Memory Gateway tags, when Modbus Shared Memory Gateway is not active, also the OPC-UA server is disabled (the Enable flag is set to OFF and can't be changed to ON).

NOTE: For all Z-PASS OPC-UA Server variables the namespace-id is fixed to "1".

21.1.11.1 UA Expert Client Configuration

This chapter will help you to configure the connection and the correct Security Policy with the UA Expert Client

Click Select Server-> add



Go to Custom Discovery then enter the string to connect to the Z-PASS OPC-UA server:

	d	
ndpoint Filter: No Filte	-	
	21 	
Q Local		
 V Gold Networ V Microsoft 	rk t Windows Network	
	t Terminal Services	
> 🥑 Web Clier		
✓		
	click to Add Reverse Discovery >	
🗸 🗑 Custom Disco	overy	
	click to Add Server >	
 Recently Used 		
🛗 Seneca O	Enter URL 2	<
		`
	Enter the URL of a computer with discovery service runnin	ng:
	opc.tcp://192.168.85.103:4840	J
	OK Cancel	
Authentication Settir	nas	
Anonymous	.3.	
Anonymous		
Username		Store
Password		
		1
Certificate		
Certificate		

Then press OK.

Now the server capability are shown:

Add Server	? ×
Configuration Name	
Discovery Advanced	
Endpoint Filter: No Filter	•
 Local Local Network Microsoft Windows Network Microsoft Terminal Services Web Client Network Web Client Network Custom Discovery Custom Discovery Custom Discovery Custom Discovery Custom Discovery Seneca OPC UA Application (opc.tcp) Basic128Rsa15 - Sign (uatcp-uasc-uabinary) Basic256Sha256 - Sign & Encrypt (uatcp-uasc-uabinary) 	
Authentication Settings	
Anonymous	
Username	Store
Password	
Certificate	
O Private Key	
Connect Automatically	
OK	Cancel

Set Security Policy that you want to use and then the Aythentication settings:

Add Server		? ×
Configuration Name Seneo	a OPC UA Application	
Discovery Advanced		
Endpoint Filter: No Filter		•
🔍 Local		
🗸 🐼 Local Network	:	
> 👷 Microsoft	Windows Network	
> 🔮 Microsoft	Terminal Services	
> 🔮 Web Clien	t Network	
👻 🐼 Reverse Disco		
	click to Add Reverse Discovery >	1
🗸 🐼 Custom Disco		
	click to Add Server >	<u> </u>
	192.168.85.103:4840	
	OPC UA Application (opc.tcp)	
	ne - None (uatcp-uasc-uabinary)	X
	sic128Rsa15 - Sign (uatcp-uasc-uabinary)	
	sic128Rsa15 - Sign & Encrypt (uatcp-uasc-uabinary	·/
	sic256Sha256 - Sign (uatcp-uasc-uabinary)	
V 🖸 Recently Used	sic256Sha256 - Sign & Encrypt (uatcp-uasc-uabinar	y)
	C UA Application	
	с од дррисацон	/
Authentication Settin	js	
Anonymous		
Username	seneca	Store
Password	•••••	
Certificate		
Private Key		
Private Key		
Connect Automatically		
	OK	Cancel

Then press OK:

Now we can connect to the server by using the plug icon:

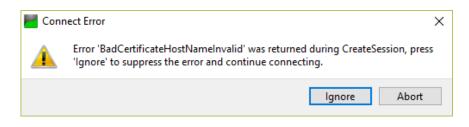
🔡 Ur	iified Automation UaExpert - The	OPC Unifie	d Architectur	e Client - New	Project*		
File	View Server Document S	Settings H	elp				
	🥟 🕞 🗭 💽 🗣	- 🗞	× 4,	2	r 🗗		
Project		8 × 1	Data Access V	iew			
~	 Project Servers Seneca OPC UA Applic Documents Data Access View 			Server		Node ld	Displ
Addres	s Space	₽×					

A new dialog window for validating the Server's certificate will open. After examining the certificate, choose Trust Server Certificate to permanently add the certificate to UaExpert's trust list. It is also possible

to check the box at Accept the server certificate temporarily for this session and choose Continue to not save the certificate in the trust list, or to choose Cancel to reject the certificate.

Validating the certifica	ate of server 'Seneca OPC UA /	Application' returned an error:				
BadCertificateCh	nainIncomplete					
rtificate Chain						
lame		Trust Status				
621253a64ba620	064857470f51763bbbeaf13a961	Trusted				
rtificate Details						
rrors Error	SubjectAltName is missing	- this extension is mandatory according	to th			
Error		ertificate [BadCertificateChainIncomple				
Error unable to get certificate CRL [BadCertificateRevocationUnknown]						
Error		rtificate [BadCertificateChainIncomplete	4]			
ubject						
Common Name	621253a64ba62064857470f	51763bbbeaf13a961				
Organization	SENECA					
OrganizationUnit	SENECA					
Locality	Padova					
State	Padova					
Country	IT					
DomainComponent						
suer	-					
Common Name	621253a64ba62064857470f	51763bbbeaf13a961				
Organization	SENECA					
OrganizationUnit						
Locality	PD					
State	PD					
Country	IT					
DomainComponent						
alidity	-					
Valid From	ven 18. gen 16:08:20 2019					
Valid To	gio 13. gen 16:08:20 2039					
r	<u>,</u>					

Now the Certificate Error Window will shown:



Click "Ignore" to continue.

Now the connection is done, you can read the tags from the left side:

	— Q	- 🗙 🔧 🤶 📗	E 🛛 🖵		
Project	₽×	Data Access View			
 Project Servers Seneca OPC UA Appl Documents Data Access View 	ication	# S	erver	Node ld	Display I
Address Space	₽×				
😏 No Highlight	-				
 Objects Objects					

To update in real time the tags value drag and drop the Tags that you want to monitor:

D 💋 🕞 🗭 🧿 🔶 📼 🛇	×	🔌 🤰 🖹 🖹 💆								
roject & ×	Data	Access View								
 Project Servers Sence OPC UA Application Documents Data Access View 	2	Server Seneca OPC UA Application Seneca OPC UA Application Seneca OPC UA Application	Node ld NS1 Strinq V1024 NS1 Strinq V1025 NS1 Strinq V1026	V1025	0 0	Value	Datatype Ulnt16 Ulnt16 Ulnt16 Ulnt16	15:23:23.510	Good Good Good	Statuscode
ddress Space 🗗 🗙										
🖌 No Highlight 👻										
> ∨ 10712 ▲ > ∨ 10713 > ∨ 10713 > ∨ 10713 > ∨ 10713 > ∨ 10715 > ∨ 10716 > ∨ 10716 > ∨ 10717 > ∨ 10718 > ∨ 1072 > ∨ 1022 > ∨ 1022 > ∨ 1022 > ∨ 1022 > ∨ 1022 > ∨ 1022 > ∨ 1022 > ∨ 1023 > ∨ 1022 > ∨ 1022 > ∨ 1022 > ∨ 1023 > ∨ 1028 > ∨ 1028 > ∨ 1028 > ∨ 1033										

21.1.12 Users Configuration

By clicking on the "Users Configuration" link, in the "Basic Configuration" section, you come to the following page:

Z-PASS2	×			🤔 Ciovani	0 —		×
← → C ① 192.168	3.85.104:8080/users.php					☆ 🗡	:
SERVECA® General Configuration Main View Network and Services Serial Ports Gateway Configuration Real Time Clock Setup VPN Configuration	Z-PASS2 Users Configuration [user: admin Firmware Version: SW003900_224 MAC Address: C8F9811B0000 [IM Internet Access: Mobile Modbus Shared Memory Gateway Router: running	I [Modem: UC El: 861075026		237890]			
Router Configuration Users Configuration		CURRENT	UPDATED				
FW Upgrade	WEB ADMINISTRATOR						
Conf. Management	WEB ADMINISTRATOR						
Shared Memory Tag Conf.	Username	admin	admin				
Tag Setup	Password	admin	admin				
Tag View	WEB GUEST						
Mobile Configuration	Username		quest				
Mobile Network			guest				
DDNS Configuration Digital I/O	Password	guest	guest				
Digital I/O Configuration	FTP USER						
Diagnostics	Username		user				
FW Versions							
Ethernet Interfaces	Password	123456	123456				
			APPLY				

In this page, you can change the "Web Administrator", "Web Guest" and "FTP User" credentials, as explained in the following table:

Field	Meaning					Default value
WEB ADMINISTRATOR/Username	Username	to	access	the	web	admin
	configuratio	n site	(full acces			

WEB ADMINISTRATOR/Password	Password to access the web admin configuration site (full access)
WEB GUEST/Username	Username to access the web guest
	configuration site, in "view-only mode"
	(see paragraph 21.7.2)
WEB GUEST/Password	Password to access the web guest
	configuration site, in "view-only mode"
	(see paragraph 21.7.2)
FTP USER/Username	Username to access the Device user
	FTP/SFTP site
FTP USER/Password	Password to access the Device FTP/SFTP 123456
	site

For all the fields in this page, the following characters are allowed:

a-zA-ZO-9-_|!@\$%^&*?+{}<>;,:.

each field can contain up to 100 characters.

The same rules apply to the other "Username" and "Password" fields of the web pages and to the "Tag Name" field of the "VPN Configuration" page.

Please note that, after changing the Web Administrator credentials, a new login will be required to access any page.

21.2 Mobile Configuration

21.2.1 Mobile Network

By clicking on the "Mobile Network" link, in the "Mobile Configuration" section, you come to the following page:

Image: Provide and Provide Automatic Automatic Provide and Provide Automatic Automatic Provide Automatic Provide and Provide Automatic Automatic Provide and Provide Automatic Automatic Provide Provide Automatic Provide A	☐ Z-PASS2	×	🕫 Ciovanni — 🗆 🗙
SERVECA® Z-PASS2 General Configuration Mobile Network [user: admin] [logout] Network and Services Sevial Ports Serial Ports MAC Addrese: C8F9811B0000 [IMEI: 861075026500975] [IMSI: 222101600237890] Internet Access: Ethernet MAC Addrese: C8F9811B0000 [IMEI: 861075026500975] [IMSI: 222101600237890] Internet Access: Ethernet Modbus Shared Memory Gateway: running VPN Configuration Router: running Router: running CURRENT VPN Configuration Router: running Conf. Maagement SMM Shared Memory Tag Conf. PIN (if required by SIM) Tag Steup Operator Selection Mobile Configuration Mode DDNS Configuration Dotat Connection Digital I/O Configuration Data Connection Digital I/O Configuration Enable OFF OFF ▼	← → C ① 192.168	3.85.104:8080/mobile_network.php	☆ ▶ :
General Configuration Mobile Network [user: admin] [logout] Firmware Version: SW003900_224 [Modem: UC20GQBR03A14E1G] Network and Services Serial Ports Gateway Configuration Real Time Clock Setup Modbus Shared Memory Gateway: running VPN Configuration Router Configuration FW Upgrade Configuration FW Upgrade Shared Memory Tag Conf. Tag Setup Operator Selection Mobile Configuration Mobile Configuration Digital I/O Diagnostics FW Versions Authentication Type None None Ping Connection Testing IP Address Ping Connection Testing IP Address Ping Connection Testing IP Address			A .
Main View Firmware Version: SW003900_224 [Modem: UC20GQBR03A14E1G] Network and Services MAC Address: C8F9811B0000 [IMEI: 861075026500975] [IMSI: 222101600237890] Serial Ports Internet Access: Ethernet Gateway Configuration Nodbus Shared Memory Gateway: running VPN Configuration Router: running Router: configuration CURRENT UPDATED FW Upgrade Sime Conf. Management Sime Shared Memory Tag Conf. PIN (if required by SIM) 8342 Mobile Configuration Operator Selection Mobile Configuration Mode Automatic Automatic Mobile Configuration Deprator Selection Mobile Configuration Deprator Selection Digital I/O Deta Connection Digital I/O Deta Connection Digital I/O Configuration Enable OFF Digital I/O Configuration Enable OFF • Digital I/O Configuration Enable Ping Connec	Inequality (Server)		
Network and Services MAC Address: C8F9811B0000 [IMEI: 861075026500975] [IMSI: 222101600237890] Gateway Configuration Internet Access: Ethernet Real Time Clock Setup Modbus Shared Memory Gateway: running VPN Configuration Router: running Router Configuration Router: running VPN Configuration CURRENT UPDATED FW Upgrade StM Conf. Management Shared Memory Tag Conf. Shared Memory Tag Configuration PIN (if required by SIM) 8342 8342 Operator Selection Modele Automatic Automatic Mobile Configuration Operator Selection Operator Ist not available Diagnostics APN Mode Automatic Automatic FW Versions APN Mode Automatic Automatic Ethernet Interfaces APN Mode Automatic Automatic Ping Connection Testing IP None None Ping Connection Testing IP Address pass pass Ping Connection Testing IP Address www.google.com www.google.com		Mobile Network [user: admin] [logout]	
Serial Ports MAC Address: C8F9811B0000 [IMEI: 861075026500975] [IMSI: 222101600237890] Gateway Configuration Internet Access: Ethernet Real Time Clock Setup Modbus Shared Memory Gateway: running VPN Configuration Router: running Router Configuration Router: running VPN Configuration Router: running Configuration CURRENT UPDATED FW Upgrade Silf Shared Memory Tag Conf. PIN (if required by SIM) 8342 Shared Memory Tag Configuration Operator Selection Tag Setup Operator Selection Tag View Operator Selection Mobile Configuration Dopstal I/O Digital I/O Data Connection Digital I/O Data Connection Digital I/O Data Connection Digital I/O Data Connection Ethernet Interfaces APN Mode Automatic Automatic Automatic T Ethernet Interfaces APN Mode Automatic Automatic P Username Username Username user Ping Connection Testing IP None Ping Connection Testing IP Modie.com		Firmware Version: SW003900_224 [Modem: UC20GQBR	03A14E1G]
Serial Ports Internet Access: Ethernet Gateway Configuration Router: running Real Time Clock Setup Modbue Shared Memory Gateway: running VPN Configuration Router: running Router Configuration Router: running VPU Operator UPDATED FW Upgrade SilM Conf. Management SilM Shared Memory Tag Conf. PIN (if required by SIM) 8342 Tag Setup Operator Selection Tag View Mode Mobile Configuration Mode Mobile Configuration Mode DDNS Configuration Operator Selection Digital I/O Deta Connection Digital I/O Deta Connection Digital I/O Deta Connection Digital I/O Deta Connection FW Versions APN Mode Authentication Typ None Ver Ver Internet Interfaces APN Ping Connection Testing IP Address Ping Connection Testing IP Address Ping Connection Testing IP Address Versions gata Setue		MAC Address: C8F9811B0000 [IMEI: 861075026500975]	[IMSI: 222101600237890]
Cateway Configuration Real Time Clock Setup Modbus Shared Memory Gateway: running VPN Configuration Router: running Router Configuration CURRENT UPDATED Vsr Configuration CURRENT UPDATED VFV Upgrade SIM Current Conf. Management SiM Current Shared Memory Tag Conf. PIN (if required by SIM) 8342 8342 Tag Setup Operator Selection Tag Vew Mobile Configuration Mode Automatic Automatic Mobile Configuration Operator Selection Tag Vew DDNS Configuration Operator Operator Relation Operator Iist not available * DDNS Configuration Data Connection Operator Iist not available * Digital I/O Data Connection FV Versions FW Versions APN Mode Automatic Automatic * Ethernet Interfaces APN Mode Automatic Mone * Username user user Ping Connection Testing IP Address www.google.com www.google.com (if empty, testing is disabled) www.google.com www.google.com			
VPN Configuration Router: running Reuter Configuration CURRENT UPDATED Users Configuration Sill UPDATED FW Upgrade Sill Conf. Management Shared Memory Tag Conf. PIN (if required by SIM) 8342 8342 Tag Setup Operator Selection Tag View Automatic Automatic Image: Selection Mobile Configuration Mode Automatic Automatic Image: Selection			
Router Configuration CURRENT UPDATED Users Configuration SIM CURRENT UPDATED FW Upgrade SIM Save Save Save Conf. Management Shared Memory Tag Conf. PIN (if required by SIM) Save Save <td< td=""><td></td><td>Modbue Shared Memory Gateway: running</td><td></td></td<>		Modbue Shared Memory Gateway: running	
Users Configuration CURRENT UPDATED FW Upgrade SIM Conf. Management SIM Shared Memory Tag Conf. PIN (if required by SIM) Tag Setup Operator Selection Tag View Model Automatic Mobile Configuration Moded Mobile Network Operator Digital I/O Data Connection Digital I/O Configuration Data Connection Digital I/O Configuration Ethernet Interfaces Authentication Type None Versions Authentication Type Password pass Ping Connection Testing P pass Ping Connection Testing P www.google.com	-	Router: running	
FW Upgrade SIM Conf. Management SIM Shared Memory Tag Conf. PIN (if required by SIM) Tag Setup Operator Selection Tag View Mode Mobile Configuration Mode Mobile Network Operator Selection DDNS Configuration Mode Digital I/O Data Connection Digital I/O Data Connection Digital I/O Data Connection FW Versions APN Mode Automatic Automatic FW Versions APN Mode Automatic View Username user Username user Ping Connection Testing IP Address Mobile Configuration None Ping Connection Testing IP Address Muthentication Type None Authentication Testing IP Address (if empty, testing is disabled) www.google.com	_		
Conf. Management Similar Shared Memory Tag Conf. PIN (if required by SIM) 8342 8342 Tag Setup Operator Selection Tag View Mode Automatic Mobile Configuration Mode Automatic Mobile Network Operator [22201] I TIM (UMTS) Operator list not available ▼ DDINS Configuration Data Connection [22201] I TIM (UMTS) Operator list not available ▼ Digital I/O Data Connection OFF OFF ▼ Digital I/O Configuration Enable OFF OFF ▼ Digital I/O Configuration Enable OFF ■ OFF ▼ FW Versions APN Mode Automatic Automatic ▼ Ethernet Interfaces APN Mode Automatic Ibox.tim.it Ibox.tim.it Ibox.tim.it Ibox.tim.it Ibox.tim.it Username user user user Ping Connection Testing IP Address www.google.com www.google.com		CURRENT	UPDATED
Shared Memory Tag Conf. PIN (if required by SIM) 8342 8342 Tag Setup Operator Selection Automatic Automatic Image: Setup in the setup		SIM	
Tag Setup Operator Selection Tag View Mode Mobile Configuration Mode Mobile Network Operator DDNS Configuration Digital VO Digital VO Data Connection Digital VO Data Connection Digital VO Automatic Approximation Enable OFF OFF FW Versions APN Mode Authentication Type None None Vone Username user Username user Password pass Ping Connection Testing IP www.google.com		PIN (if required by SIM) 8342 8342	
Tag View Operator Selection Mobile Configuration Mode Mobile Network Operator DDNS Configuration [22201] I TIM (UMTS) Operator list not available ▼ Digital I/O Data Connection Digital I/O Configuration Enable OFF Digital I/O Configuration Enable OFF Digital I/O Configuration Enable OFF FW Versions APN Mode Automatic Ethernet Interfaces APN ibox.tim.it ibox.tim.it Ibox.tim.it ibox.tim.it ibox.tim.it Ibox.tim.it Username user Ibox.tim.terr Password pass Ping Connection Testing IP Address www.google.com www.google.com			
Mobile Configuration Mode Automatic Automatic Mobile Network Operator [22201] I TIM Operator list not available ▼ DDNS Configuration Data Connection OFF OFF ▼ Digital I/O Configuration Enable OFF ▼ OFF ▼ FW Versions APN Mode Automatic Automatic ▼ Ethernet Interfaces APN Mode Automatic Image: state stat		Operator Selection	
DDNS Configuration Digital I/O Data Connection Digital I/O Configuration Diagnostics OFF OFF • FW Versions APN Mode Automatic Automatic • Ethernet Interfaces APN ibox.tim.it ibox.tim.it Username user user user Ping Connection Testing IP Address www.google.com www.google.com		Mode Automatic Automati	ic 🔹
DDNS Configuration Dite Connection Digital I/O Data Connection Digital I/O Configuration Enable Diagnostics Automatic FW Versions APN Mode Ethernet Interfaces APN Authentication Type None Versions Username Username user Ping Connection Testing IP Address www.google.com (if empty, testing is disabled)	Mobile Network		r list not available 🔻
Digital I/O Configuration Enable OFF OFF ▼ Diagnostics APN Mode Automatic Automatic ▼ FW Versions APN Mode Automatic Automatic ▼ Ethernet Interfaces APN ibox.tim.it ibox.tim.it Authentication Type None None ▼ Username user user Password pass pass Ping Connection Testing IP Address (if empty, testing is disabled) www.google.com	DDNS Configuration	(UMTS)	
Diagnostics Enable OFF OFF ▼ FW Versions APN Mode Automatic Automatic ▼ Ethernet Interfaces APN ibox.tim.it ibox.tim.it Authentication Type None None ▼ Username user user user Password pass pass pass Ping Connection Testing IP Address www.google.com www.google.com	-	Data Connection	
FW Versions APN Mode Automatic Automatic Ethernet Interfaces APN ibox.tim.it ibox.tim.it Authentication Type None None Image: Comparison of the stress of the st		Enable OFF OFF V	
Ethernet Interfaces APN ibox.tim.it ibox.tim.it Authentication Type None None ▼ Username user user user Password pass pass pass Ping Connection Testing IP Address (if empty, testing is disabled) www.google.com www.google.com		APN Mode Automatic Automati	ic 🔻
Authentication Type None None Username user user Password pass pass Ping Connection Testing IP Address (if empty, testing is disabled) www.google.com www.google.com		APN ibox.tim.it ibox.tim.it	t
Password pass pass Ping Connection Testing IP Address www.google.com (if empty, testing is disabled) www.google.com			
Ping Connection Testing IP Address (if empty, testing is disabled)		Username user USEr	
Address www.google.com www.google.com (if empty, testing is disabled)		Password pass pass	
(if empty, testing is disabled)			
APPLY SHOW MOBILE STATUS GET OPERATOR LIST			gle.com
		APPLY SHOW MOBILE STATUS GET OPERATOR LIST	

The above figure shows the "Mobile Network" page for Z-PASS2.

In this page, you can change the parameters related to the Mobile Network, as listed in the following table:

Field	Meaning	Default value	
SIM/PIN (if required by SIM)	PIN needed to unlock the SIM card, if	1234	
	PIN locking functionality is enabled on		
	it ¹⁹		
Operator Selection/Mode	This parameter tells if the modem shall	Automatic	
(only on Z-PASS2)	select the Mobile Network Operator:		
	- automatically		
	(Mode=Automatic)		
	- as selected by the user		
	(Mode=Manual)		
	- reverting to "automatic" mode,		
	if "manual" selection fails (Mode		
	= Manual/ Automatic)		
Operator Selection/Operator	This parameter contains the list of the	"[22201] I TIM (UMTS)"	
(only on Z-PASS2)	Mobile Network Operators currently		
	available, that is detected by the		
	modem.		
	The list items are strings with the		
	following format:		
	- the MCC+MNC ²⁰ code in square		
	brackets (e.g.: "[22201]")		
	- the string identifying the		
	operator (e.g.: "I TIM")		
	- the access technology, that is		
	"GSM" or "UMTS", in brackets		
	This list is initially empty: it shall be filled		
	by clicking on the "GET OPERATOR LIST"		
	button.		
Data Connection/Enable	Flag to enable/disable the Mobile	OFF	
	Network connectivity		
Data Connection/APN Mode	This parameter tells if the APN and	Automatic	
	related parameters are automatically		
	retrieved (based on SIM IMSI)		
	(Mode=Automatic) or the values given		
	in this page are used (Mode=Manual).		
	When APN Mode = Automatic, APN,		
	Authentication Type, Username and		
	Password parameters are disabled.		
Data Connection/APN	Access Point Name, as given by the	ibox.tim.it	

¹⁹ Please note that the procedure to enable/disable the PIN locking functionality on the SIM is not performed by the Device. ²⁰ MCC = Mobile Country Code, MNC = Mobile Network Code

	Mobile Network Operator	
Data Connection/Authentication Type	Type of authentication required;	None
	possible values are: "None",	
	"CHAP/PAP", "CHAP only", "PAP only"	
Data Connection/Username	Username needed for UMTS/GPRS	user
	connectivity, as given by the Mobile	
	Network Operator; it may be empty, if	
	"Authentication Type" parameter is	
	"None"	
Data Connection/Password	Password needed for UMTS/GPRS	pass
	connectivity, as given by the Mobile	
	Network Operator; it may be empty, if	
	"Authentication Type" parameter is	
	"None"	
Data Connection/Ping Connection	FQDN or IP address used to periodically	www.google.com
Testing IP Address (if empty, testing is	check, by means of "ping" packets, if the	
disabled)	mobile connection is actually working; if	
	the field is lefty empty, the check is not	
	performed.	
	It is important to note that the FQDN or	
	IP address specified must be reachable	
	from the Z-PASS mobile network,	
	otherwise the Z-PASS will detect that	
	the mobile connection is not working	
	and will drop it.	

In the "Mobile Network" page, when you click on the "SHOW MOBILE STATUS" button, a new section appears, named "Mobile Status", showing:

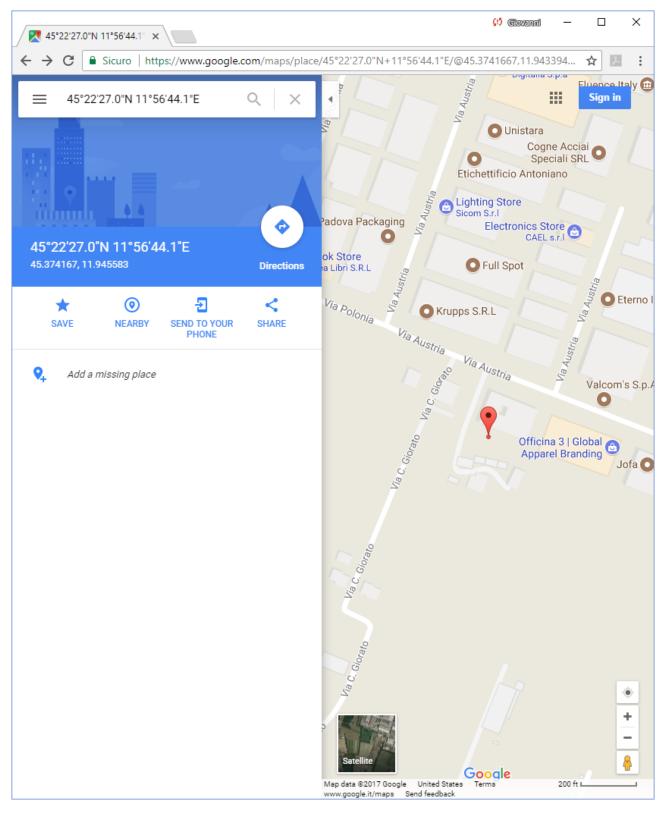
- the SIM/PIN Status; if an error in PIN setting has occurred or PUK/PUK2 setting is needed, this status is shown in red color
- the number of remaining attempts for PIN setting; when this value is less than 3 (shown in red color), it means that PIN setting has failed, that is the configured PIN value is wrong
- the radio "Signal Level", in the range [0..7]
- the selected operator (only for Z-PASS2)
- the GSM "Registration Status"
- the Mobile Network "Connection Status" (i.e.: "Disconnected" or "Connected")
- the IP address assigned to the Mobile Network interface when connected, the "dummy" IP address "0.0.0.0" when disconnected
- the number of packets/bytes received from the Mobile Network interface, when connected; "0/0" when disconnected
- the number of packets/bytes sent to the Mobile Network interface, when connected; "0/0" when disconnected

as shown in the following couple of figures:

C Z-PASS2	×		(!) Giovanni	_		×
← → C ③ 192.	168.85.104:8080/mobile_network.p	hp?showinfo=1		Q	☆	L :
SENECA® General Configuration Main View Network and Services Serial Ports Gateway Configuration Real Time Clock Setup VPN Configuration Router Configuration	Z-PASS2 Mobile Network [user: admin] [log Firmware Version: SW003900_22 MAC Address: C8F9811B0000 [IM Internet Access: Ethernet Modbus Shared Memory Gateway Router: running	4 [Modem: UC20 11 - 12 - 12 - 12 - 12 - 12 - 12 - 12 -	-			
Users Configuration		CURRENT	UPDATED			
FW Upgrade Conf. Management Shared Memory Tag Conf. Tag Setup	SIM PIN (if required by SIM) Operator Selection		8342			
Tag View Mobile Configuration Mobile Network DDNS Configuration	Mode Operator Data Connection	(0018)	Automatic			
Digital I/O Digital I/O Configuration Diagnostics	Enable APN Mode		OFF Automatic			
FW Versions Ethernet Interfaces	Authentication Type Username		None v user			
	Password Ping Connection Testing IP Address (if empty, testing is disabled) APPLY HIDE MOBILE STATUS	www.google.com	pass www.google.com LIST			
	Mobile Status SIM/PIN Status PIN required PIN Remaining Attempts 3 Signal Level [07] 5 Selected Operator "vodafone IT" (UMTS) Registration Status Registered (home network) Connection Status Disconnected IP Address 0.0.0 RX Packets / Bytes 0 / 0 GP8 Location 45.37421,11.94562 [Map]					
	REFRESH					

🕒 Z-PASS2	×		(!) Ciovanni	_		×
← → C ① 192.	168.85.104:8080/mobile_network.p	hp?showinfo=1		Q	☆ /	:
SENECA General Configuration Main View Network and Services Serial Ports Gateway Configuration Real Time Clock Setup VPN Configuration Router Configuration	Z-PASS2 Mobile Network [user: admin] [log Firmware Version: SW003900_22 MAC Address: C8F9811B0000 [IM Internet Access: Mobile Modbus Shared Memory Gatewar Router: running	4 [Modem: UC2(1EI: 8610750265	-			
Users Configuration		CURRENT	UPDATED			
FW Upgrade	SIM					
Conf. Management Shared Memory Tag Conf. Tag Setup	PIN (if required by SIM) Operator Selection		8342			
Tag View	Mode	Automatic	Automatic •			
Mobile Configuration Mobile Network	Operator	[22201] I TIM (UMTS)	Operator list not available 🔻			
DDNS Configuration	Data Connection					
Digital I/O	Enable	ON	ON V			
Digital I/O Configuration		Automatic	Automatic V			
Diagnostics	APN	ibox.tim.it	ibox.tim.it			
FW Versions	Authentication Type	None	None 🔻			
Ethernet Interfaces	Username		user			
	Password	pass	pass			
	Ping Connection Testing IP Address	www.google.com	www.google.com			
	(ir empty) teeting to distance)					
APPLY HIDE MOBILE STATUS GET OPERATOR LIST						
	Mobile 8 SIM/PIN 8 PIN Remaining Atte Signal Level Selected Opt Registration 9 Connection 8 IP Ad RX Packets / TX Packets / GPS Loc REFRESH	otatus empts [07] erator status otatus dress Bytes Bytes	PIN required 3 5 "vodafone IT" (UMT8) Registered (home network) Connected 10.211.101.167 6 / 65 6 / 98 45.37421,11.94562 [Map]			

As shown in the above figures, only for Z-PASS2, the last row of the "Mobile Status" gives the "GPS Location" as Latitude, Longitude values; clicking on the Map link, the Google Maps[™] on the current position are shown.



If the GPS signal is not available, the "GPS Location" row contains the string "Not fixed" and the <u>Map</u> link is not shown.

The following figure shows the situation when an error in PIN setting has occurred, due to a wrong value of the PIN parameter.

🕒 Z-PASS2	×		(!) Ciovanni	_		×
igstarrow igstarro	168.85.104:8080/mobile_network.p	hp?showinfo=1		Q	☆	:
SENECA General Configuration Main View Network and Services Serial Ports Gateway Configuration Real Time Clock Setup VPN Configuration	Z-PASS2 Mobile Network [user: admin] [log Firmware Version: SW003900_22 MAC Address: C8F9811B0000 [IM Internet Access: Ethernet Modbus Shared Memory Gateway Router: running	4 [Modem: UC20 IEI: 8610750265	-			
Router Configuration Users Configuration		CURRENT	UPDATED			
FW Upgrade	SIM	CONTRACT	or extract			
Conf. Management Shared Memory Tag Conf.	PIN (if required by SIM)	1234	1234			
Tag Setup	Operator Selection					
Tag View	Mode	Automatic	Automatic •			
Mobile Configuration	Operator	[22201] I TIM (UMTS)	Operator list not available 🔻			
Mobile Network	Data Connection	(0018)				
DDNS Configuration Digital I/O		0.55				
Digital I/O Configuration	Enable APN Mode		OFF Automatic			
Diagnostics		ibox.tim.it	ibox.tim.it			
FW Versions	Authentication Type		None v			
Ethernet Interfaces	Username		user			
	Password Ping Connection Testing IP Address (if empty, testing is disabled)	www.google.com	pass www.google.com			
	APPLY HIDE MOBILE STATUS	GET OPERATOR	LIST			
	Mobile S					
	SIM/PIN S PIN Remaining Atte		PIN error 2			
	Signal Level [07] 4					
	Selected Operator No operator Registration Status Searching for ne					
	Connection Status Searching for netwo					
	IP Address 0.0.0.0					
	RX Packets / TX Packets /		0/0 0/0			
	GP8 Loc		Not fixed			
	REFRESH					

It should be noted that, when the PIN is set during procedures automatically performed by the Z-PASS firmware, if the number of remaining attempts is 1, no more attempt is done to avoid blocking the SIM.

You can refresh the Mobile Network status, by clicking on the "REFRESH" button.

You can hide the "Mobile Status" section, by clicking on the "HIDE MOBILE STATUS" button.

As already told above, the "GET OPERATOR LIST" button lets you retrieve the list of the operators currently available, that is detected by the modem (only on Z-PASS2).

When you click on the button, the following page is shown.

🗋 Z-PASS2	× Giovanni — — ×
← → C ③ 192.16	8.85.104:8080/mobile_network_scan.php ☆ 🗵 :
Serial Ports General Configuration Main View Network and Services Serial Ports Gateway Configuration Real Time Clock Setup VPN Configuration Bouter Configuration Users Configuration Users Configuration Shared Memory Tag Conf. Tag Setup Tag View Mobile Configuration Digital I/O Digital I/O Digital I/O Digital I/O Digital I/O Ethernet Interfaces	Action 2000 Provide Instruction 2001 Search 2012 Search 2013 Searc

Tipically, it takes about 1 minute to get the list, so the page shows the number of seconds elapsed.

Z-PASS2	(!) Giovenni —			×
	8.85.104:8080/mobile_network_scan.php	☆	j.	
 ← → C ① 192.16 SENECA[®] General Configuration Main View Network and Services Serial Ports Gateway Configuration Real Time Clock Setup VPN Configuration Router Configuration Users Configuration 	Z-PASS2 Mobile Network [user: admin] [logout] Firmware Version: SW003900_224 [Modem: UC20GQBR03A14E1G] MAC Address: C8F9811B0000 [IMEI: 861075026500975] [IMSI: 222101600237890] Internet Access: Ethernet Modbus Shared Memory Gateway: running Router: running		<u>ک</u>	:
FW Upgrade	Operator list retrieval in progress, please wait (15 seconds elapsed)			
Conf. Management Shared Memory Tag Conf. Tag Setup Tag View Mobile Configuration <i>Mobile Network</i> DDNS Configuration Digital I/O Digital I/O Configuration Diagnostics FW Versions Ethernet Interfaces				

When the procedure is completed, the following page is shown.

Z-PASS2	(!) Giovanni — E]	×
		10.00	
← → C ① 192.16	8.85.104:8080/mobile_network_scan.php	J.	:
SENECA®	Z-PASS2		
General Configuration	Mobile Network [user: admin] [logout]		
Main View	Firmware Version: SW003900_224 [Modem: UC20GQBR03A14E1G]		
Network and Services	MAC Address: C8F9811B0000 [IMEI: 861075026500975] [IMSI: 222101600237890]		
Serial Ports			
Gateway Configuration	Internet Access: Ethernet		
Real Time Clock Setup	Modbus Shared Memory Gateway: running		
VPN Configuration	Router: running		
Router Configuration			
Users Configuration	Operator list augessafully retrieved I		
FW Upgrade	Operator list successfully retrieved !		
Conf. Management			
Shared Memory Tag Conf.			
Tag Setup			
Tag View			
Mobile Configuration Mobile Network			
DDNS Configuration			
Digital I/O			
Digital I/O Configuration			
Diagnostics			
FW Versions			
Ethernet Interfaces			

After some seconds, the page automatically evolves to the "Mobile Network" page, with the operator list filled, as shown in the following figure.

Th Z-PASS2	×	(1) Ciovanni — 🗆 🗙
← → C () 192.16	8.85.104:8080/mobile_network.php	☆
	7-PASS2	A .
SLINLUA 🔍		
General Configuration	Mobile Network [user: admin] [logout]	
Main View	Firmware Version: SW003900_224 [Modem: UC20GQB]	R03A14E1G]
Network and Services	MAC Address: C8F9811B0000 [IMEI: 861075026500975] [IMSI: 222101600237890]
Serial Ports	Internet Access: Ethernet	
Gateway Configuration	Madhua Shavad Mamany Cataway wanzing	
Real Time Clock Setup	Modbus Shared Memory Gateway: running	
VPN Configuration	Router: running	
Router Configuration	OUDDENT	
Users Configuration	CURRENT	UPDATED
FW Upgrade	SIM	
Conf. Management Shared Memory Tag Conf.	PIN (if required by SIM) 8342 8342	
Tag Setup		
Tag View	Operator Selection	
Mobile Configuration	Mode Automatic Automa	atic 🔹
Mobile Network	Operator [22201] I TIM [22210] vodafone IT (GSM) 🔻
DDNS Configuration	(0MTS) [22210] vodafone IT (GSM)
Digital I/O] vodafone IT (UMTS)
Digital I/O Configuration] I TIM (GSM)] unknown (UMTS)
Diagnostics FW Versions	APN Mode Automatic	I WIND (UMTS)
Ethernet Interfaces	[22288]] I WIND (GSM)] 3 ITA (UMTS)
2	[22201	I TIM (UMTS)
	Authentication Type None	
	Username user USEF	
	Password pass pass	
	Ping Connection Testing IP Address www.google.com	oogle.com
	(if empty, testing is disabled)	Jogle.com
	APPLY SHOW MOBILE STATUS GET OPERATOR LIST	Г
		_

You can choose an operator from the list, to perform "Manual" or "Manual/Automatic" selection.

21.2.2 DDNS Configuration

By clicking on the "DDNS Configuration" link, in the "Mobile Configuration" section, you come to the following page:

Th Z-PASS2	×		💭 Ciovanni —		Х
$\leftarrow \rightarrow \mathbf{C}$ (i) 192.168	8.85.104:8080/ddns_conf.php		Ť	*	:
SENECA [®]	Z-PASS2				
General Configuration	DDNS Configuration [user: admin] [logout]			
Main View	Firmware Version: SW003900_224	I [Modem: UC	20GQBR03A14E1G1		
Network and Services		-	-		
Serial Ports	-	EI: 001070020	6500975] [IMSI: 222101600237890]		
Gateway Configuration	Internet Access: Ethernet				
Real Time Clock Setup	Modbus Shared Memory Gateway	: running			
VPN Configuration	Router: running				
Router Configuration					
Users Configuration		CURRENT	UPDATED		
FW Upgrade	DDNS Configuration			_	
Conf. Management	DDN3 Comgulation				
Shared Memory Tag Conf.	Туре	None	None •		
Tag Setup	Hostname				
Tag View	Username				
Mobile Configuration	Password			Ī	
Mobile Network	APPLY				
DDNS Configuration Digital I/O	74 TET				
Digital I/O Configuration					
Diagnostics	DDNS Update S	itatus			
FW Versions	s	tatus			
Ethernet Interfaces	IP Ad				

In this page, you can set the parameters related to the Dynamic DNS service, as listed in the following table:

Field	Meaning	Default value
Туре	Type of Dynamic DNS service;	None
	possible values are:	
	- None	
	- dyndns.it	
	- dyndns.org	
	- no-ip.com	
Hostname	The hostname provided with the service	empty
	subscription	
Username	The username provided with the service	empty
	subscription	
Password	The password provided with the service	empty
	subscription	

The parameters shall be set according to the DDNS service subscription; an example is given in the following figure.

Z-PASS2	×		Ciovanti	-		×
	curo 192.168.85.104:8080/ddns_conf.php				☆ ♪	:
SENECA [®] General Configuration	Z-PASS2 DDNS Configuration [user: admin] [logout]					
Main View Network and Services Serial Ports Gateway Configuration Real Time Clock Setup	Firmware Version: SW003900_232 [Modem: UC20GQBR03A14E1G] MAC Address: C8F9811B0000 [IMEI: 861075026666172] [IMSI: 2221016002378 Internet Access: Ethernet Gateway: running [Data Logger: running (no group enabled)]	393]				
VPN Configuration Router Configuration	Router: running					
Users Configuration FW Upgrade	CURRENT UPDATED					
Conf. Management Shared Memory Tag Conf. Tag Setup	Type None dyndns.it ▼ Hostname zpass.ddns.net					
Tag View TCP Servers Mobile Configuration	Username zpass_usr Password zpass_psw					
Mobile Network DDNS Configuration Digital I/O Configuration Digital I/O Configuration	DDNS Update Status					
Logic Configuration SMS Configuration Phonebook Diagnostics	Status IP Address					
FW Versions Ethernet Interfaces Data Logger (SD found)						
General Settings Group Configuration SD File Manager						

When an IP address assigned to the Mobile Network Interface has been bound with the hostname, the "DDNS Update Status" section appears like in the following figure.

SECIEDATION Z-PASS2 General Configuration Firmware Version: SW003900_224 [Modem: UC20GQBR03A14E1G] Nation View Firmware Version: SW003900_224 [Modem: UC20GQBR03A14E1G] Network and Services Gateway Configuration Gateway Configuration Real Time Clock Setup Yen Configuration Rodbus Shared Memory Gateway: running Router: running Router: running You Configuration DDNS Configuration Shared Memory Tag Conf. Type Yag Setup DDNS Configuration Nobile Network DDNS Configuration DDNS Configuration Password Nobile Network DDNS Update Status Digital IO Status good Notaristics Status good Fibernet Interfaces IP Address 91.80.6.100	General Configuration DDNS Configuration [user: admin] [logout] Wain View Firmware Version: SW003900_224 [Modem: UC20GQBR03A14E1G] Nate Version: SW003900_224 [Modem: UC20GQBR03A14E1G] Beral Ports MAC Address: C8F9811B0000 [IMEI: 861075026500975] [IMSI: 222101600237890] Bateway Configuration Mac Address: C8F9811B0000 [IMEI: 861075026500975] [IMSI: 222101600237890] Real Time Clock Setup Modbus Shared Memory Gateway: running Router: running Modbus Shared Memory Gateway: running Router: running DDNS Configuration W Upgrade DDNS Configuration Conf. Management Shared Memory Tag Configuration Shared Memory Tag Configuration Type dyndns.it dyndns.it Mobile Configuration Vusername Wobile Configuration Password Mobile Network Password Digital I/O DDNS Update Status Olynagostics Status W Versions Status		8.85.104:8080/ddns_conf.php		☆	<u>}-</u>
Main View Firmware Version: SW003900_224 [Modem: UC20GQBR03A14E1G] Network and Services MAC Address: C8F9811B0000 [IMEI: 861075026500975] [IMSI: 222101600237890] Serial Ports Internet Access: Mobile Gateway Configuration Modbus Shared Memory Gateway: running Real Time Clock Setup Modbus Shared Memory Gateway: running VPN Configuration Router: running Router Configuration CURRENT UPDATED VPN Upgrade DDNS Configuration Conf. Management Shared Memory Tag Conf. Shared Memory Tag Conf. Type dyndns.it dyndns.it Tag Setup Hostname zpasstest1.ns0.it zpasstest1.ns0.it DDNS Configuration Password Image: Configuration APPLY Digital I/O DDNS Update Status good	Main View Firmware Version: SW003900_224 [Modem: UC20GQBR03A14E1G] MAC Address: C8F9811B0000 [IMEI: 861075026500975] [IMSI: 222101600237890] Internet Access: Mobile Bateway Configuration Real Time Clock Setup VPN Configuration Router: running Router: running Router: running Router: running Router: running Router: running DDNS Configuration Firmware Versions Modbus Shared Memory Gateway: running Router: running Router: running Router: running DDNS Configuration Mobile Configuration Mobile Configuration Mobile Configuration Mobile Network DDNS Configuration Mobile Network DDINS Configuration Digital I/O Digital I/O </th <th>SENECA (SENECA)</th> <th></th> <th></th> <th></th> <th></th>	SENECA (SENECA)				
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Serial Ports MAC Address: C8F9811B0000 [IMEI: 861075026500975] [IMSI: 222101600237890] Internet Access: Mobile Internet Access: Mobile Real Time Clock Setup Modbus Shared Memory Gateway: running Router: running Router: running Router Configuration CURRENT UPDATED FW Upgrade DDNS Configuration UPDATED Conf. Management DDNS Configuration Type Shared Memory Tag Conf. Hostname zpasstest1.ns0.it zpasstest1.ns0.it Tag Setup Username Imagement Imagement Mobile Configuration Password Imagement Imagement Mobile Configuration Password Imagement Imagement Imagement Shared Memory Tag Conf. Hostname zpasstest1.ns0.it Imagement	Serial Ports MAC Address: C8F9811B0000 [IMEI: 861075026500975] [IMSI: 222101600237890] Gateway Configuration Internet Access: Mobile Modbus Shared Memory Gateway: running Modbus Shared Memory Gateway: running Router Configuration Router: running Router Configuration CURRENT UPDATED FW Upgrade DDNS Configuration Conf. Management Type dyndns.it dyndns.it Shared Memory Tag Conf. Hostname zpasstest1.ns0.it zpasstest1.ns0.it Tag Setup Hostname zpasstest1.ns0.it APPLY Digital I/O DDNS Update Status good		Firmware Version: SW003900_2	224 [Modem: UC	20GQBR03A14E1G]	
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FW Upgrade Conf. Management Shared Memory Tag Conf. Tag Setup Tag View Mobile Configuration Mobile Configuration Mobile Network DDNS Configuration Digital I/O Digital I/O Digital I/O Digital I/O Configuration Digital I/O Digital I/O <t< td=""><td>FW Upgrade Conf. Management Shared Memory Tag Conf. Tag Setup Tag View Mobile Configuration Mobile Configuration Mobile Network DDNS Configuration DDNS Configuration Digital I/O Digital I/O Digital I/O Digital I/O Digital I/O Status Good Status Good</td><td>Router Configuration</td><td></td><td></td><td></td><td></td></t<>	FW Upgrade Conf. Management Shared Memory Tag Conf. Tag Setup Tag View Mobile Configuration Mobile Configuration Mobile Network DDNS Configuration DDNS Configuration Digital I/O Digital I/O Digital I/O Digital I/O Digital I/O Status Good Status Good	Router Configuration				
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Therest Interfaces good	FW Versions good			21.1		
Ethernet Interfaces good	Ethernet Interfaces good	-	DDNS Opdate	e Status		
Ethernet Interfaces 91.80.5.100	Ethernet Interfaces 91.80.5.100			Status	good	
		Ethernet Interfaces	IP A	ddress	91.80.5.100	
		Ethernet Interfaces	IP A		-	

21.3 Shared Memory Tag Configuration

When the "Modbus Shared Memory/Enable" parameter, in the "Gateway Configuration" page, is set to "ON", in the left side menu, a new section named "Shared Memory Tag Configuration" is available, containing three links, as shown in the following figure.

General Configuration Main View Network and Services Serial Ports Gateway Configuration Real Time Clock Setup VPN Configuration **Router Configuration Users Configuration** FW Upgrade Conf. Management Shared Memory Tag Conf. Tag Setup Tag View TCP Servers Mobile Configuration Mobile Network **DDNS** Configuration Digital I/O Configuration Digital I/O Configuration Logic Configuration SMS Configuration Phonebook Diagnostics FW Versions Ethernet Interfaces

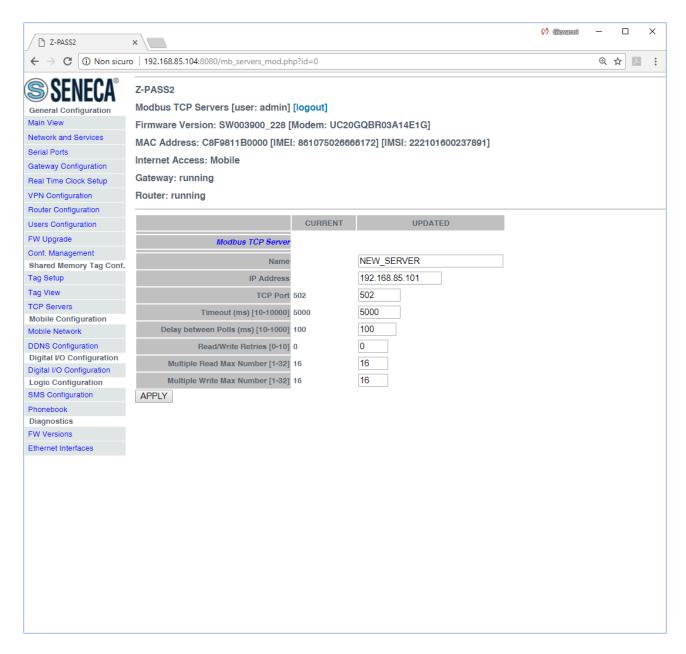
21.3.1 TCP Servers

By clicking on the "TCP Servers" link, in the "Shared Memory Tag Conf." section, you come to the following page:

D Z-PASS2	×							(!) Ciovanni	-		×
$\boldsymbol{\leftarrow}$ $ ightarrow$ \mathbf{C} (i) 192.168.8	5.104:80	080/mb_servers.php							Ð, 1	<u>۲</u>	
SENECA General Configuration Main View Network and Services Serial Ports Gateway Configuration Real Time Clock Setup VPN Configuration Router Configuration	Firm MAC Inter Gate	ous TCP Servers [u ware Version: SW0(ser: admin] <mark>[logout]</mark> 03900_228 [Modem: B0000 [IMEI: 8610756		-		391]				
Users Configuration FW Upgrade		ADD		MODIFY				DELETE			
Conf. Management Shared Memory Tag Conf.	#	Name	IP Address	TCP Port	Timeout	Poll Delay	Read/Write Retries	Mult.Read Max Num.		t.Writ c Num	
Tag Setup Tag View TGP Servers Mobile Configuration Mobile Network DDNS Configuration Digital I/O Configuration Logic Configuration SMS Configuration Phonebook Diagnostics FW Versions Ethernet Interfaces	1 2 3 4	ZPASS2_105 ZPASS2_106 ZKEY_83 ZPASS2S_103	192.168.105.101 192.168.106.101 192.168.85.83 192.168.107.101	502 1100 502 502	5000 5000 5000	100 100 100	0 0 0	16 16 16		16 16 16 16	

In this page, the list of the TCP Servers, used for Modbus Shared Memory Gateway functionality, is shown.

By clicking on the "ADD" button, a new TCP Server can be configured, as in the following figure.



The following table explains the meaning of the parameters related to a TCP Server.

Field	Meaning	Default value
Name	Mnemonic name of the TCP Server	empty
	This name is used to identify the TCP	
	Server in the "Tag Setup" and "Tag	
	View" pages.	
IP Address	IP Address of the TCP Server	empty
TCP Port	Modbus TCP Server port	502
Timeout (ms) [10-10000]	Connection/Response timeout for	5000
	Modbus TCP requests, in milliseconds	
Delay between Polls (ms) [10-1000]	Interval between Modbus TCP requests,	100
	in milliseconds	

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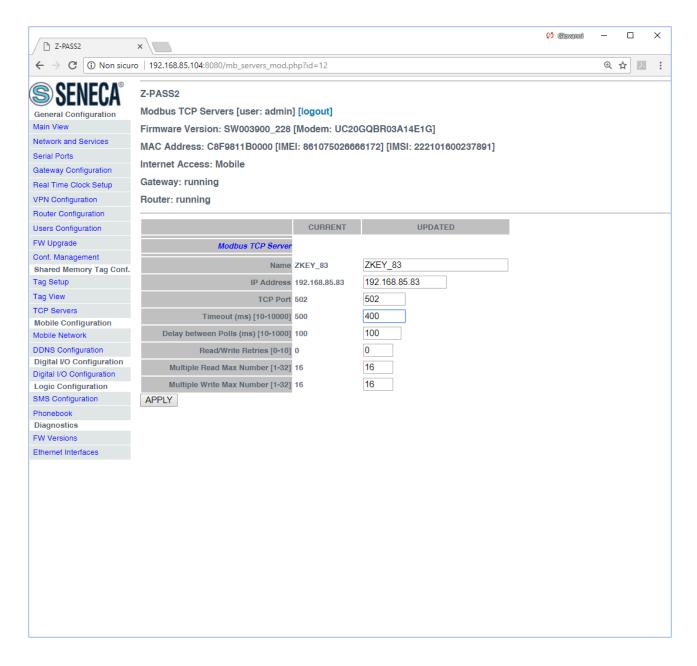
Read/Write Retries [0-10]	Maximum number of retries for Modbus TCP requests; this always applies to write requests; for read requests, it applies only to tags with "Gateway Tag Mode"="BRIDGE" (see 21.3.2.1	0
	paragraph)	
Multiple Read Max Number [1-32]	Maximum number of Modbus registers that can be read in a single Modbus TCP request; this is used to reduce the number of read requests sent over the TCP connection, thus performing	16
	optimization	
Multiple Write Max Number [1-32]	Maximum number of Modbus registers that can be written in a single Modbus TCP request; this is used to reduce the number of write requests sent over the TCP connection, thus performing optimization	16

<u>A maximum of 25 TCP Servers can be configured</u>; so, when trying to add the eleventh server, the following error message is shown.

Z-PASS2	×	🤨 Ciovanni			×
$\boldsymbol{\leftarrow}$ \rightarrow \boldsymbol{C} (i) 192.168.	5.104:8080/mb_servers_save.php?act=save&id=0		Ð	☆ ♪	
 ← → C ① 192.168.3 General Configuration Main View Network and Services Serial Ports Gateway Configuration Real Time Clock Setup VPN Configuration Router Configuration Router Configuration FW Upgrade Conf. Management Shared Memory Tag Conf. Tag Setup Tag View TCP Servers Mobile Configuration Digital I/O Configuration Digital I/O Configuration Digital I/O Configuration Digital I/O Configuration Setores FW Versions Ethernet Interfaces 	is104:000/mb_servers_tave.php?act=save&id=0 Z-PASS2 Modbus TCP Servers [user: admin] [logout] Firmware Version: SW003900_228 [Modem: UC20GQBR03A14E1G] MAC Address: C8F9811B0000 [IMEI: 861075026666172] [IMSI: 222101600237891] Internet Access: Ethernet Gateway: running Router: disabled Max number of servers reached ! Modbus TCP Server not added.		Q		

Selecting a TCP Server in the list and clicking on the "MODIFY" button, you can modify the TCP Server parameters, as in the following figures.

\frown Z-PASS2 \leftarrow \rightarrow C (1) 192.168.8	×	080/mb_servers.php						(!) Covenni	- □ > @☆⊿
SENECA General Configuration Main View Network and Services Serial Ports Gateway Configuration Real Time Clock Setup VPN Configuration Router Configuration	Firm MAC Inter Gate	bus TCP Servers [u ware Version: SW0	ser: admin] [logout] 03900_228 [Modem: B0000 [IMEI: 8610756		-		391]		
Users Configuration FW Upgrade		ADD		MODIFY				DELETE	
Conf. Management Shared Memory Tag Conf. Tag Setup	#	Name	IP Address	TCP Port	Timeout	Poll Delay	Read/Write Retries	Mult.Read Max Num.	Mult.Write Max Num.
Tag View TCP Servers Mobile Configuration Mobile Network DDNS Configuration Digital I/O Configuration Digital I/O Configuration SMS Configuration Phonebook Diagnostics FW Versions Ethernet Interfaces	1 2 3 4	ZPASS2_105 ZPASS2_106 ZKEY_83 ZPASS2S_103	192.168.105.101 192.168.106.101 192.168.85.83 192.168.107.101	502 1100 502 502	5000 5000 5000	100 100 100	0 0 0	16 16 16	16 16 16



Finally, selecting a TCP Server in the list and clicking on the "DELETE" button, you can remove it from the configuration.

21.3.2 Tag Setup

This page is used to configure the Modbus Shared Memory Gateway tags.

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					٢										^		
SSFNFCA"	Z-PASS2																
Basic Configuration	Gateway	Fag Setup [[user: admin] [l	logout]													
Summary	Firmware	Version: S	W003900 240 /	(Modem: U	C20GQBR03A14	1G1											
Network and Services				-	26666172] [IMSI: 2	-	2011										
Serial Ports			-	1. 00107302	200001723 [18/31.7	2210100023	201]										
Digital I/O Configuration	Internet A	ccess: Nor	ie														
Real Time Clock Setup	Gateway:	running [D	ata Logger: rui	nning]													
Bateway Configuration	Router: di	sabled															
PN Configuration																	
Router Configuration	Scegli file	Nessun fil	le selezionato	Import	t tag configuration	Export tag co	onfiguration										
Jsers Configuration		ADD		MODIFY		DELETE											
Mobile Configuration Mobile Network	F	00	N			DELETE											
DDNS Configuration				Page : 1/2	20 PREVIOUS PA	GE NEXT F	AGE										
Shared Memory Tag Conf.				i ago i ne	111211000111												
CP Servers																	
ag Setup	GATEWAY	GATEWAY MODBUS	GATEWAY	TARGET	TARGET MODB		TARGET REGISTER	TARGET	TARGET	TARGET MODBUS	GATEWAY			ERROR	ERROR	HTTP	ALARI
Tag View	TAG NR	START	TAG NAME	MODBUS DEVICE	RESOURCE STAR	T REQUEST	DATA	BIT	CONNECTED TO	STATION	TAG MODE	GAIN	OFFSET	MODE	VALUE	POST VID	ENABLI
Alarms Alarm Configuration					REGIST	ER TYPE HOLDING	16BIT							LAST			
larm Summary	1	1	ZPASS_DI	CUSTOM	1	REGISTER	UNSIGNED	0	EMBEDDED	1	EMBEDDED	1	0	VALUE	0	Vo	OFF
Alarm History	2	2	ZPASS_DO	CUSTOM	2	HOLDING	16BIT UNSIGNED	0	EMBEDDED	1	EMBEDDED	1	0	LAST VALUE	0	V1	OFF
Logic Configuration	3	1	ZPASS_DI_1	CUSTOM	1	DISCRETE	BOOL	0	EMBEDDED	1	EMBEDDED	1	0	LAST	0	V2	OFF
Phonebook	Ū	1	217100_01_1	000101		INPUT		0	LMDEDDED		LINDLUDLU	1	0	VALUE	0	*2	011
SMS Configuration	4	2	ZPASS_DI_2	CUSTOM	2	DISCRETE INPUT	BOOL	0	EMBEDDED	1	EMBEDDED	1	0	LAST VALUE	0	V3	OFF
Email Configuration	5	3	ZPASS_DI_3	CUSTOM	3	DISCRETE	BOOL	0	EMBEDDED	1	EMBEDDED	1	0	LAST VALUE	0	V4	OFF
HTTP Configuration						DISCRETE								LAST			
	6	4	ZPASS_DI_4	CUSTOM	4	INPUT	BOOL	0	EMBEDDED	1	EMBEDDED	1	0	VALUE	0	V5	OFF
Message Configuration			70400 00 1	CUSTOM		0.01	BOOL	0	EMBEDDED	1	EMBEDDED	1	0	LAST VALUE	0	V6	OFF
Rule Configuration	7	1	ZPASS_DO_1	COSTOW	1	COIL	DOOL										OFF
Rule Configuration Data Logger (SD missing)								0	EMBEDDED	1	EMBEDDED	1	0	LAST	0		
Message Configuration Rule Configuration Data Logger (SD missing) General Settings SD Transfer Conf.	7	1 2	ZPASS_DO_1	CUSTOM	1	COIL	BOOL	0	EMBEDDED	1	EMBEDDED	1	0	VALUE	0	V7	
Rule Configuration Data Logger (SD missing) General Settings								0	EMBEDDED EMBEDDED	1	EMBEDDED EMBEDDED	1 1	0 0	LAST VALUE LAST VALUE	0	V7 V8	OFF
Rule Configuration Data Logger (SD missing) Beneral Settings SD Transfer Conf.	8	2	ZPASS_DO_2	CUSTOM	2	COIL	BOOL							VALUE LAST VALUE LAST			
Aule Configuration Data Logger (SD missing) Beneral Settings SD Transfer Conf. TP Transfer Conf. Broup Configuration Maintenance	8 9 10	2 3 4	ZPASS_DO_2 ZPASS_DO_3 ZPASS_DO_4	CUSTOM CUSTOM CUSTOM	2 3 4	COIL COIL COIL	BOOL BOOL BOOL	0 0	EMBEDDED EMBEDDED	1	EMBEDDED EMBEDDED	1	0	VALUE LAST VALUE LAST VALUE	0 0	V8 V9	OFF OFF
Aule Configuration Data Logger (SD missing) Jeneral Settings ID Transfer Conf. TP Transfer Conf. Stoup Configuration Maintenance Lithernet Interfaces	8	2	ZPASS_DO_2 ZPASS_DO_3	CUSTOM CUSTOM	2	COIL COIL COIL HOLDING REGISTER	BOOL BOOL BOOL 16BIT SIGNED	0	EMBEDDED	1	EMBEDDED	1	0	VALUE LAST VALUE LAST VALUE LAST VALUE	0	V8	OFF
iule Configuration Data Logger (SD missing) ieneral Settings D Transfer Conf. TP Transfer Conf. iroup Configuration Maintenance	8 9 10	2 3 4	ZPASS_DO_2 ZPASS_DO_3 ZPASS_DO_4	CUSTOM CUSTOM CUSTOM	2 3 4	COIL COIL COIL HOLDING REGISTER HOLDING	BOOL BOOL BOOL 16BIT	0 0	EMBEDDED EMBEDDED	1	EMBEDDED EMBEDDED	1	0	VALUE LAST VALUE LAST VALUE LAST	0 0	V8 V9	OFF OFF

In this page, the following buttons (i.e. functionalities) are available.

Import tag configuration

This button allows the user to upload a binary file containing the tag configuration to the Z-PASS; this file shall have been exported from the "Microsoft Excel™ Template" (see 21.3.2.4 paragraph). When a configuration is loaded which does not contain valid VIDs, the message "NOTE: HTTP POST have been automatically set." is shown (as in the above figure).

Export tag configuration

This button allows the user to download a binary file containing the tag configuration from the Z-PASS; this file can be imported into the "Microsoft Excel[™] Template" (see 21.3.2.4 paragraph).

ADD

This button allows the user to add a new tag (see paragraph below); up to 2000 tags can be configured.

MODIFY

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This button allows the user to modify an existing tag (see paragraph below); the tag shall have been previously selected, by clicking on the corresponding table row, as shown in the following figure.

mmary Firmware mmary Firmware MAC Ad Internet ial Pots Internet al Time Clock Setup Gateway teway Configuration Router: N Configuration Sceglit uter Configuration Sceglit bile Network NS NS Configuration Sceglit view arms TAG Network y New arms 1 mm Configuration 1 mm Summary 2 gic Configuration 3 s S Configuration 4 all Configuration 4	S2 ay Tag Setup are Version: S Address: C8F9 et Access: Noi ay: running [E r: disabled lifile Nessun fi ADD	[user: admin] [W003900_240 811B0000 [IME ne Jata Logger: ru	[logout] [Modem: UC200 El: 86107502666 inning] [Import tag i MODIFY Page : 1/20 [TARGET DEVICE TARG CUSTOM	36172] [IMSI: 22	Export tag co DELETE E NEXT P TARGET MODEUS REQUEST TYPE HOLDING	AGE TARGET REGISTER DATA TYPE 108JT	TARGET BIT INDEX	TARGET CONNECTED TO	TARGET MODBUS STATION ADDRESS	GATEWAY TAG MODE	GAIN	OFFSET	ERROR		HTTP POST VID	ALARI
Vew Material Configuration Gateway	ay Tag Setup are Version: S Address: C8F9 et Access: Nor ay: running [[r: disabled ifilie Nessun fi ADD ADD NATEWAY NATEWAY NODBUS STAT HEGISTER	SW003900_240 INE INE	[Modem: UC20(Inning] Import tag MODIFY Page : 1/20 I TARGET DEVICE TARS CUSTOM	Configuration	Export tag co DELETE E NEXT P TARGET MODEUS REQUEST TYPE HOLDING	AGE TARGET REGISTER DATA TYPE 108JT	BIT	CONNECTED	MODBUS STATION		GAIN	OFFSET		ERROR	POST	ALARI
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1 Configuration 1 1 Summary 2 0 Configuration 3 Configuration 4 1 Configuration 5	1	-			HOLDING	16BIT			ADDRESS				1			
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I Configuration 5	1	ZPASS_DI_1	CUSTOM	1	INPUT	BOOL	0	EMBEDDED	1	EMBEDDED	1	0	VALUE	0	V2	OFF
- 5	2	ZPASS_DI_2	CUSTOM	2	DISCRETE INPUT	BOOL	0	EMBEDDED	1	EMBEDDED	1	0	LAST VALUE	0	V3	OFF
	3	ZPASS DI 3	CUSTOM	3	DISCRETE	BOOL	0	EMBEDDED	1	EMBEDDED	1	0	LAST VALUE	0	V4	OFF
P Configuration					DISCRETE								LAST			
sage Configuration 6	4	ZPASS_DI_4	CUSTOM	4	INPUT	BOOL	0	EMBEDDED	1	EMBEDDED	1	0	VALUE	0	V5	OFF
Configuration 7 a Logger (SD missing)	1	ZPASS_DO_1	CUSTOM	1	COIL	BOOL	0	EMBEDDED	1	EMBEDDED	1	0	LAST VALUE	0	V6	OFF
eral Settings 8	2	ZPASS_DO_2	CUSTOM	2	COIL	BOOL	0	EMBEDDED	1	EMBEDDED	1	0	LAST VALUE	0	V 7	OFF
ransfer Conf. 9	3	ZPASS_DO_3	CUSTOM	3	COIL	BOOL	0	EMBEDDED	1	EMBEDDED	1	0	LAST	0	V8	OFF
Transfer Conf.											_		VALUE LAST			
p Configuration 10	4	ZPASS_DO_4	CUSTOM	4	COIL	BOOL	0	EMBEDDED	1	EMBEDDED	1	0	VALUE	0	V9	OFF
rnet Interfaces 11	10	GPS_ERROR	CUSTOM	10	HOLDING	16BIT SIGNED	0	EMBEDDED	1	EMBEDDED	1	0	LAST VALUE	0	V10	OFF
ersions 12	11	GPS_HOUR	CUSTOM	11	HOLDING	16BIT	0	EMBEDDED	1	EMBEDDED	1	0	LAST	0	V11	OFF
Jpgrade		ar o_noon	000100		REGISTER	UNSIGNED		CMOCOOCO		CARCEDOED			VALUE			
Management																

DELETE

This button allows the user to delete a tag; the tag shall have been previously selected, by clicking on the corresponding table row.

21.3.2.1 Tag Creation/Modification

By clicking on the "ADD" or "MODIFY" button, you come to the following page.

Z-PASS2

Gateway Tag Setup [user: admin] [logout]

Firmware Version: SW003900_290 [Modem: EC21EFAR02A03M4G]

MAC Address: C8F9811B0001 [IMEI: 861108030033046]

Internet Access: Ethernet

Gateway: running [Data Logger: running (no group enabled)]

Router: disabled

TAG 27

	CURRENT	UPDATED	
GATEWAY TAG NAME	SHM_S16	SHM_S16	
GATEWAY MODBUS START REGISTER ADDRESS	101	101	Equivalent to the address in the Seneca documentation : 40101
TARGET CONNECTED TO	INTERNAL	INTERNAL V	
TARGET MODBUS REQUEST TYPE	HOLDING REGISTER	HOLDING REGISTER V	
TARGET REGISTER DATA TYPE	16BIT SIGNED	16BIT SIGNED •	
GATEWAY TAG MODE	SHARED MEMORY	SHARED MEMORY V	
INITIAL VALUE	0	0	
HTTP POST VID	26	26	Corresponding to HTTP POST variable : V26
READ ONLY	OFF	OFF •	If READ ONLY = ON, tag value cannot be changed by means of Modbus protocol
RETAIN	ON	ON 🔻	
CALCULATED FUNCTION	NONE	NONE *	
ALARM ENABLED	OFF	OFF *	This parameter can be changed in "Alarm Configuration" page
		APPLY	

The following table describes the available parameters.

Field	Meaning	Default value
Gateway Tag Name	Mnemonic name to identify the tag	TAG
Gateway Modbus Start Register Address	Start Register Address of the tag	1
Target Modbus Device	Type of Modbus device: "CUSTOM" or one of the following Seneca devices: "Z-D-IN" "Z-10-D-IN" "Z-D-OUT" "Z-10-D-OUT" "Z-D-IO" "ZC-24-DI"	CUSTOM

		1
	"ZC-16DI-8DO"	
	"Z-4-AI-1"	
	"Z-8-Al-1"	
	"Z-3-AO"	
	"Z-4-TC"	
	"Z-8-TC"	
	"Z-203"	
	"Z-4RTD-2"	
	"Z-SG"	
	"Z-DAQ-PID"	
	"S-203T"	
	"S-203TA"	
	"ZE-4DI-2AI-2DO"	
	"ZE-2AI"	
	"Z-4DI-2AI-2DO"	
	"S203TA-D"	
	"S203R-D"	
	"Z-PASS-IO"	
	"Z-PASS-GPS"	-
Target Resource	This field identifies a particular resource	Empty
	(tag) on one of Seneca devices; possibile	
	values depend on the selected device, in	
	"Target Modbus Device" field; if that	
	field is set to "CUSTOM", "Target	
	Resource" field is empty; when "Target	
	Resource" field is set, "Target Modbus	
	Start Register Address", "Target Modbus	
	Request Type" and "Target Register	
	Data Type" fields are automatically set	
Target Connected To	This field identifies the serial port the	The first available serial port,
	target device is connected to; possible	that is the first port with "Task"
	values are: COM1, COM2, COM4 (only if	other than "None"
	the ports are configured as master),	
	INTERNAL or the Modbus TCP-IP Server	
	name.	
	name.	
Target Modbus Station Address	Modbus Address of the target device	1
Target Modbus Start Register Address	Start Register Address of the tag on the	1
Taiber Moabas Start Register Address	Modbus device	-
Target Modbus Request Type	Possible Modbus data types:	HOLDING REGISTER
	COIL	
	DISCRETE INPUT	
	HOLDING REGISTER	
	INPUT REGISTER	
Target Register Data Type	Possible data types:	16 BIT SIGNED
	16BIT SIGNED	

	16BIT UNSIGNED	
	32BIT SIGNED MSW	
	32BIT UNSIGNED MSW	
	32BIT SIGNED LSW	
	32BIT UNSIGNED LSW	
	32BIT REAL MSW	
	32BIT REAL LSW	
	64BIT UNSIGNED MSW	
	64BIT UNSIGNED LSW	
	64BIT SIGNED MSW	
	64BIT SIGNED LSW	
	64BIT REAL LSW	
	BOOL	
	For more information about the above	
	data types, see table below	
Target Bit Index	This parameter defines the position, in	0
	the [016] interval, of the bit to be	-
	extracted from the tag value.	
	0 means no bit shall be extracted and	
	the tag value shall be taken as a whole.	
	This parameter is meaningful only when	
	the tag "Target Register Data Type" is	
	set to "16 BIT UNSIGNED"	
Gateway Tag Mode	This field defines how the tag will be	
	handled by the gateway processes;	
	possible values are:	
	GATEWAY, BRIDGE, SHARED MEMORY	
	or EMBEDDED.	
	The difference between Gateway and	
	Bridge is that the Bridge tags are	
	updated only when requested.	
	SHARED MEMORY are tags that can be	
	written from Modbus RTU/Modbus TCP-	
	IP or from the Logic Rules. These type of	
	tags can be used also for the Calculated	
	Tags.	
	l ~	
	EMBEDDED	
	for embedded Digital I/Os and GPS Info	
Gain	for embedded Digital I/Os and GPS Info tags (see next paragraphs)	1
Gain	for embedded Digital I/Os and GPS Info tags (see next paragraphs) This field corresponds to the <i>m</i>	1
Gain	for embedded Digital I/Os and GPS Info tags (see next paragraphs)	1

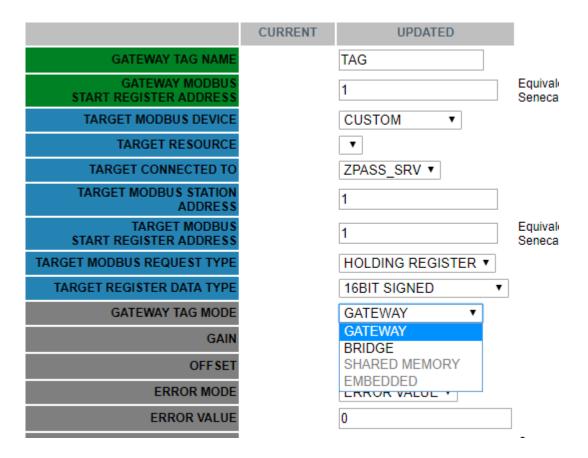
	formula applied to the <i>val</i> value read	
Offset	from the device This field corresponds to the q factor	0
	value in the	
	m*val + q	
	formula applied to the val value read	
	from the device	
Initial Value	This filed is available only if "Gateway	0
	Tag mode" is configured in "Shared	
	Memory" and define the TAG staring value.	
Error Mode	This field defines which value is given in	LAST VALUE
	the response to a Modbus (read)	
	request, when the value from the target	
	device is not available.	
	Possible modes are:	
	LAST VALUE: the last available value is	
	given	
	ERROR VALUE: the value specified in the	
	"ERROR VALUE" field is given	
Error Value	This field defines which value is given in	Empty
	the response to a Modbus (read)	
	request, when the value from the target	
	device is not available and the "ERROR MODE" field is set to "ERROR VALUE"	
HTTP POST VID	This field is used to build the "Variable	"V" + tag index, e.g. "V0" for the
	ID" (VID) which identifies the tag in	first tag, "V1" for the second
	HTTP POST requests (useful only when	and so on
	HTTP POST protocol is enabled).	
	The VID string is given by "V" character	
	plus the number contained in the field	
Read Only	If selected the tag can only be written	DISABLED
	from an external protocol (for example	
	Modbus RTU or TCP-IP) and not from a	
Retain	logic rule.	OFF
	If selected the tag is saved in a retain memory (feRAM), when you reboot the	
	device the last value is loaded from the	
	memory.	
	This option is available only for SHARED	
	MEMORY Tags.	
Calculated Function	Active only if Gatway Tag mode is	NONE
	"Shared Memory". Can be used for	
	calculate the MIN/MAX/AVG value of a	

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	tag. Note that the calculation is enabled only if the datalogger is enabled. The calculation time is the acquisition time.	
Alarm Enabled	This field is a read-only flag telling if an alarm is defined for the tag (see "Alarm Configuration" paragraph)	OFF

Data Type	Meaning
16BIT SIGNED	1 register, from -32768 to +32767
16BIT UNSIGNED	1 register, from 0 to 65535
32BIT SIGNED MSW	2 registers with the lowest address register holding the Most
	Significant Word, from -2147483648 to +2147483647
32BIT UNSIGNED MSW	2 registers with the lowest address register holding the Most
	Significant Word, from 0 to 4294967295
32BIT SIGNED LSW	2 registers with the lowest address register holding the Least
	Significant Word, from -2147483648 to +2147483647
32BIT UNSIGNED LSW	2 registers with the lowest address register holding the Least
	Significant Word, from 0 to 4294967295
32BIT REAL MSW	2 registers with the lowest address register holding the Most
	Significant Word, Floating Point single precision (IEEE 754-2008)
32BIT REAL LSW	2 registers with the lowest address register holding the Least
	Significant Word, Floating Point single precision (IEEE 754-2008)
64 BIT REAL LSW	4 registers, Floating Point double precision (IEEE 754-2008)
64BIT UNSIGNED MSW	4 with the lowest address register holding the Most Significant
	Word, from 0 to 18446744073709551616
64BIT UNSIGNED LSW	4 with the lowest address register holding the Least Significant
	Word, from 0 to 18446744073709551616
64BIT SIGNED MSW	4 with the lowest address register holding the Most Significant
	Word, from -9223372036854775808 to +9223372036854775807
64BIT SIGNED LSW	4 with the lowest address register holding the Least Significant
	Word, from -9223372036854775808 to +9223372036854775807
BOOL	1 Boolean Coil or Discrete Input register

The following figure shows the case when no serial port is used for Modbus Shared Memory Gateway and a TCP Server named "Z-PASS2_SRV" is configured; so the possible values for "GATEWAY TAG MODE" parameter are "GATEWAY" and "BRIDGE".



The following figure shows the case when "TARGET CONNECT TO" parmeter is "Internal" so the possible values for "GATEWAY TAG MODE" parameter are "SHARED MEMORY" and "BRIDGE".

	CURRENT	UPDATED	
GATEWAY TAG NAME		TAG	
GATEWAY MODBUS START REGISTER ADDRESS		1	Equivalent t Seneca doc
TARGET MODBUS DEVICE		CUSTOM *	
TARGET RESOURCE		•	
TARGET CONNECTED TO		INTERNAL 🔻	
TARGET MODBUS STATION ADDRESS		1	
TARGET MODBUS START REGISTER ADDRESS		1	Equivalent t Seneca doc
TARGET MODBUS REQUEST TYPE		HOLDING REGISTER *	
TARGET REGISTER DATA TYPE		16BIT SIGNED •	
GATEWAY TAG MODE		EMBEDDED 🔻	
ERROR MODE		GATEWAY BRIDGE	
ERROR VALUE		SHARED MEMORY]
HTTP POST VID		EMBEDDED	Correspond
VI00380-35	1	71	

Some more explanations are needed for "Gateway Tag Mode" parameter.

Tags with Mode=GATEWAY are handled in the "classic" Modbus Shared Memory Gateway way, that is tags are read periodically, even if no Modbus read request is received for those tags.

Tags with Mode=BRIDGE are read only when a Modbus read request is received for those tags.

Instead, for write operations, tags with Mode=GATEWAY and tags with Mode=BRIDGE are handled in the same way, that is tags are written only when a Modbus write request is received for those tags.

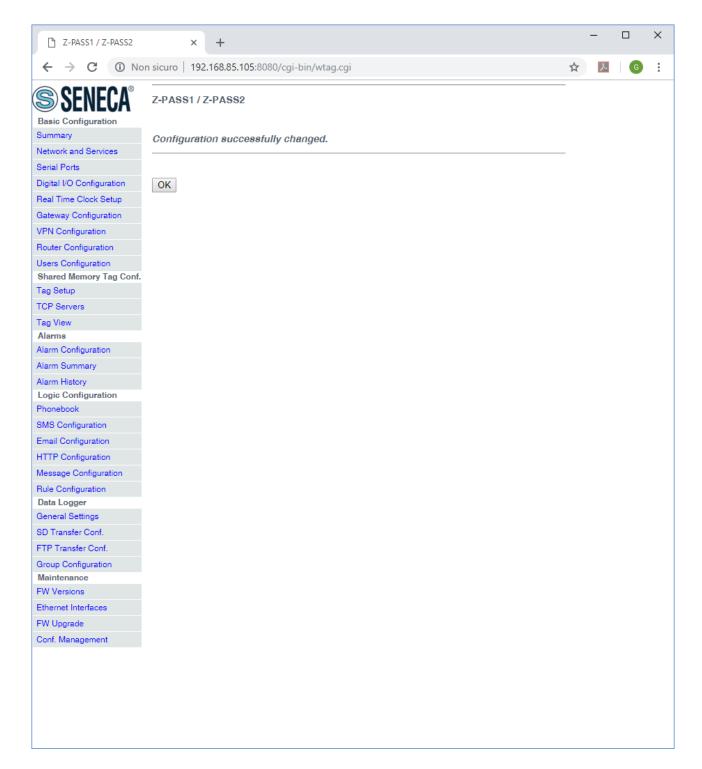
The Mode=BRIDGE option is particularly useful for Modbus RTU devices with the "Fail Safe" feature available for output lines, as for many Seneca devices; normally, those devices are designed to put their output lines to "fail safe" value, when the connection to the master (e.g. a SCADA system) goes down; since the criterion to detect the "connection failure" is that no Modbus (write and read) request is received, the "fail safe" mode can't be entered with "classic" gateway behaviour.

Tags with Mode=SHARED MEMORY are stored only in CPU memory, not in any device, so their values are written/read only when a Modbus write/read request is received for those tags.

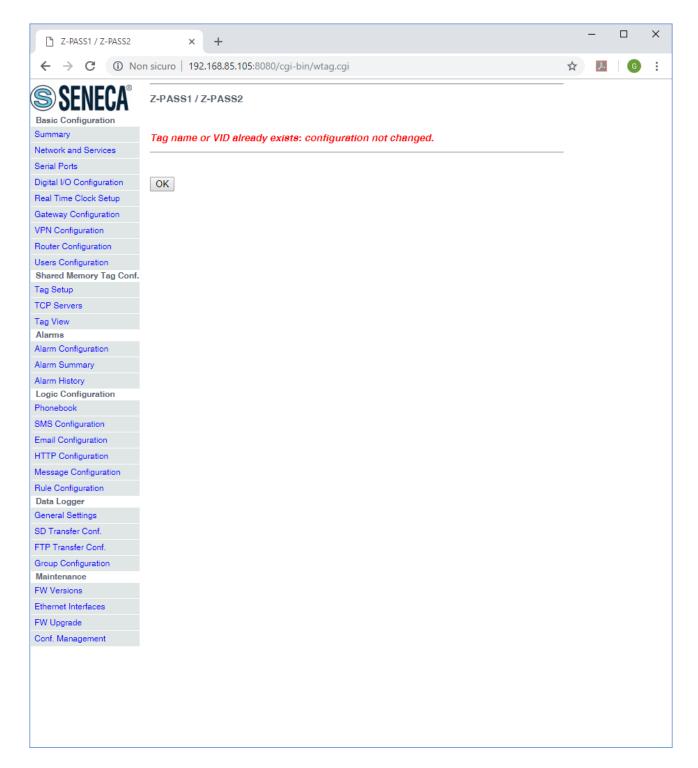
Tags Embedded are used for embedded I/O and GPS.

NOTE: all considerations related to requests received on the Modbus TCP/IP side identically apply to requests received on a serial port configured as Modbus RTU Slave.

By clicking on the "APPLY" button, the tag is added/modified and the following page is shown.



<u>To let the Data Logger functionality work properly, the tag names shall be distinct</u>; so if you add/modify a tag and its name is already assigned to another tag, the following error message is shown.

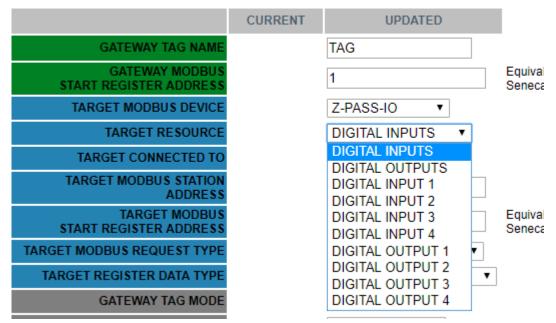


By clicking on the "OK" button, you go back to the "Gateway Tag Setup" page.

21.3.2.2 Tags for Embedded I/O

Tags corresponding to the Z-PASS embedded digital I/Os, as shown in the following figure:

TAG 127



Depending on the value of the "TARGET RESOURCE" parameter, the other parameters are set to the values shown in the following table:

TARGET RESOURCE	TARGET MODBUS RTU	TARGET MODBUS	TARGET REGISTER DATA
	START REGISTER ADDRESS	REQUEST TYPE	ТҮРЕ
DIGITAL INPUTS	1 (40001)	HOLDING REGISTER	16BIT UNSIGNED
DIGITAL OUTPUTS	2 (40002)	HOLDING REGISTER	16BIT UNSIGNED
DIGITAL INPUT 1	1 (10001)	DISCRETE INPUT	BOOL
DIGITAL INPUT 2	2 (10002)	DISCRETE INPUT	BOOL
DIGITAL INPUT 3	3 (10003)	DISCRETE INPUT	BOOL
DIGITAL INPUT 4	4 (10004)	DISCRETE INPUT	BOOL
DIGITAL OUTPUT 1	1 (1)	COIL	BOOL
DIGITAL OUTPUT 2	2 (2)	COIL	BOOL
DIGITAL OUTPUT 3	3 (3)	COIL	BOOL
DIGITAL OUTPUT 4	4 (4)	COIL	BOOL

You can easily check that these tags correspond to Modbus Registers defined in paragraph 21.1.6.1.1.

For these tags, other parameter values are fixed:

-	TARGET MODBUS SLAVE STATION ADDRESS	1
-	TARGET CONNECTED TO SERIAL PORT	EMBEDDED

- GATEWAY TAG MODE EMBEDDED

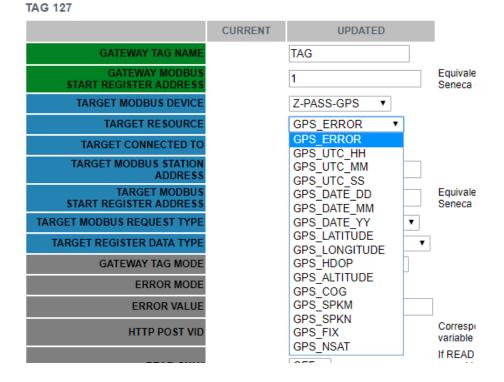
The default configuration for Z-PASS1 and Z-PASS2 already contain tags for embedded I/Os, as shown in the following figure.

```
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```

	×							Co	vanni —		×
\leftarrow \rightarrow C (i) 192.10	5 8.85.104 :8080	/mbgw_tag	_setup.php							☆ ≯	
SFNFCA [®]	Z-PASS2										
General Configuration	Gateway T	ag Setup I	[user: admin] [[tuonol							
Main View					00000000000000041	45101					
Network and Services				-	UC20GQBR03A1	-					
Serial Ports	MAC Addr	ess: C8F9	811B0000 [IME	I: 8610750)26666172] [IMSI	: 2220132	00438015]				
Gateway Configuration	Internet Ac	cess: Eth	ernet								
Real Time Clock Setup	Gateway: I	running [D	ata Logger: ru	nning (no	group enabled)]						
VPN Configuration	Router: ru										
Router Configuration		ining									
Users Configuration	Sceali file	Nessun fi	le selezionato	Impo	rt tag configuration	Export	tag configu	ation			
FW Upgrade		_			<u> </u>						
Conf. Management	A	DD	1	MODIFY		DEL	.ETE				
Shared Memory Tag Conf.			_								
Tag Setup				Page:1/	20 PREVIOUS F	PAGE N	EXT PAGE]			
Tag View											
TCP Servers		GATEWAY		TADOLT		TARGET	TARGET	TARGET	TADOLT	TARGE	Т
Mobile Configuration	GATEWAY	MODBUS	GATEWAY	TARGET MODBUS	TARGET	MODBUS	MODBUS	REGISTER	TARGET CONNECTED	MODBU	
Mobile Network	TAG NR	START REGISTER	TAG NAME	DEVICE	RESOURCE	START REGISTER	REQUEST TYPE	DATA TYPE	то	STATIO ADDRES	
DDNS Configuration Digital I/O Configuration	1	1	ZPASS_DI	Z-PASS-	DIGITAL INPUTS	1	HOLDING	16BIT	EMBEDDED	1	
Digital I/O Configuration				10				UNSIGNED			
Logic Configuration	2	2	ZPASS_DO	Z-PASS- IO	DIGITAL OUTPUTS	2	HOLDING REGISTER	16BIT UNSIGNED	EMBEDDED	1	I
SMS Configuration	3	1	ZPASS_DI_1	Z-PASS-	DIGITAL INPUT 1	1	DISCRETE	BOOL	EMBEDDED	1	1
Phonebook							INPUT DISCRETE				
Diagnostics	4	2	ZPASS_DI_2	Z-PASS- IO	DIGITAL INPUT 2	2	INPUT	BOOL	EMBEDDED	1	
a		3	ZPASS_DI_3	Z-PASS-	DIGITAL INPUT 3	3	DISCRETE	BOOL	EMBEDDED	1	1
FW Versions	5						INPUT				
FW Versions Ethernet Interfaces	5	0									
FW Versions Ethernet Interfaces Data Logger (SD missing)		4	ZPASS_DI_4	Z-PASS- IO	DIGITAL INPUT 4	4	DISCRETE	BOOL	EMBEDDED	1	E
FW Versions Ethernet Interfaces			ZPASS_DI_4 ZPASS_DO_1	Z-PASS-	DIGITAL INPUT 4 DIGITAL OUTPUT 1	4 1	DISCRETE	BOOL	EMBEDDED EMBEDDED	1 1	E
FW Versions Ethernet Interfaces Data Logger (SD missing) General Settings	6	4		Z-PASS- IO Z-PASS-	DIGITAL OUTPUT 1		DISCRETE INPUT				I
FW Versions Ethernet Interfaces Data Logger (SD missing) General Settings	6 7	4 1	ZPASS_DO_1	Z-PASS- IO Z-PASS- IO Z-PASS-	DIGITAL OUTPUT 1 DIGITAL OUTPUT 2	1	DISCRETE INPUT COIL	BOOL	EMBEDDED	1	
FW Versions Ethernet Interfaces Data Logger (SD missing) General Settings	6 7 8	4 1 2	ZPASS_DO_1 ZPASS_DO_2	Z-PASS- IO Z-PASS- IO Z-PASS- IO Z-PASS-	DIGITAL OUTPUT 1 DIGITAL OUTPUT 2 DIGITAL OUTPUT	1 2	DISCRETE INPUT COIL COIL	BOOL BOOL	EMBEDDED EMBEDDED	1	
FW Versions Ethernet Interfaces Data Logger (SD missing) General Settings	6 7 8 9	4 1 2 3	ZPASS_DO_1 ZPASS_DO_2 ZPASS_DO_3	Z-PASS- IO Z-PASS- IO Z-PASS- IO Z-PASS-	DIGITAL OUTPUT 1 DIGITAL OUTPUT 2 DIGITAL OUTPUT 3 DIGITAL OUTPUT	1 2 3	DISCRETE INPUT COIL COIL COIL	BOOL BOOL BOOL BOOL 16BIT	EMBEDDED EMBEDDED EMBEDDED	1 1 1	

21.3.2.3 Tags for GPS Info (Z-PASS2)

Tags corresponding to the Z-PASS2 GPS are shown in the following figure:



Depending on the value of the "TARGET RESOURCE" parameter, the other parameters are set to the values shown in the following table:

TARGET RESOURCE	TARGET MODBUS RTU	TARGET MODBUS	TARGET REGISTER DATA
	START REGISTER ADDRESS	REQUEST TYPE	ТҮРЕ
GPS_ERROR	10 (40010)	HOLDING REGISTER	16BIT SIGNED
GPS_UTC_HH	11 (40011)	HOLDING REGISTER	16BIT UNSIGNED
GPS_UTC_MM	12 (40012)	HOLDING REGISTER	16BIT UNSIGNED
GPS_UTC_SS	13 (40013)	HOLDING REGISTER	16BIT UNSIGNED
GPS_DATE_DD	14 (40014)	HOLDING REGISTER	16BIT UNSIGNED
GPS_DATE_MM	15 (40015)	HOLDING REGISTER	16BIT UNSIGNED
GPS_DATE_YY	16 (40016)	HOLDING REGISTER	16BIT UNSIGNED
GPS_LATITUDE	17 – 20 (40017 – 40020)	HOLDING REGISTER	64BIT REAL
GPS_LONGITUDE	21 – 24 (40021 – 40024)	HOLDING REGISTER	64BIT REAL
GPS_HDOP	25 – 28 (40025 – 40028)	HOLDING REGISTER	64BIT REAL
GPS_ALTITUDE	29 – 32 (40029 – 40032)	HOLDING REGISTER	64BIT REAL
GPS_COG	33 – 36 (40033 – 40036)	HOLDING REGISTER	64BIT REAL
GPS_SPEED_KM	37 – 40 (40037 – 40040)	HOLDING REGISTER	64BIT REAL
GPS_SPEED_KN	41 - 44 (40041 - 40044)	HOLDING REGISTER	64BIT REAL
GPS_FIX	45 (40045)	HOLDING REGISTER	16BIT UNSIGNED
GPS_NSAT	46 (40046)	HOLDING REGISTER	16BIT UNSIGNED

For these tags, other parameter values are fixed:

- TARGET MODBUS STATION ADDRESS
- TARGET CONNECTED TO

1

EMBEDDED

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- GATEWAY TAG MODE

EMBEDDED

The default configuration for Z-PASS2 already contain tags for GPS information, as shown in the following figure.

C Z-PASS2	×\	7						GO	vanni —		×
← → C ① 192.16	8.85.104:808	0/mbgw_t	ag_setup.php							☆	
SENECA °	Z-PASS2										
General Configuration	Gateway	Tag Setur	o [user: admin] [lo	ogout]							
Main View	Firmware	Version:	SW003900 230 []	Modem:	UC20GQBR03A14	F1G1					
Network and Services						-	00004000451				
Serial Ports			-	: 0010750	026666172] [IMSI:	22201	3200430015]				
Gateway Configuration	Internet A	ccess: Et	thernet								
Real Time Clock Setup	Gateway:	running	Data Logger: run	ning (no	group enabled)]						
VPN Configuration	Router: ru	unning									
Router Configuration											
Users Configuration	Scegli file	e Nessun	file selezionato	Impo	rt tag configuration	Expo	ort tag configura	ation			
FW Upgrade						-					
Conf. Management	1	ADD	M	ODIFY		D	ELETE				
Shared Memory Tag Conf.				Dama 1			NEXT PAGE				
Tag Setup				Page : 1	20 PREVIOUS PA	IGE	NEXT PAGE				
Tag View TCP Servers				Z-PASS-			HOLDING	16BIT			
Mobile Configuration	11	10	GPS_ERROR	GPS	GPS_ERROR	10	REGISTER	SIGNED	EMBEDDED	1	E
Mobile Network	12	11	GPS_HOUR	Z-PASS- GPS	GPS_UTC_HH	11	HOLDING REGISTER	16BIT UNSIGNED	EMBEDDED	1	E
DDNS Configuration Digital I/O Configuration	13	12	GPS_MINUTE	Z-PASS- GPS	GPS_UTC_MM	12	HOLDING REGISTER	16BIT UNSIGNED	EMBEDDED	1	E
Digital I/O Configuration Logic Configuration	14	13	GPS_SECOND	Z-PASS- GPS	GPS_UTC_SS	13	HOLDING REGISTER	16BIT UNSIGNED	EMBEDDED	1	E
SMS Configuration	15	14	GPS_DAY	Z-PASS- GPS	GPS_DATE_DD	14	HOLDING REGISTER	16BIT UNSIGNED	EMBEDDED	1	E
Phonebook Diagnostics	16	15	GPS_MONTH	Z-PASS- GPS	GPS_DATE_MM	15	HOLDING REGISTER	16BIT UNSIGNED	EMBEDDED	1	E
FW Versions	17	16	GPS_YEAR	Z-PASS- GPS	GPS_DATE_YY	16	HOLDING REGISTER	16BIT UNSIGNED	EMBEDDED	1	E
Ethernet Interfaces Data Logger (SD missing)	18	17	GPS_LATITUDE	Z-PASS- GPS	GPS_LATITUDE	17	HOLDING REGISTER	64BIT REAL	EMBEDDED	1	E
General Settings Group Configuration	19	21	GPS_LONGITUDE	Z-PASS- GPS	GPS_LONGITUDE	21	HOLDING REGISTER	64BIT REAL	EMBEDDED	1	E
	20	25	GPS_HDOP	Z-PASS- GPS	GPS_HDOP	25	HOLDING REGISTER	64BIT REAL	EMBEDDED	1	E
	21	29	GPS_ALTITUDE	Z-PASS- GPS	GPS_ALTITUDE	29	HOLDING REGISTER	64BIT REAL	EMBEDDED	1	E
	22	33	GPS_COG	Z-PASS- GPS	GPS_COG	33	HOLDING REGISTER	64BIT REAL	EMBEDDED	1	E
	23	37	GPS_SPEED_KM	Z-PASS- GPS	GPS_SPKM	37	HOLDING REGISTER	64BIT REAL	EMBEDDED	1	E
	24	41	GPS_SPEED_KN	Z-PASS- GPS	GPS_SPKN	41	HOLDING REGISTER	64BIT REAL	EMBEDDED	1	E
	4										+
4											

21.3.2.4 Microsoft Excel[™] Template for Tag Setup

Another way to create the tag configuration is by means of the "Microsoft Excel™ Template" provided by Seneca, shown in the following figure.

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I Copia f	ormaco	* 🖽 * 🌺 * 🔺 🖷 🗮		e allinea al centro 👻 🛒 * % 000		<pre>r come tabella *</pre>	Cella colleg	ata cellar	da cont Input	Nota	Output	- insens	v v	🖉 Cancella 🔻	e filtra 🔊	
Appunti		Carattere 12	Allineamento	G Numeri					Stili				Celle	Mod	sifica	
13	- (≏	fx EMBEDDED														
	В	C	D	F		G	н	1		К	1	м	N	0	P	_
A			D		F	G	н				-		N	0	P	-
	GATEWAY PA	RAMETERS		TARGET	PARAMETERS						TAG PARAMETER	ts			Exp	
							TARGET	TARGET								ile
TEWAY	GATEWAY TAG	GATEWAY MODBUS START	TARGET MODBUS			TARGET	MODBUS	MODBUS							_	_
AG NR	NAME	REGISTER	REQUEST TYPE	TARGET REGISTER DATA TYPE	TARGET BIT INDEX	CONNECTED TO	START	STATION	GATEWAY MODE	m VALUE	q VALUE	ERROR MODE	ERROR VALUE	HTTP POST VID	Imp	
		_					REGISTER	ADDRESS			_		_	_	SE ^{†I}	ile
1	ZPASS_DI	1	HOLDING REGISTER	16BIT UNSIGNED	0	EMBEDDED	1	1	EMBEDDED	- 1	0	LAST VALUE	0	0		
2	ZPASS_DO	2	HOLDING REGISTER	16BIT UNSIGNED	0	EMBEDDED	2	1	EMBEDDED	1	0	LAST VALUE	0	1		
3	ZPASS_DI_1	1	DISCRETE INPUT	BOOL	0	EMBEDDED	1	1	EMBEDDED	1	0	LAST VALUE	0	2		
4	ZPASS_DI_2	2	DISCRETE INPUT	BOOL	0	EMBEDDED	2	1	EMBEDDED	1	. 0	LAST VALUE	0	3		
5	ZPASS_DI_3	, 3	DISCRETE INPUT	BOOL	0	EMBEDDED	, ³ ,	1	EMBEDDED	1	0	LAST VALUE	0	4		
6	ZPASS_DI_4	· 4	DISCRETE INPUT	BOOL	0	EMBEDDED	- 4 -	1	EMBEDDED	1	0	LAST VALUE	0	5		
7	ZPASS_DO_1	, 1	COIL	BOOL	0	EMBEDDED		1	EMBEDDED	1		LAST VALUE	0	6		
8 9	ZPASS_DO_2	, 2	COIL	BOOL	0	EMBEDDED	, 2,	1	EMBEDDED	1	0	LAST VALUE	. 0	* 8		
9	ZPASS_DO_3 ZPASS_DO_4	* 4	COIL	BOOL BOOL	0	EMBEDDED EMBEDDED	· , , ,	1	EMBEDDED EMBEDDED	1	• 0	LAST VALUE	• 0	• 9		
10	GPS_ERROR	10	HOLDING REGISTER	16BIT SIGNED	0	EMBEDDED	10		EMBEDDED		- 0	LAST VALUE		10		
12	GPS HOUR	· 10	HOLDING REGISTER	16BIT UNSIGNED	0	EMBEDDED	· 11 ·	-	EMBEDDED			LAST VALUE		· 11		
13	GPS_MINUTE	· 12	HOLDING REGISTER	16BIT UNSIGNED	0	EMBEDDED	12	1	EMBEDDED	1	· .	LAST VALUE	- 0	- 12		
14	GPS SECOND	· 13	HOLDING REGISTER	16BIT UNSIGNED	ő	EMBEDDED	· 13 ·	1	EMBEDDED	1	• 0	LAST VALUE		13		
15	GPS_DAY	14	HOLDING REGISTER	16BIT UNSIGNED	0	EMBEDDED	14	1	EMBEDDED	1		LAST VALUE		14		
16	GPS MONTH	15	HOLDING REGISTER	16BIT UNSIGNED	0	EMBEDDED	15	1	EMBEDDED	1		LAST VALUE		15		
17	GPS_YEAR	16	HOLDING REGISTER	16BIT UNSIGNED	0	EMBEDDED	16	1	EMBEDDED	1	• 0	LAST VALUE	. 0	16		
18	GPS LATITUDE	17	HOLDING REGISTER	64BIT REAL	0	EMBEDDED	17 '	1	EMBEDDED	1	· 0	LAST VALUE	· 0	17		
19	GPS_LONGITUDE	21	HOLDING REGISTER	64BIT REAL	0	EMBEDDED	21	1	EMBEDDED	1	0	LAST VALUE	0	18		
20	GPS_HDOP	25	HOLDING REGISTER	64BIT REAL	0	EMBEDDED	25	1	EMBEDDED	1	0	LAST VALUE	0	19		
21	GPS_ALTITUDE	29	HOLDING REGISTER	64BIT REAL	0	EMBEDDED	29	1	EMBEDDED	1	0	LAST VALUE	0	20		
22	GPS_COG	33	HOLDING REGISTER	64BIT REAL	0	EMBEDDED	33	1	EMBEDDED	1	0	LAST VALUE	0	21		
23	GPS_SPEED_KM	37	HOLDING REGISTER	64BIT REAL	0	EMBEDDED	37	1	EMBEDDED	1	0	LAST VALUE	0	22		
24	GPS_SPEED_KN	41	HOLDING REGISTER	64BIT REAL	0	EMBEDDED	41	1	EMBEDDED	1	0	LAST VALUE	0	23		
25	GPS_FIX	45	HOLDING REGISTER	16BIT UNSIGNED	0	EMBEDDED	45	1	EMBEDDED	1	0	LAST VALUE	0	24		
26	GPS_NUM_SAT	46	HOLDING REGISTER	16BIT UNSIGNED	0	EMBEDDED	46	1	EMBEDDED	1	0	LAST VALUE	0	25		
27																
28																
29 30																
30																
32																
33																

The tag configuration in the Excel sheet can be exported by clicking on the "Export CGI file..." button; the exported binary file can be uploaded to the Z-PASS, by means of the "Import tag configuration" button in the "Tag Setup" page (see 21.3.1 paragraph).

Conversely, the tag configuration created by means of the web page can be imported into the Excel sheet by clicking on the "Import CGI file..." button.

The sheet columns correspond to the parameters in the "Tag Setup" page; please, see 21.3.2.1 paragraph for their meanings.

21.3.3 Tag View

The "Gateway Tag View" page shows the tag values in real-time, as shown in the following figure.

$\stackrel{\text{P}}{\leftarrow} \rightarrow \mathbf{C}$ (i) No	n siguro 103	+	0/mbaw to	a view obo						4	<u>بر</u>		:
		.100.05.104.000	o/mbgw_ta	g_view.prip						ж	1		
S SENECA"	Z-PASS2												
Basic Configuration	Gateway Te	ag View [user:	admin] [lo	gout]									
Summary	Firmware V	ersion: SW003	8900 240 F	Modem: U	20GOBB	13A14F	161						
Network and Services							-						
Serial Ports	MAC Addre	ess: C8F9811B	0000 [IMEI	: 86107502	6666172]	IMSI: 2	2210160	0239291]					
Digital I/O Configuration	Internet Ac	cess: None											
Real Time Clock Setup	Gateway: r	unning [Data L	ogger: rur	ning]									
Gateway Configuration	Router: dis		00	01									
/PN Configuration	Router: dis	abled											
Router Configuration													
Users Configuration		Data	Logger:	TART ST	OP CLE	AN CAC	HE						
Mobile Configuration													
Mobile Network		Page	e: 1/20 P	REVIOUS P	AGE NE	XT PAG	E						
DDNS Configuration													
Shared Memory Tag Conf.	GATEWAY	GATEWAY	GATEWAY MODBUS	TAG	TAG DATA	TAG	TAG	LAST		ANALOG			
TCP Servers	TAG NR	TAG NAME	START	REQUEST TYPE	TYPE	VALUE	READING STATUS	REFRESH TIME	ALARM	DANGER ALARM			
Tag Setup			REGISTER				51A105			ALANIN		- 1	
Tag View	1	ZPASS_DI	1	HOLDING REGISTER	16BIT UNSIGNED	0	-	06/12/2018 14:05:13.402381	NONE	NONE	CHANG	GE	
Alarms	_	70100 00	_	HOLDING	16BIT			06/12/2018					
Alarm Configuration	2	ZPASS_DO	2	REGISTER		0	-	14:05:13.403043	NONE	NONE	CHANG	5E	
Alarm Summary	3	ZPASS_DI_1	1	DISCRETE INPUT	BOOL	0	-	06/12/2018 14:05:13.403292	NONE	NONE		- 1	
Alarm History				DISCRETE				06/12/2018				- 1	
Logic Configuration	4	ZPASS_DI_2	2	INPUT	BOOL	0	-	14:05:13.403535	NONE	NONE			
Phonebook	5	ZPASS_DI_3	3	DISCRETE	BOOL	0	-	06/12/2018	NONE	NONE			
SMS Configuration				INPUT DISCRETE				14:05:13.403781					
Email Configuration	6	ZPASS_DI_4	4	INPUT	BOOL	0	-	06/12/2018 14:05:13.403817	NONE	NONE			
HTTP Configuration	7	ZPASS_DO_1	1	COIL	BOOL	0	-	06/12/2018	NONE	NONE	CHAN	3E	
Message Configuration	,	21 400_00_1		COL	DOOL	0		14:05:13.404051	NONE	NONE	CHAIN		
Rule Configuration	8	ZPASS_DO_2	2	COIL	BOOL	0	-	06/12/2018 14:05:13.404291	NONE	NONE	CHANG	GE	
Data Logger (SD missing)	9	70499 00 0	0	COIL	BOOL	0		06/12/2018	NONE	NONE	CHAN	2E	
General Settings	9	ZPASS_DO_3	3	COIL	BOOL	0	-	14:05:13.404442	NONE	NUNE	CHAN	50	
SD Transfer Conf.	10	ZPASS_DO_4	4	COIL	BOOL	0	-	06/12/2018 14:05:13.404717	NONE	NONE	CHANO	GE	
FTP Transfer Conf.		000 50005		HOLDING	16BIT	~		06/12/2018	NONE	NONE	000		
Group Configuration	11	GPS_ERROR	10	REGISTER	SIGNED	-1	-	14:05:13.404762	NONE	NONE	CHANG	3C	
Maintenance	12	GPS_HOUR	11	HOLDING REGISTER		0	-		NONE	NONE	CHANO	GE	
Ethernet Interfaces		_		HOLDING	16BIT								
FW Versions	13	GPS_MINUTE	12	REGISTER		0	-		NONE	NONE	CHANG	GE 🔹	1
FW Upgrade													
Conf. Management													

The "Data Logger" buttons can be used to:

- start the Data Logger functionality, if it is stopped;
- stop the Data Logger functionality, if it is running;
- clean the internal Data Logger cache (this will also stop the Data Logger).

The view is automatically refreshed.

As shown in the following figures, the "ALARM" column reports the status of the alarm defined for the tag, if any; the "ANALOG DANGER ALARM" column has a similar behavior, but it is meaningful only for analog

tags when, in the alarm configuration, the "Alarm Low Low Value" and "Alarm High High Value" thresholds are defined (see paragraph "Alarm Configuration" 21.4.1).

	×														
$\leftarrow \rightarrow C$ (i) No	on sicuro 19	92.168.85.103:8	080/mbgw	_tag_view.pl	hp							☆	2	G	
S SENECA® Basic Configuration Summary Network and Services Serial Ports Digital I/O Configuration Real Time Clock Setup Gateway Configuration VPN Configuration Router Configuration Users Configuration Shared Memory Tag Conf. TCP Servers	Z-PASS1 Gateway 1 Firmware MAC Addu Internet A Gateway: Router: ru	Tag View [use Version: SW0 ress: C8F9811 access: None running [Data unning Dat	r: admin] 103900_24 1B0001	[logout] 0 running]	STOP CI	EAN C						A			
Tag Setup Tag View Alarms Alarm Configuration	GATEWAY TAG NR	GATEWAY TAG NAME	GATEWAY MODBUS START REGISTER	TAG REQUEST TYPE	TAG DATA TYPE	TAG VALUE	TAG READING STATUS	LAST REFRESH TIME	ALARM	ANALOG DANGER ALARM		-			
Alarm Conliguration	1	ZPASS_DI	1	HOLDING	16BIT UNSIGNED	1		07/12/2018 10:46:39.708541	NONE	NONE	CHANGE				
Alarm History Logic Configuration	2	ZPASS_DO	2	HOLDING REGISTER	16BIT	0	-	07/12/2018 10:46:39.709223	NONE	NONE	CHANGE				
Phonebook	3	ZPASS_DI_1	1	DISCRETE INPUT	BOOL	1	-	07/12/2018 10:46:39.709454	ALARM	NONE					
Email Configuration HTTP Configuration	4	ZPASS_DI_2	2	DISCRETE	BOOL	0	-	07/12/2018 10:46:39.709676	NONE	NONE					
Message Configuration	5	ZPASS_DI_3	3	DISCRETE INPUT	BOOL	0	-	07/12/2018 10:46:39.709891	NONE	NONE					
Rule Configuration Data Logger (SD found)	6	ZPASS_DI_4	4	DISCRETE INPUT	BOOL	0	-	07/12/2018 10:46:39.709925	NONE	NONE					
General Settings SD Transfer Conf.	7	ZPASS_DO_1	1	COIL	BOOL	0	-	07/12/2018 10:46:39.710138	NONE	NONE	CHANGE				
FTP Transfer Conf.	8	ZPASS_DO_2	2	COIL	BOOL	0	-	07/12/2018 10:46:39.710355	NONE	NONE	CHANGE				
Group Configuration	9	ZPASS_DO_3	3	COIL	BOOL	0	-	07/12/2018 10:46:39.710388	NONE	NONE	CHANGE				
		ZPASS_DO_4	4	COIL	BOOL	0	-	07/12/2018 10:46:39.710603	NONE	NONE	CHANGE				
SD File Manager	10				16BIT	0	FAIL		NONE	NONE	CHANGE				
SD File Manager Maintenance Ethernet Interfaces	10	TAG_BIT_1	101	HOLDING REGISTER		0	17ALE		HOHL		OTWINDL				
SD File Manager Maintenance Ethernet Interfaces FW Versions FW Upgrade		TAG_BIT_1 TAG_BIT_2	101 102		UNSIGNED 16BIT	0	FAIL		NONE	NONE	CHANGE				

		192.168.85.103:808											
SENECA"	Z-PASS1												
Basic Configuration	Gateway	Tag View [user:	admin]	[logout]									
Bummary	Firmware	e Version: SW00	3900_23	2									
Network and Services		dress: C8F9811E	_										
Serial Ports													
Digital I/O Configuration	Internet /	Access: Etherne	t										
Real Time Clock Setup	Gateway	: running [Data I	ogger:	running]									
Gateway Configuration	Router: r	unning											
VPN Configuration													
Router Configuration		Dete	Logger	STADT	STOP CL	EAN C	ACHE						
Users Configuration		Data	Logger:	START	STUP CL	EAN C	ACHE						
Shared Memory Tag Conf.		Pag	e : 1/20	PREVIOU	S PAGE	NEXT P	AGE						
TCP Servers		. 49											
Tag Setup	8	ZPASS_DO_2	2	COIL	BOOL	0	-	10/12/2018	NONE	NONE	CHANGE	*	
Tag View Alarms	0	21700_00_2	4	COL	BOOL	v	-	15:50:55.432236	NOME	NUNE			
Alarms Alarm Configuration	9	ZPASS_DO_3	3	COIL	BOOL	0	-	10/12/2018 15:50:55.432273	NONE	NONE	CHANGE		
Alarm Summary	10	ZPASS_DO_4	4	COIL	BOOL	0	-	10/12/2018 15:50:55.432486	NONE	NONE	CHANGE		
Alarm History Logic Configuration	11	TAG_BIT_1	101	HOLDING REGISTER	16BIT UNSIGNED	0	FAIL		NONE	NONE	CHANGE		
Phonebook	12	TAG_BIT_2	102	HOLDING	16BIT	0	FAIL		NONE	NONE	CHANGE		
Email Configuration				HOLDING	UNSIGNED 16BIT								
HTTP Configuration	13	TAG_BIT_15	103		UNSIGNED	0	FAIL		NONE	NONE	CHANGE		
Message Configuration	14	TAG_BIT_16	104	HOLDING	16BIT UNSIGNED	0	FAIL		NONE	NONE	CHANGE		
Rule Configuration								10/10/2010	41.4510	ALARM			
Data Logger (SD found) General Settings	15	ANALOG_S16	201	HOLDING REGISTER		110	ОК	10/12/2018 15:50:55.249550	ALARM HIGH	HIGH HIGH	CHANGE		
SD Transfer Conf.	16	ANALOG_FP32	202	HOLDING	32BIT REAL MSW	0	ОК	10/12/2018 15:50:55.249592	NONE	NONE	CHANGE		
FTP Transfer Conf.			001	HOLDING	16BIT	0	E AU		NONE	NONE	CHANCE		
Group Configuration	17	TAG_BIT1_S	301	REGISTER	UNSIGNED	0	FAIL		NONE	NONE	CHANGE		
	18	TAG_BIT2_S	302	HOLDING REGISTER	16BIT UNSIGNED	0	FAIL		NONE	NONE	CHANGE		
SD File Manager			303	HOLDING	16BIT UNSIGNED	0	FAIL		NONE	NONE	CHANGE		
Maintenance	19	TAG_BIT16_S				0	FAIL		NONE	NONE	CHANGE		
Maintenance Ethernet Interfaces	19 20	TAG_BIT16_S TAG6	6	COIL	BOOL	0							
SD File Manager Maintenance Ethernet Interfaces FW Versions FW Upgrade			6 7	COIL	BOOL	0	FAIL		NONE	NONE	CHANGE		

Some notes are worthy about the "TAG READING STATUS" and "LAST REFRESH TIME" columns.

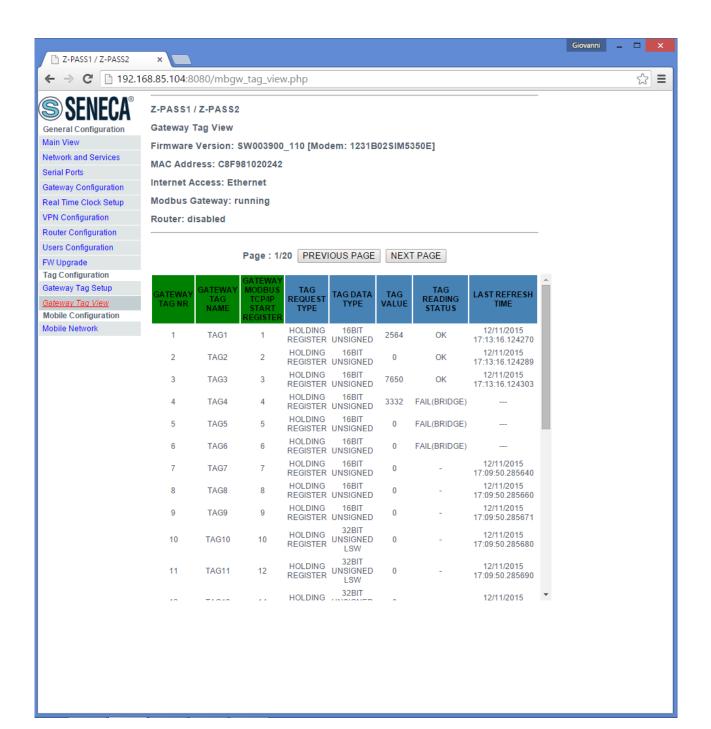
The possible "TAG READING STATUS" values depend on the "GATEWAY TAG MODE" value, in the following way:

OK / FAIL	for tags with Mode=GATEWAY
OK (BRIDGE) / FAIL(BRIDGE)	for tags with Mode=BRIDGE
-	for tags with Mode=SHARED MEMORY or EMBEDDED

The timestamp in the "LAST REFRESH TIME" column is updated:

- on a successful (Master) read/write operation, for tags with Mode=GATEWAY|BRIDGE|EMBEDDED

- on Modbus Shared Memory Gateway start and on a successful TCP or RTU (Slave) write operation, for tags with Mode=SHARED MEMORY



In the above figure²¹, the first three tags (Mode=GATEWAY) have been successfully read, so the "TAG READING STATUS" column shows "OK" and the "LAST REFRESH TIME" column contains a valid timestamp.

The next three tags (Mode=BRIDGE) have not been read nor written yet, so the "TAG READING STATUS" column shows "FAIL(BRIDGE)" and the "LAST REFRESH TIME" column does not contain a timestamp.

Finally, for the last tags (Mode=SHARED MEMORY), the "TAG READING STATUS" column shows "-" and the "LAST REFRESH TIME" column contains a valid timestamp that, in this example, corresponds to the Modbus Shared Memory Gateway start time.

Just as an example, the tag configuration corresponding to the above figure is show below.

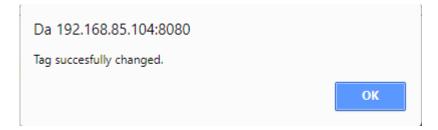
²¹ This and the following figures refer to an old FW release. MI00380-35

	168.85.104:80	180/mbg	w_tag_set	tup.pnp							Ę
SENECA	Z-PASS1/	Z-PASS:	2								
ral Configuration	Gateway T	ag Setup	0								
View	Firmware	Version:	SW00390	0_110 [Mo	dem: 1231	B02SIM53	350E]				
rk and Services Ports	MAC Addr	ess: C8F	98102024	2							
ay Configuration	Internet A	ccess: Et	thernet								
ime Clock Setup	Modbus G	ateway: I	running								
Configuration	Router: di	sabled									
r Configuration Configuration	Sceali file	Nessun f	ile selezion	ato Im:	ort tag conf	iguration					
ograde	Export tag			current tag							
onfiguration ay Tag Setup	A	DD		MOD	IFY		D	ELETE			
ay Tag View Configuration											
Network			Page : 1	/20 PREV	IOUS PAG	E NEXT	[PAGE				
	GATEWAY TAG NR	GATEWAY MODBUS TCP/IP START REGISTER	GATEWAY TAG NAME	MODBUS	TARGET RESOURCE	TARGET MODBUS RTU START REGISTER	TARGET MODBUS REQUEST TYPE	TARGET REGISTER DATA TYPE	TARGET CONNECTED TO SERIAL PORT	TARGET MODBUS SLAVE ADDRESS	GATEWAY TAG MODE
	1	1	TAG1	CUSTOM		1	HOLDING	16BIT UNSIGNED	COM2	2	GATEWAY
	2	2	TAG2	CUSTOM		2	HOLDING REGISTER	16BIT UNSIGNED	COM2	2	GATEWAY
	3	3	TAG3	CUSTOM		3	HOLDING REGISTER	16BIT UNSIGNED	COM2	2	GATEWAY
	4	4	TAG4	CUSTOM		1	HOLDING REGISTER	16BIT UNSIGNED	COM2	3	BRIDGE
	5	5	TAG5	CUSTOM		2	HOLDING REGISTER	16BIT UNSIGNED	COM2	3	BRIDGE
	6	6	TAG6	CUSTOM		3	HOLDING REGISTER	16BIT UNSIGNED	COM2	3	BRIDGE
	7	7	TAG7	-	-	-	HOLDING REGISTER	16BIT UNSIGNED	COM4 - SHARED	-	SHARED- MEMORY
	8	8	TAG8	-	-	-	HOLDING REGISTER	16BIT UNSIGNED	COM4 - SHARED	-	SHARED- MEMORY
	9	9	TAG9	-	-	-	HOLDING REGISTER	16BIT UNSIGNED	COM4 - SHARED	-	SHARED- MEMORY
			TAG10	-	-	-	HOLDING REGISTER	32BIT UNSIGNED LSW	COM4 - SHARED	-	SHARED- MEMORY
	10	10	IAGIU								

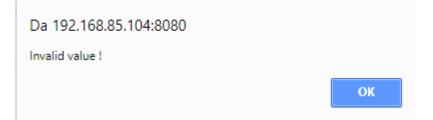
In the "Tag View" page, for each "HOLDING REGISTER" or "COIL" tag, a "CHANGE" button is present that lets you change the tag value; when clicking on this button, the following pop-up is shown:

Da 192.168.85.104:8080		
ZPASS_DO		
0		
	ОК	Annulla

After changing the value in the text-box and clicking on the "OK" button, the following message is shown, if the tag value has been successfully changed.



If the given value does not fit the tag "Data Type", the following message is shown:



Finally, if the tag value could not be changed, the following message is shown:

Da 192.168.85.104:8080	
Tag change failed !	
	ОК

21.4 Alarms

21.4.1 Alarm Configuration

By clicking on the "Alarm Configuration" link, in the "Alarms" section, you come to the following page:

T Z-PASS2		× +										_	· 🗆	×
← → C (1) Nor	n sicuro	192.168.85.1	1 03 :8080/alarm_	_conf.php									* 0	÷
S SENECA Basic Configuration Summary Network and Services Serial Ports Digital I/O Configuration	Z-PASS Alarm C Firmwar MAC Ad	2 configuratio re Version:	n [user: admin SW003900_25 9811B0001 [IM			03M4G]							
Real Time Clock Setup Gateway Configuration VPN Configuration Router Configuration	Router:	disabled	Data Logger:											
Users Configuration Mobile Configuration Mobile Network	IMPO	RT FROM C	SV Scegli	file Nessun file	e selezionato	[EXPORT TO C	SV						
DDNS Configuration Shared Memory Tag Conf. TCP Servers Tag Setup	# Enab	oled Type	Name	Тад	Activation Delay (s)	lgnore on Boot	Auto Acknowledge	Boolean Alarm Value	Alarm Low Value	High	Alarm Low Low Value	Alarm High High Value	Deadban Value	d
Tag Setup Tag View Alarms Alarm Configuration Alarm Summary	1 ON 2 ON 3 ON 4 ON	N Digital N Digital N Digital	ALR_DIG_2 ALR_DIG_3 ALR_DIG_4	ZPASS_DI_1 ZPASS_DI_2 ZPASS_DI_3 ZPASS_DI_4	5 5	OFF OFF ON ON	ON ON OFF OFF	HIGH HIGH LOW LOW						
Alarm History Logic Configuration Phonebook SMS Configuration	5 ON 6 ON		ALR_ANA_1 ALR_ANA_2		0 0	OFF OFF	ON ON		-50.0 -50.0	50.0 50.0	-100.0	100.0	5.0 5.0	
Email Configuration HTTP Configuration Message Configuration Timer Configuration														
Rule Management Data Logger (SD found) General Settings SD Transfer Conf.														
FTP Transfer Conf. Group Configuration SD File Manager Maintenance														
Ethernet Interfaces FW Versions FW Upgrade Conf. Management														

In this page, the list of the configured alarms is shown.

By clicking on the "ADD" button, a new alarm can be configured, as in the following figure.

C Z-PASS1	× +		_		×
$\leftarrow \rightarrow C$ (i) No	on sicuro 192.168.85.103:8080/alarm_conf_mod.php?id=0	☆	ん	G	:
SENECCA® Basic Configuration Summary Network and Services Serial Ports Digital I/O Configuration Real Time Clock Setup Gateway Configuration VPN Configuration Router Configuration Users Configuration Shared Memory Tag Conf.	Z-PASS1 Alarm Configuration [user: admin] [logout] Firmware Version: SW003900_240 MAC Address: C8F9811B0001 Internet Access: None Gateway: running [Data Logger: running] Router: running CURRENT UPDATED Alarm Configuration				
TCP Servers Tag Setup Tag Setup Tag View Alarms Alarm Configuration Alarm Summary Alarm History Logic Configuration Phonebook Email Configuration Message Configuration Message Configuration Rule Configuration Bata Logger (SD found) General Settings SD Transfer Conf. FTP Transfer Conf. Group Configuration SD File Manager Maintenance Ethernet Interfaces FW Versions FW Upgrade Conf. Management	Enabled OFF OFF Type Digital Digital Name Image: Comparison of the comparison				

The following table explains the meaning of all the parameters available for an alarm.

Field	Meaning	Default value
Enabled	Flag to enable/disable the alarm	OFF
Туре	This parameter tells if this is a Digital or	Digital
	Analog alarm; when changing the type,	
	some parameters become enabled or	

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	disabled	
Name	The alarm name; since this parameter is	Empty
	used as a key to identify the alarm, two	
	alarms cannot be configured with the	
	same name	
Тад	The tag which the alarm is related to.	First tag in the list
	The tag list changes depending on the	
	alarm type (Digital or Analog).	
	Only one alarm can be associated to a	
	tag	
Activation Delays (s)	This parameter defines the time	0
	interval, in seconds, during which the	
	alarm condition shall be kept true to	
	generate the alarm	
Ignore on Boot	This is a flag used to avoid generating	OFF
	the alarm, if the alarm condition is	
	temporarily detected during the system	
	boot	
Auto Acknowledge	This is a flag used to avoid the need of	ON
	an acknowledgment by the user to let	
	the alarm be cancelled, after the alarm	
	condition has ceased	
Boolean Alarm Value	For a Digital alarm, this parameter tells	HIGH
	which is the tag value (LOW or HIGH)	
	which corresponds to the alarm	
	condition	
Alarm Low Value	For an Analog alarm, this parameter	Empty
	defines the low alarm threshold that is,	
	when the tag value goes under this	
	value, the alarm condition is entered	
Alarm High Value	For an Analog alarm, this parameter	Empty
	defines the high alarm threshold that is,	
	when the tag value goes over this value,	
	the alarm condition is entered	
Alarm Low Low Value	For an Analog alarm, this parameter	Empty
	defines the low danger alarm threshold	
	that is, when the tag value goes under	
	this value, the danger alarm condition is	
	entered	
Alarm High High Value	For an Analog alarm, this parameter	Empty
	defines the high danger alarm threshold	
	that is, when the tag value goes over	
	this value, the danger alarm condition is	
	entered	
Deadband Value	This parameter defines a non negative	0
	value to be summed to the low	
		1

threshold/subtracted from the high	
threshold, such that the tag value shall	
go over/under the resultant value to let	
the alarm condition be exited	

For an Analog alarm, at least one of the four threshold parameters (Alarm Low Value, Alarm High Value, Alarm Low Low Value, Alarm High High Value) shall be defined.

Selecting an alarm in the list and clicking on the "MODIFY" button, you can modify the alarm parameters, as in the following figures.

Z-PASS1		×	+										-	
← → C (i) No	n sicu	ro 192	.168.85.10	03:8080/alarm_co	onf.php							1	2	6
Service Services Summary Network and Services Serial Ports Digital I/O Configuration Real Time Clock Setup Gateway Configuration VPN Configuration	Ala Firm MA Inte Gat	nware V C Addre ernet Acc	ersion: \$ ss: C8F\$ cess: No unning [[n [user: admin] SW003900_240 9811B0001 ne Data Logger: ru										
Router Configuration		AD			MODIFY		DEL	FTF						
Users Configuration		AL					DEL							
Shared Memory Tag Conf. TCP Servers Tag Setup Tag View	# E	Enabled	Турө	Name	Тад	Activation Delay (s)	lgnore on Boot	Auto Acknowledge	Boolean Alarm Value	Alarm Low Value	Alarm High Value	Alarm Low Low Value	Alarm High High Value	Deadband Value
Alarms	1	ON	Digital	Alarm_RCD	ZPASS_DI_1	5	ON	OFF	HIGH			· aluo		
Alarm Configuration	2	OFF	Digital	Alarm_Bit16	TAG_BIT_16	1	ON	ON	LOW					
Alarm Summary	3	ON	Analog	Alarm_S16	ANALOG_S16	3	ON	ON	2011	-50.0	50.0	-100.0	100.0	5.0
Alarm History	4	ON	Analog	Alarm_FP32	ANALOG_FP32	1	OFF	ON		-2.5	2.5	-5.0	5.0	0.5
Logic Configuration	5	OFF	Digital	Alarm_Bit2	TAG_BIT_2	1	ON	ON	LOW	-2.0	2.0	-5.0	0.0	0.0
Phonebook		OFF	-	_										
Email Configuration	6		Digital	Alarm_Bit1	TAG_BIT_1	1	ON	ON	LOW					
HTTP Configuration	7	ON	Digital	Alarm_Bit1_S	TAG_BIT1_S	0	ON	ON	LOW					
Message Configuration	8	ON	-	Alarm_Bit2_S	TAG_BIT2_S	0	ON	ON	LOW					
Rule Configuration	9	ON	Digital	Alarm_Bit16_S	TAG_BIT16_S	0	ON	ON	LOW					
Data Logger (SD found)														
General Settings														
SD Transfer Conf.														
FTP Transfer Conf.														
Group Configuration														
SD File Manager														
Maintenance														
Ethernet Interfaces														
FW Versions														
FW Upgrade														

Z-PASS1	× +				-	-		×
	on sicuro 192.168.85.103:8080/alarm_conf_mod	d.php?id=8		Ť	<u>ک</u>	J.	G	÷
Sense Configuration Summary Network and Services Serial Ports Digital I/O Configuration Real Time Clock Setup Gateway Configuration VPN Configuration Router Configuration	Z-PASS1 Alarm Configuration [user: admin] [logou Firmware Version: SW003900_240 MAC Address: C8F9811B0001 Internet Access: None Gateway: running [Data Logger: running] Router: running		UPDATED					
Users Configuration Shared Memory Tag Conf. TCP Servers Tag Setup Tag Setup Tag View Alarms Alarms Alarm Summary Alarm Summary Alarm History Logio Configuration Phonebook Email Configuration HTTP Configuration Message Configuration Bate Logger (SD found) General Settings SD Transfer Conf. FTP Transfer Conf. GTP Configuration SD File Manager Haintenance Ethernet Interfaces FW Versions FW Upgrade Conf. Management	Enabled Type Name	Analog Alarm_FP32 ANALOG_FP32 1 OFF ON HIGH -2.5 2.5 5.0	ON Analog Alarm_FP32 ANALOG_FP32 1 OFF ON HIGH -2.5 2.5 -5.0 5.0 0.5					

Selecting an alarm in the list and clicking on the "DELETE" button, you can delete an alarm.

The possible states of an alarm are explained in the following table.

State	Level	Meaning
None	-	The tag has never entered the alarm condition
Alarm	Alarm	The digital tag has got the value defined by "Boolean Alarm Level" parameter
Alarm Low	Alarm	The analog tag has got a value that is under the one defined by "Alarm Low Value"
		parameter
Alarm High	Alarm	The analog tag has got a value that is over the one defined by "Alarm High Value"
		parameter
Alarm Low Low	Analog Danger	The analog tag has got a value that is under the one defined by "Alarm Low Low
	Alarm	Value" parameter

Alarm High High	Analog Danger	The analog tag has got a value that is over the one defined by "Alarm High High
	Alarm	Value" parameter
Acknowledge	-	The alarm has been aknowledged (see page "Alarm Summary")
Return	-	The tag has exited the alarm condition, but the alarm has not been acknowledged
		and the alarm has the parameter "Auto Acknowledge" set to OFF
End	-	The tag has exited the alarm condition and the alarm has been aknowledged or the
		alarm has the parameter "Auto Acknowledge" set to ON

As already mentioned in the previous table, when exiting the alarm condition the alarm states can follow two different paths, depending on the value of the "Auto Acknowledge" parameter :

- Alarm* \rightarrow Return \rightarrow <acknowledgement> \rightarrow End if "Auto Acknowledge"=OFF
- Alarm* \rightarrow End

if "Auto Acknowledge"=ON

The "EXPORT TO CSV" and "IMPORT FROM CSV" buttons let you export/import the alarm configuration to/from a ".csv" file (the separator character is ";").

Please note that, <u>when importing the alarm configuration from a .csv file, the previously existing alarms are</u> <u>deleted</u>; so, a fast way to "clean" the alarm configuration, if it contains many entries, is to import an empty .csv file.

21.4.2 Alarm Summary

By clicking on the "Alarm Summary" link, in the "Alarms" section, you come to the following page:

🗋 Z-PASS1	× +		-		×
← → C ① No	n sicuro 192.168.85.103:8080/alarm_summary.php	☆	入	G	÷
SENECA® Basic Configuration Summary Network and Services Serial Ports Digital I/O Configuration Real Time Clock Setup Gateway Configuration VPN Configuration Router Configuration	Z-PASS1 Alarm Summary [user: admin] [logout] Firmware Version: SW003900_240 MAC Address: C8F9811B0001 Internet Access: None Gateway: running [Data Logger: running] Router: running				
Users Configuration Shared Memory Tag Conf. TCP Servers	# Name Tag Name Level Status Timestamp Action Action				
Tag Setup Tag View Alarms Alarm Configuration	** Name Level On On Action 1 Alarm_RCD ZPASS_DI_1 Alarm Alarm 2018/12/07 10:46:34 None				
Alarm Summary Alarm History Logic Configuration Phonebook					
Email Configuration HTTP Configuration Message Configuration					
Rule Configuration Data Logger (SD found) General Settings					
SD Transfer Conf. FTP Transfer Conf. Group Configuration					
SD File Manager Maintenance Ethernet Interfaces					
FW Versions FW Upgrade Conf. Management					

This page shows the alarms currently active in the system.

The following table explains the meaning of all the information given for an alarm.

Field	Meaning
Name	The alarm name
Tag Name	The name of the tag which the alarm is related to
Level	Always "Alarm" for digital alarms
	"Alarm" or "Analog Danger Alarm" for analog alarms
Status On	The alarm status when the alarm has been generated:
	always "Alarm" for digital alarms
	"Alarm Low" or "Alarm High" for analog alarms with Level = "Alarm"
	"Alarm Low Low" or "Alarm High High" for analog alarms with Level = "Analog
	Danger Alarm"

Timestamp On	The timestamp corresponding to the alarm generation
Status Action	"None" when the alarm is generated
	It may evolve in:
	"Acknowledged", if the alarm has been acknowledged when in the alarm state
	"Return", if the alarm state has been exited for an alarm with "Auto
	Acknowledge" = OFF
Timestamp Action	The timestamp corresponding to the acknowledgement action or alarm state
	evolution

You can acknowledge an alarm by selecting it and clicking on the "ACKNOWLEDGE" button.

The row corresponding to the alarm changes as in the following figure.

Z-PASS1	× +							-		×
← → C ① №	n sicuro 192.168.85.103:8080,	alarm_summary.ph	ιp				☆	ょ	G	0
Sentecon Basic Configuration Summary Network and Services Serial Ports Digital I/O Configuration Real Time Clock Setup Gateway Configuration VPN Configuration Users Configuration Shared Memory Tag Conf. TCP Servers Tag Setup Tag View Alarms Alarm Configuration Alarm Configuration Alarm Configuration Phonebook Email Configuration HTTP Configuration HTTP Configuration Buta Logger (SD found) General Settings SD Transfer Conf. Group Configuration SD File Manager Maintenance Ethernet Interfaces FW Versions FW Upgrade Conf. Management	Z-PASS1 Alarm Summary [user: adm Firmware Version: SW0035 MAC Address: C8F9811B0 Internet Access: None Gateway: running [Data Lo Router: running 1 Alarm_RCD ZPASS_E	00_240 001 gger: running] ACKNOW ne Level Stat	tus Timestamp n On	Status Action Acknowledge	Timestamp Action 2018/12/07 11:44:38					
In attesa di risposta da 192.16	3.85.103									

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21.4.3 Alarm History

By clicking on the "Alarm History" link, in the "Alarms" section, you come to the following page:

🗋 Z-PASS1			× +							-		
← → C	(i) Non sid	curo	192.168.85.103:8	3080/alarm_history	php				☆	ん	G	
SFNF (CA° z.	-PASS	1									
Basic Configuratio		lerm H	listory [user: ad	dmin] [logout]								
Summary												
Network and Service		irmwa	re Version: SW	003900_240								
Serial Ports	M	IAC Ac	dress: C8F981	1B0001								
Digital I/O Configura	ation In	nternet	Access: None									
Real Time Clock Set	-	atewa	y: running [Det	a Logger: runnin	aJ							
Gateway Configurati				<i>aa</i>								
VPN Configuration	R	outer:	running									
Router Configuration	n											
Users Configuration			OLEANU	ICTODY		EVDODT	0.001/	1				
Shared Memory Ta			CLEAN H	ISTURY		EXPORT	IU CSV					
TCP Servers		#	Name	Tag Name	Tag Value	Status	Level	Timestamp				
Tag Setup				-	-			2018/12/07				
Tag View		1	Alarm_RCD	ZPASS_DI_1	0	End	Alarm	11:54:20				
Alarms		•	Alarm DOD			Aakpouladaa	Alores	2018/12/07				
Alarm Configuration	n	2	Alarm_RCD	ZPASS_DI_1	1	Acknowledge	Alarm	11:44:38				
Alarm Summary		3	Alarm_RCD	ZPASS_DI_1	1	Alarm	Alarm	2018/12/07 10:46:34				
Alarm History Logic Configuratio	on		Alarma Dito C				A 1	2018/11/26				
Phonebook		4	Alarm_Bit2_S	TAG_BIT2_S	1	End	Alarm	07:19:29				
Email Configuration		5	Alarm Bit16 S	TAG BIT16 S	1	End	Alarm	2018/11/26				
HTTP Configuration	n	- '	00			2.10		07:19:29				
Message Configurat	tion	6	Alarm_Bit2_S	TAG_BIT2_S	0	Alarm	Alarm	2018/11/26 07:19:02				
Rule Configuration								2018/11/26				
Data Logger (SD fo	ound)	7	Alarm_Bit1_S	TAG_BIT1_S	1	End	Alarm	07:19:00				
General Settings			New Dista			A1	A	2018/11/26				
SD Transfer Conf.		8 /	Alarm_Bit16_S	TAG_BIT16_S	0	Alarm	Alarm	07:18:52				
FTP Transfer Conf.		9	Alarm Bit1 S	TAG BIT1 S	0	Alarm	Alarm	2018/11/26				
Group Configuration	n	9		iAd_biii_0	v	Alaim	mann	07:18:45				
SD File Manager		10	Alarm_Bit2_S	TAG_BIT2_S	1	End	Alarm	2018/11/26				
Maintenance								07:18:40				
Ethernet Interfaces		11	Alarm_Bit1_S	TAG_BIT1_S	1	End	Alarm	2018/11/26 07:18:31				
FW Versions								2018/11/26				
FW Upgrade		12 /	Alarm_Bit16_S	TAG_BIT16_S	1	End	Alarm	07:18:27				
Conf. Management		13	Alarm_Bit2_S	TAG_BIT2_S	0	Alarm	Alarm	2018/11/26 07:18:20				
		14	Alarm_Bit1_S	TAG_BIT1_S	0	Alarm	Alarm	2018/11/26				
		17	/ ann_biti_0	170_011_0	U	nialiti	AidIIII	07:18:15				
		15 /	Alarm_Bit16_S	TAG_BIT16_S	0	Alarm	Alarm	2018/11/26 07:18:02				
		16	Alarm_Bit1_S	TAG_BIT1_S	1	End	Alarm	2018/11/26 07:18:01				

This page shows all alarm state transitions occurred in the system, up to a maximum of 1000; the alarm state transitions are given in reverse time order.

For example, the first three rows in the list show the state transitions for the alarm named "Alarm_RCD", which is related to the tag named "ZPASS_DI_1"; this is a digital alarm, so its level can be only "Alarm"; the alarm has passed through the following states:

- "Alarm" when the alarm condition has been entered
- "Acknowledge" when the alarm has been acknowledged, in the "Alarm Summary" page
- "End" when the alarm condition has been exited

The "Tag Value" column gives the value of the tag corresponding to the alarm state transition.

By clicking on the "CLEAN HISTORY" button, it's possible to clean the whole alarm history.

By clicking on the "EXPORT TO CSV" button, it's possible to export the alarm history to a ".csv" file (the separator character is ";").

21.5 Client Protocols

21.5.1 SD Transfer Configuration

By clicking on the "SD Transfer Configuration" link, in the "Client Protocols" section, you come to the following page:

This page contains the parameters telling if log files are copied to the SD Card and how long they are kept, as explained in the following table.

Field	Meaning	Default value
Enable	Flag telling if log files are copied to the	OFF
	SD Card or not	
Max Failure Counter	This parameter defines the maximum	10
	number of failed copy attempts before	
	entering the "Wait after failure" status	

	(see next field)	
Wait After Failure (minutes)	This parameter defines the duration, in	15
	minutes, of the "Wait after failure"	
	status.	
	In this status, no further attempt to	
	copy a log file to the SD Card is	
	performed	
SD Clean Period (days)	This parameter defines for how many	30
	days the log files shall be kept on the SD	
	Card; that is, after the specified number	
	of days, the log files are deleted	

On the SD card, log files are saved in directories with names having the following format:

yyyymmdd (yyyy=year, mm=month, dd=day)

e.g.:

20180612

Each of these directories contains one more subdirectories:

logX X=[1..4], group number

which in turn contain the log files of the corresponding group.

Log file names have the following format:

Lmmmmmmm.csv

where *mmmmmmm* is the number of minutes starting from the date/hour [1/1/2000 00:00], corresponding to the first line (sample) in the log file

e.g.:

L9701690.csv

See also the "SD File Manager" [21.7.3] paragraph.

21.5.2 FTP Transfer Configuration

By clicking on the "FTP Transfer Configuration" link, in the "Client Protocols" section, you come to the following page:

Summay Transfer Configuration Summay Firmware Version: SW003900_240 [Modem: 1231B02SIM5350E] Network and Services MAC Addrese: C8F981160043 [IMEI: 862264020406335] Serail Forti Caleway: running [Data Logger: running (no group enabled)] YPN Configuration Router: classibled Router: Configuration Router: classibled Nobile Configuration Router: classibled Nobile Configuration Nobile Configuration Mobile Configuration Max: Failure (muntes) Mobile Configuration Nore Mobile Configuration Max: Failure (muntes) Tag Selve Curpto Mode Tag Selve Crypto Mode Nore Nore Tag Selve Crypto Mode Tag Selve Configuration Alarm Summay Heramer muser Alarm Summay Usersmany Alarm Summay Usersmany Alarm Summay Passoror mypas Phonelock Pati SMS Configuration Pati Reseape Configuration Pati Reseape Configuration Pati Reseape Configuration P
FW Upgrade Conf. Management

This page contains the parameters related to the transfer of log files via FTP, as explained in the following table.

Field	Meaning	Default value
Enable	Flag telling if log files are transferred via	OFF
	FTP or not	
Max Failure Counter	This parameter defines the maximum	10
	number of failed transfer attempts	
	before entering the "Wait after failure"	

	status (see next field)	
Wait After Failure (minutes)	This parameter defines the duration, in	15
	minutes, of the "Wait after failure"	
	status.	
	In this status, no further attempt to	
	transfer a log file via FTP is performed	
Crypto Mode	This parameter defines the encryption	None
	mode of the FTP connection.	
	Possible modes are:	
	- None	
	- TLS/SSL Implicit	
	- TLS/SSL Explicit	
Host	Hostname (FQDN) or IP address of the	empty
	FTP server	
Port	FTP server (TCP) port	21
Username	Username to access the FTP server	empty
Password	Password to access the FTP server	empty
Path	Path of the directory, on the FTP server,	empty
	where the log files shall be saved	

Log files transferred via FTP have names with the following format:

<RTU_Name>_X_log<date_time>.csv

where:

- <*RTU_Name*> is the value of "RTU Name" parameter in "General Settings" page

- X=[1..4] is the group number

- <*date_time>* has the format *yyyymmdd* (yyyy=year, mm=month, dd=day); this is the timestamp of the first sample (line) in the log file

e.g.:

Z-PASS 1 log20180507101507.csv

21.5.3 Email Configuration

By clicking on the "Email Configuration" link, in the "Client Protocols" section, you come to the following page:

C Z-PASS2	× +		-		×
← → C ③ Nor	n sicuro 192.168.85.105:8080/dat	alog_transf_conf.php?prot=2	r A	G	0
SENECA®	Z-PASS2				
Basic Configuration	Transfer Configuration [user: a	admin] [logout]			
Summary	Firmware Version: SW003900	240 [Modem: 1231B02SIM5350E]			
Network and Services					
Serial Ports	MAC Address: C8F981160043	[IMEI: 862264020406335]			
Real Time Clock Setup	Internet Access: Ethernet				
Gateway Configuration	Gateway: running [Data Logge	er: running (no group enabled)]			
VPN Configuration	Router: disabled				
Router Configuration					
Users Configuration	CURRENT	UPDATED			
Mobile Configuration	Email		-		
Mobile Network	Email Configuration				
DDNS Configuration					
Shared Memory Tag Conf.	Enable				
TCP Servers	only for Data ON Logger	ON V			
Tag Setup	Max Failure 10				
Tag View	Counter 10	10			
Alarms	Wait After				
Alarm Configuration	Failure 15 (minutes)	15			
Alarm Summary	Crypto Mode STARTTLS	STARTTLS V			
Alarm History					
Logic Configuration	Host posta.datalogger.it	posta.datalogger.it			
Phonebook	Port 587	587			
SMS Configuration	Username myuser	myuser			
Email Configuration	Password mypass	mypass			
HTTP Configuration	From				
Message Configuration	email zpass@datalogger.it	zpass@datalogger.it			
Rule Configuration	address				
Data Logger (SD missing)	То				
General Settings	one or more				
SD Transfer Conf.	email addresses,		-		
FTP Transfer Conf.	separated by myuser@seneca.it	myuser@seneca.it			
Group Configuration	commas,				
Maintenance Ethernet Interfaces	only for Data				
	Logger				
FW Versions	Subject Only for Data Log from Z-	Data Log from Z-PASS2			
FW Upgrade	Logger PASS2	Data Log Irolli 2-PASS2			
Conf. Management	Text				
	only for Data				
	Logger				
	APPLY				

In Z-PASS, emails can be used to transfer data log files or to send alarms; some parameters in this page are used only when transferring data log files, not when sending alarms; these parameters are marked with the "only for Data Logger" caption.

All parameters are explained in the following table.

Enable Flag telling if log files are transferred OFF via EMAIL or not Conversely, alarms can be sent via EMAIL even if this parameter is set Max Failure Counter This parameter defines the maximum number of failed attempts before entering the "Wait after failure" status (see next field) 10 Wait After Failure (minutes) This parameter defines the duration, in minutes, of the "Wait after failure" status. In this status, no further attempt to send a log file or an alarm via EMAIL is performed 15 Crypto Mode This parameter defines the encryption mode of the EMAIL connection. Possible modes are: None TLS/SSL STARTTLS None Host Hostname (FQDN) or IP address of the EMAIL server empty Port EMAIL server (TCP) port 25 Username Username to access the EMAIL server empty Password Password to access the EMAIL server empty From Email sender address empty To List of one or more email recipient address or password to access the EMAIL server empty From Email sender address empty empty	Field	Meaning	Default value
Conversely, alarms can be sent via EMAIL even if this parameter is set to OFF, provided that the other parameters are correctly set10Max Failure CounterThis parameter defines the maximum number of failed attempts before entering the "Wait after failure" status (see next field)10Wait After Failure (minutes)This parameter defines the duration, in minutes, of the "Wait after failure" status. In this status, no further attempt to send a log file or an alarm via EMAIL is performed15Crypto ModeThis parameter defines the encryption mode of the EMAIL connection. Possible modes are: - None - TLS/SSL - STARTTLSNoneHostHostname (FQDN) or IP address of the EMAIL serveremptyPortEMAIL server (TCP) port25Username serverUsername to access the EMAIL serveremptyPassword to access the EMAIL serveremptyPassword DPassword to access the EMAIL serveremptyFromEmail sender addressemptyToList of one or more email recipient addresses, separated by commasempty	Enable	Flag telling if log files are transferred	OFF
EMAIL even if this parameter is set to OFF, provided that the other parameters are correctly setMax Failure CounterThis parameter defines the maximum number of failed attempts before entering the "Wait after failure" status (see next field)10Wait After Failure (minutes)This parameter defines the duration, in minutes, of the "Wait after failure" status. In this status, no further attempt to send a log file or an alarm via EMAIL is performed15Crypto ModeThis parameter defines the encryption mode of the EMAIL connection. Possible modes are: - None - TLS/SSL - STARTTLSNoneHostHostname (FQDN) or IP address of the EMAIL serveremptyPortEMAIL server (TCP) port25Username serverusername to access the EMAIL serveremptyPassword FromPassword to access the EMAIL serveremptyToList of one or more email recipient addresses, separated by commasempty		via EMAIL or not	
to OFF, provided that the other parameters are correctly setMax Failure CounterThis parameter defines the maximum number of failed attempts before entering the "Wait after failure" status (see next field)10Wait After Failure (minutes)This parameter defines the duration, in minutes, of the "Wait after failure" status. In this status, no further attempt to send a log file or an alarm via EMAIL is performed15Crypto ModeThis parameter defines the encryption mode of the EMAIL connection. Possible modes are: - None - TLS/SSL - STARTTLSNoneHostHostname (FQDN) or IP address of the EMAIL serveremptyPortEMAIL server25Username serverusername to access the EMAIL serveremptyPasswordPassword to access the EMAIL serveremptyToList of one or more email recipient addresse, separated by commasempty		Conversely, alarms can be sent via	
parameters are correctly setMax Failure CounterThis parameter defines the maximum number of failed attempts before entering the "Wait after failure" status (see next field)10Wait After Failure (minutes)This parameter defines the duration, in minutes, of the "Wait after failure" status. In this status, no further attempt to send a log file or an alarm via EMAIL is performed15Crypto ModeThis parameter defines the encryption mode of the EMAIL connection. Possible modes are: - None - TLS/SSL - STARTTLSNoneHostHostname (FQDN) or IP address of the EMAIL serveremptyPortEMAIL server (TCP) port25UsernameUsername to access the EMAIL serveremptyPassword to access the EMAIL serveremptyToList of one or more email recipient addresses, separated by commasempty		EMAIL even if this parameter is set	
Max Failure CounterThis parameter defines the maximum number of failed attempts before entering the "Wait after failure" status (see next field)10Wait After Failure (minutes)This parameter defines the duration, in minutes, of the "Wait after failure" status. In this status, no further attempt to send a log file or an alarm via EMAIL is performed15Crypto ModeThis parameter defines the encryption mode of the EMAIL connection. Possible modes are: - None - TLS/SSL - STARTTLSNoneHostHostname (FQDN) or IP address of the EMAIL serveremptyPortEMAIL server (TCP) port25UsernameUsername to access the EMAIL serveremptyPasswordPassword to access the EMAIL serveremptyToList of one or more email recipient addresses, separated by commasempty		to OFF, provided that the other	
maximum number of failed attempts before entering the "Wait after failure" status (see next field)Wait After Failure (minutes)This parameter defines the duration, in minutes, of the "Wait after failure" status. In this status, no further attempt to send a log file or an alarm via EMAIL is performed15Crypto ModeThis parameter defines the encryption mode of the EMAIL connection. Possible modes are: - None - TLS/SSL - STARTTLSNoneHostHostname (FQDN) or IP address of the EMAIL serveremptyPortEMAIL server (TCP) port25UsernameUsername to access the EMAIL serveremptyPasswordPassword to access the EMAIL serveremptyToList of one or more email recipient addresses, separated by commasempty		parameters are correctly set	
before entering the "Wait after failure" status (see next field)Wait After Failure (minutes)This parameter defines the duration, in minutes, of the "Wait after failure" status. In this status, no further attempt to send a log file or an alarm via EMAIL is performed15Crypto ModeThis parameter defines the encryption mode of the EMAIL connection. Possible modes are: - None - TLS/SSL - STARTTLSNoneHostHostname (FQDN) or IP address of the EMAIL serveremptyPortEMAIL server (TCP) port25Username serverUsername to access the EMAIL serveremptyPassword FromPassword to access the EMAIL serveremptyToList of one or more email recipient addresses, separated by commasempty	Max Failure Counter	This parameter defines the	10
failure" status (see next field)Wait After Failure (minutes)This parameter defines the duration, in minutes, of the "Wait after failure" status. In this status, no further attempt to send a log file or an alarm via EMAIL is performed15Crypto ModeThis parameter defines the encryption mode of the EMAIL connection. Possible modes are: - None - TLS/SSL - STARTTLSNoneHostHostname (FQDN) or IP address of the EMAIL serveremptyPortEMAIL server (TCP) port25Username serverUsername to access the EMAIL serveremptyPassword FromPassword to access the EMAIL serveremptyToList of one or more email recipient addresses, separated by commasempty		maximum number of failed attempts	
Wait After Failure (minutes)This parameter defines the duration, in minutes, of the "Wait after failure" status. In this status, no further attempt to send a log file or an alarm via EMAIL is performed15Crypto ModeThis parameter defines the encryption mode of the EMAIL connection. Possible modes are: - None - TLS/SSL - STARTTLSNoneHostHostname (FQDN) or IP address of the EMAIL serveremptyPortEMAIL server (TCP) port25UsernameUsername to access the EMAIL serveremptyPasswordPassword to access the EMAIL serveremptyToList of one or more email recipient addresses, separated by commasempty		before entering the "Wait after	
in minutes, of the "Wait after failure" status. In this status, no further attempt to send a log file or an alarm via EMAIL is performedNoneCrypto ModeThis parameter defines the encryption mode of the EMAIL connection. Possible modes are: - None - TLS/SSL - STARTTLSNoneHostHostname (FQDN) or IP address of the EMAIL serveremptyPortEMAIL server (TCP) port25UsernameUsername to access the EMAIL serveremptyPasswordPassword to access the EMAIL serveremptyToList of one or more email recipient addresses, separated by commasempty		failure" status (see next field)	
failure" status. In this status, no further attempt to send a log file or an alarm via EMAIL is performedNoneCrypto ModeThis parameter defines the encryption mode of the EMAIL connection. Possible modes are: - None - TLS/SSL - STARTTLSNoneHostHostname (FQDN) or IP address of the EMAIL serveremptyPortEMAIL server (TCP) port25UsernameUsername to access the EMAIL serveremptyPasswordPassword to access the EMAIL serveremptyFromEmail sender addressemptyToList of one or more email recipient addresses, separated by commasempty	Wait After Failure (minutes)	This parameter defines the duration,	15
In this status, no further attempt to send a log file or an alarm via EMAIL is performedNoneCrypto ModeThis parameter defines the encryption mode of the EMAIL connection. Possible modes are: - None - TLS/SSL - STARTTLSNoneHostHostname (FQDN) or IP address of the EMAIL serveremptyPortEMAIL server (TCP) port25UsernameUsername to access the EMAIL serveremptyPasswordPassword to access the EMAIL serveremptyToList of one or more email recipient addresse, separated by commasempty		in minutes, of the "Wait after	
send a log file or an alarm via EMAIL is performedNoneCrypto ModeThis parameter defines the encryption mode of the EMAIL connection. Possible modes are: - None - TLS/SSL - STARTTLSNoneHostHostname (FQDN) or IP address of the EMAIL serveremptyPortEMAIL server (TCP) port25UsernameUsername to access the EMAIL serveremptyPasswordPassword to access the EMAIL serveremptyToList of one or more email recipient addresses, separated by commasempty		failure" status.	
is performedis performedCrypto ModeThis parameter defines the encryption mode of the EMAIL connection. Possible modes are: - None - TLS/SSL - STARTTLSNoneHostHostname (FQDN) or IP address of the EMAIL serveremptyPortEMAIL server (TCP) port25UsernameUsername to access the EMAIL serveremptyPasswordPassword to access the EMAIL serveremptyToList of one or more email recipient addresses, separated by commasempty		In this status, no further attempt to	
Crypto ModeThis parameter defines the encryption mode of the EMAIL connection. Possible modes are: - None - TLS/SSL - STARTTLSNone emptyHostHostname (FQDN) or IP address of the EMAIL serveremptyPortEMAIL server (TCP) port25UsernameUsername to access the EMAIL serveremptyPasswordPassword to access the EMAIL serveremptyFromEmail sender addressemptyToList of one or more email recipient addresses, separated by commasempty		send a log file or an alarm via EMAIL	
encryption mode of the EMAIL connection.encryption mode of the EMAIL connection.Possible modes are: - None - TLS/SSL - STARTTLSNone - Mone - TLS/SSL - STARTTLSHostHostname (FQDN) or IP address of the EMAIL serveremptyPortEMAIL server (TCP) port25UsernameUsername to access the EMAIL serveremptyPasswordPassword to access the EMAIL serveremptyPasswordList of one or more email recipient addresses, separated by commasempty		is performed	
connection. Possible modes are: - None - TLS/SSL - STARTTLSPossible modes are: - None - TLS/SSL - STARTTLSHostHostname (FQDN) or IP address of the EMAIL serveremptyPortEMAIL server (TCP) port25UsernameUsername to access the EMAIL serveremptyPasswordPassword to access the EMAIL serveremptyPromEmail sender addressemptyFromEmail sender addressemptyToList of one or more email recipient addresses, separated by commasempty	Crypto Mode	This parameter defines the	None
Possible modes are: - None - TLS/SSL - STARTTLSPossible modes are: - None - TLS/SSL - STARTTLSPontPostname (FQDN) or IP address of the EMAIL serverPontPontEMAIL serverPont25UsernameUsername to access the EMAIL serveremptyemptyPasswordPassword to access the EMAIL serveremptyPromEmail sender addressemptyFromEmail sender addressemptyToList of one or more email recipient addresses, separated by commasempty		encryption mode of the EMAIL	
- None- TLS/SSL- TLS/SSL- STARTTLSHostHostname (FQDN) or IP address of the EMAIL serveremptyPortEMAIL server (TCP) port25UsernameUsername to access the EMAIL serveremptyPasswordPassword to access the EMAIL serveremptyFromEmail sender addressemptyToList of one or more email recipient addresses, separated by commasempty		connection.	
- TLS/SSL - STARTTLS- STARTTLSHostHostname (FQDN) or IP address of the EMAIL serveremptyPortEMAIL server (TCP) port25UsernameUsername to access the EMAIL serveremptyPasswordPassword to access the EMAIL serveremptyFromEmail sender addressemptyToList of one or more email recipient addresse, separated by commasempty		Possible modes are:	
- STARTTLS- STARTTLSHostHostname (FQDN) or IP address of the EMAIL serveremptyPortEMAIL server (TCP) port25UsernameUsername to access the EMAIL serveremptyPasswordPassword to access the EMAIL serveremptyFromEmail sender addressemptyToList of one or more email recipient addresses, separated by commasempty		- None	
HostHostname (FQDN) or IP address of the EMAIL serveremptyPortEMAIL server (TCP) port25UsernameUsername to access the EMAIL serveremptyPasswordPassword to access the EMAIL serveremptyFromEmail sender addressemptyToList of one or more email recipient addresses, separated by commasempty		- TLS/SSL	
the EMAIL serverthe EMAIL serverPortEMAIL server (TCP) port25UsernameUsername to access the EMAIL serveremptyPasswordPassword to access the EMAIL serveremptyFromEmail sender addressemptyToList of one or more email recipient addresses, separated by commasempty		- STARTTLS	
PortEMAIL server (TCP) port25UsernameUsername to access the EMAIL serveremptyPasswordPassword to access the EMAIL serveremptyFromEmail sender addressemptyToList of one or more email recipient addresses, separated by commasempty	Host	Hostname (FQDN) or IP address of	empty
UsernameUsername to access the EMAIL serveremptyPasswordPassword to access the EMAIL serveremptyFromEmail sender addressemptyToList of one or more email recipient addresses, separated by commasempty		the EMAIL server	
serverPassword to access the EMAIL serveremptyPasswordPassword to access the EMAIL serveremptyFromEmail sender addressemptyToList of one or more email recipient addresses, separated by commasempty	Port	EMAIL server (TCP) port	25
PasswordPassword to access the EMAIL serveremptyFromEmail sender addressemptyToList of one or more email recipient addresses, separated by commasempty	Username	Username to access the EMAIL	empty
From Email sender address empty To List of one or more email recipient addresses, separated by commas empty		server	
To List of one or more email recipient empty addresses, separated by commas	Password	Password to access the EMAIL server	empty
addresses, separated by commas	From	Email sender address	empty
	То	List of one or more email recipient	empty
This parameter is used only for los		addresses, separated by commas	
This parameter is used only for log		This parameter is used only for log	
files transfer		files transfer	
Subject Email subject empty	Subject	Email subject	empty
This parameter is used only for log		This parameter is used only for log	
files transfer		files transfer	
Text Email text; if left empty, the text empty	Text	Email text; if left empty, the text	empty
"This is a mail from Z-PASS2 [or Z-		"This is a mail from Z-PASS2 [or Z-	
PASS1]" is sent		PASS1]" is sent	
This parameter is used only for log		This parameter is used only for log	

files transfer	

Log files sent as EMAIL attachments have names with the following format:

<RTU_Name>_X_log<date_time>.csv

where:

- <RTU_Name> is the value of "RTU Name" parameter in "General Settings" page

- *X*=[1..4] is the group number

- <*date_time>* has the format *yyyymmdd* (yyyy=year, mm=month, dd=day); this is the timestamp of the first sample (line) in the log file

e.g.:

Z-PASS_1_log20180507101507.csv

Emails carrying alarms have the following text format:

MESSAGE:<timestamp>
<rtu name> <message text>

with the following subject:

<rtu name>:ALARM

21.5.4 HTTP Configuration

By clicking on the "HTTP Configuration" link, in the "Client Protocols" section, you come to the following page:

← → C Non sicuro 192.168.85.105:8080/datalog_transf_conf.php?prot=3 ☆ I <
Basic Configuration Transfer Configuration [user: admin] [logout] Summary Firmware Version: \$W003900_240 [Modem: 1231B02\$IM5350E] Network and Services MAC Address: C8F981160043 [IMEI: 862264020406335] Serial Ports Internet Access: Ethernet Real Time Clock Setup Internet Access: Ethernet Gateway Configuration Gateway: running [Data Logger: running (no group enabled)] VPN Configuration Router: disabled Router Configuration Motific Current Mobile Configuration Motific Current Mobile Network Configuration DNS Configuration Enable NOTE: NOTE: HTTP-POST can be sent OFF Tag Setup Only if HTTP POST Orly if HTTP POST of Settings Alarms Alarms Logger/General Alarms Logger/General Alarm Summary Max Failure Counter 3
Alami History 20 20 Logic Configuration Crypto Mode ON ON SMS Configuration Host 192.168.90.1 192.168.90.1 Email Configuration Port 443 443 HTTP Configuration Password AaBbCdDdEeFfGg0123466789 AaBbCdDdEeFfGg0123456789 Message Configuration Password AaBbCdDdEeFfGg0123466789 AaBbCdDdEeFfGg0123456789 Rule Configuration Password AaBbCdDdEeFfGg0123466789 AaBbCdDdEeFfGg0123456789 SD Transfer Conf. Group Configuration FTP Transfer Conf. FTP Transfer Conf. Group Configuration Maintenance Ethemet Interfaces FW Versions FW Versions FW Upgrade FW Upgrade FW Upgrade

In Z-PASS, HTTP POSTs can be used to send log samples or alarms (events).

All parameters are explained in the following table.

Field	Meaning	Default value
Enable	Flag telling if log samples/events are	OFF

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	sent via HTTP POST requests or not	
Max Failure Counter	This parameter defines the	10
	maximum number of failed attempts	
	before entering the "Wait after	
	failure" status (see next field)	
Wait After Failure (minutes)	This parameter defines the duration,	15
	in minutes, of the "Wait after	
	failure" status.	
	In this status, no further attempt to	
	send a log sample via HTTP POST	
	request is performed	
Crypto Mode	This parameter defines the	ON
	encryption mode of the HTTP	
	connection.	
	Possible modes are:	
	- OFF (HTTP)	
	- ON (HTTPS)	
Host	Hostname (FQDN) or IP address of	192.168.90.1
	the HTTP server	
Port	HTTP server (TCP) port	443
Password	Password to access the HTTP server	AaBbCdDdEeFfGg0123456789

21.5.5 MQTT Configuration

By clicking on the "MQTT Configuration" link, in the "Client Protocols" section, you come to the following page:

VPN Configuration			
Router Configuration		CURRENT	UPDATED
OPC-UA Server Conf.	мотт		
Users Configuration	Configuration		
Mobile Configuration			
Mobile Network	NOTE:		
DDNS Configuration	-		ata Logger/Group 1/Sampling Period" parameter
Shared Memory Tag Conf.	(see page "Data l		
TCP Servers	Enable		ON ¥
Tag Setup	Max Failure Counter	-	3
Tag View	Wait After Failure (minutes)	15	15
Alarms		7-PASS MOTT	
Alarm Configuration	Client ID	Client	Z-PASS MQTT Client
Alarm Summary	Broker Host	188.10.245.254	188.10.245.254
Alarm History	Broker Port	1883	1883
Client Protocols	Keep Alive		20
SD Transfer Conf.	(seconds)		20
FTP Configuration	Clean Session	ON	ON V
Email Configuration	Message Retain	OFF	OFF V
HTTP Configuration	Quality of		QoS 1 V
MQTT Configuration	Service Authentication		OFF V
Logic Configuration			
Phonebook	Username		user
SMS Configuration	Password		123456
Message Configuration	SSL/TLS		OFF V
Timer Configuration	Log on change		ON V
Rule Management	Publish with multiple tags		OFF V
Data Logger (SD found)	Publish Topic for		seneca/%e/data
General Settings	Logs	{"type": "data",	
Group Configuration		"message":	
SD File Manager	Publish Payload for Logs		{"type": "data", "message": {"device": %jc, "date": %jd, "name'
Maintenance	-	"name": %jn, "value": %v}}	
Ethernet Interfaces	Publish Bulk	{"name": %jn,	
FW Versions	Format	"value": %v}	{"name": %jn, "value": %v}
FW Upgrade	Publish Topic for Alarms		seneca/%e/data
Conf. Management	Publish Payload for Alarms	{"tms": %t, "msg": %jx}	{"tms": %t, "msg": %jx}
	Subscribe Topic	seneca/%e/info	seneca/%e/info
	LWT Topic		
	LWT Payload		
	Save		
	Configuration		
	Load		
	Configuration URL		
	FW Update URL		
	APPLY		
			MQTT Certificates
			CA Certificate File Scegli file Nessun file selezionato
		С	lient Certificate File (.crt) Scegli file Nessun file selezionato
			Client Key File Specili file Nessun file selezionato
	UPLOAD		(.key) Soegin me rvesson me selezionato

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In Z-PASS, MQTT protocol can be used to send (and receive) data or events to a cloud (called broker).

All parameters are explained in the following table.

Field	Meaning	Default value
Enable	Flag telling if data/events are	OFF
	sent/receive via MQTT protocol or	
	not	
Max Failure Counter	This parameter defines the	3
	maximum number of failed attempts	
	before entering the "Wait after	
	failure" status (see next field)	
Wait After Failure (minutes)	This parameter defines the duration,	15
	in minutes, of the "Wait after	
	failure" status.	
	In this status, no further attempt to	
	send or receive MQTT data is	
	performed	
Client ID	This parameter defines the Client ID	Z-PASS MQTT Client
	used in the MQTT protocol	
Broker Host	This parameter defines the Broker	192.168.90.1
	Host name or address	
Broker Port	This parameter defines the Broker	1883
	Port	
Keep Alive Interval (seconds)	This parameter defines the Keep	20
	alive: ensures that the connection	
	between the broker and client is still	
	open and that the broker and the	
	client are aware of being	
	connected. When the client	
	establishes a connection to the	
	broker, the client communicates a	
	time interval in seconds to the	
	broker. This interval defines the	
	maximum length of time that the	
	broker and client may not	
	communicate with each other	
Clean Session	This parameter defines the clean	ON
	session.	
	When the clean session flag is set to	
	true, the client does not want a	
	persistent session. If the client	
	disconnects for any reason, all	
	· · · · ·	

		nd messages that are	
	•	a previous persistent	
	session are los	st.	
Message Retain	This paramete	er defines the message	OFF
	retain. Norm	nally if a publisher	
	publishes a m	essage to a topic, and	
	no one is su	bscribed to that topic	
	the message	is simply discarded by	
	the broker. H	lowever the publisher	
	can tell the b	roker to keep the last	
	message on	that topic by setting	
	theretained m	essage flag.	
Quality of service	This paramete	r defines the quality of	QOS 1
	service for the	MQTT protocol.	
	Can be selecte	ed from	
	QOS 0 (only o	nce, without ack)	
		st Once, with ack)	
		Once, with ack and	
	resend)		
Authentication	-	er defines if must be	OFF
	used the	authentication with	
	user/password	d for access to the	
	broker		
Username	Username for atuthentication (only		-
	if authentication is ON)		
Password	Password for atuthentication (only if		
	authentication is ON)		
SSL/TLS	This parameter defines if the		OFF
	communication is encrypted with		
	SSL/TLS		
Log on Change	-	er defines if topics must	ON
	This parameter defines if topics must be sent only on change (according to		
	-	alog time) or not.	
Publish with multiple tags		er defines if the publish	ON
	-	tiple tags or if the	
		end a publish for each	
	tag.		
Publish Topic for Logs	-	bic name for logs data	seneca/%c/data
	using the follo	-	
	%с	Z-PASS Client ID	
	%m Z-PASS MAC Address		
	%e	Z-PASS IMEI	

	%d	date-time	
	70U		
	%t	timestamp (number of seconds since the "epoch")	
	%x	text (only in "Publish Payload for Alarms")	
	%b	bulk (format specified in "Publish Bulk Format" parameter)	
	%n	tag name (only in "Publish Bulk Format")	
	%v	tag value (only in "Publish Bulk Format")	
	%i	tag validity flag (only in "Publish Bulk Format")	
	%j[field]	print [field] as a JSON string	
	%\$tag_name\$	value of tag "tag_name"	
	%#tag_name#	validity flag of tag "tag_name"	
Publish Payload for Logs	Select the form	nat that must be used	{"type": "data", "message":
			{"device": %jc, "date": %jd,
		ish payload in Json	"name": %jn, "value": %v}}
	format using t	ne following legenda:	
	01		
	%с	Z-PASS Client ID	
	%c %m	Z-PASS Client ID Z-PASS MAC Address	
	%m	Z-PASS MAC Address	
	%m %e	Z-PASS MAC Address Z-PASS IMEI	
	%m %e %d	Z-PASS MAC Address Z-PASS IMEI date-time timestamp (number of seconds since the	
	%m %e %d %t	Z-PASS MAC Address Z-PASS IMEI date-time timestamp (number of seconds since the "epoch") text (only in "Publish	
	%m %e %d %t %x	Z-PASS MAC Address Z-PASS IMEI date-time timestamp (number of seconds since the "epoch") text (only in "Publish Payload for Alarms") bulk (format specified in "Publish Bulk	
	%m %e %d %t %x %b	Z-PASS MAC Address Z-PASS IMEI date-time timestamp (number of seconds since the "epoch") text (only in "Publish Payload for Alarms") bulk (format specified in "Publish Bulk Format" parameter) tag name (only in	
	%m %e %d %t %x %b %n	Z-PASS MAC Address Z-PASS IMEI date-time timestamp (number of seconds since the "epoch") text (only in "Publish Payload for Alarms") bulk (format specified in "Publish Bulk Format" parameter) tag name (only in "Publish Bulk Format") tag value (only in	
	%m %e %d %t %x %b %n %v	Z-PASS MAC Address Z-PASS IMEI date-time timestamp (number of seconds since the "epoch") text (only in "Publish Payload for Alarms") bulk (format specified in "Publish Bulk Format" parameter) tag name (only in "Publish Bulk Format") tag value (only in "Publish Bulk Format") tag validity flag (only in	
	%m %e %d %t %x %b %n %v %i	Z-PASS MAC Address Z-PASS IMEI date-time timestamp (number of seconds since the "epoch") text (only in "Publish Payload for Alarms") bulk (format specified in "Publish Bulk Format" parameter) tag name (only in "Publish Bulk Format") tag value (only in "Publish Bulk Format") tag validity flag (only in "Publish Bulk Format") print [field] as a JSON	

		"tag_name"	
Publish Bulk Format		mat for the bulk mode	{"name": %jn, "value": %v}
	using the follo	wing legenda:	
	%с	Z-PASS Client ID	
	%m	Z-PASS MAC Address	
	%е	Z-PASS IMEI	
	%d	date-time	
	%t	timestamp (number of seconds since the "epoch")	
	%x	text (only in "Publish Payload for Alarms")	
	%b	bulk (format specified in "Publish Bulk Format" parameter)	
	%n	tag name (only in "Publish Bulk Format")	
	%v	tag value (only in "Publish Bulk Format")	
	%i	tag validity flag (only in "Publish Bulk Format")	
	%j[field]	print [field] as a JSON string	
	%\$tag_name\$	value of tag "tag_name"	
	%#tag_name#	validity flag of tag "tag_name"	
Publish Topic for Alarms	Select the to	pic name for Alarms	seneca/%c/data
	using the follo	wing legenda:	
	%с	Z-PASS Client ID	
	%m	Z-PASS MAC Address	
	%е	Z-PASS IMEI	
	%d	date-time	
	%t	timestamp (number of seconds since the "epoch")	
	%x	text (only in "Publish Payload for Alarms")	
	%b	bulk (format specified in "Publish Bulk Format" parameter)	
	%n	tag name (only in "Publish Bulk Format")	
	%v	tag value (only in "Publish Bulk Format")	
	%i	tan validity flan (only in	

		"Publish Bulk Format")	
	%j[field]	print [field] as a JSON string	
	%\$tag_name\$	value of tag "tag_name"	
	%#tag_name#	validity flag of tag "tag_name"	
Subscribe Topic	Select the subscribe topic using the		seneca/%c/info
	following legenda:		
	%с	Z-PASS Client ID	
	%m	Z-PASS MAC Address	
	%е	Z-PASS IMEI	
	%d	date-time	
	%t	timestamp (number of seconds since the "epoch")	
	%x	text (only in "Publish Payload for Alarms")	
	%b	bulk (format specified in "Publish Bulk Format" parameter)	
	%n	tag name (only in "Publish Bulk Format")	
	%v	tag value (only in "Publish Bulk Format")	
	%i	tag validity flag (only in "Publish Bulk Format")	
	%j[field]	print [field] as a JSON string	
	%\$tag_name\$	value of tag "tag_name"	
	%#tag_name#	validity flag of tag "tag_name"	
LWT Topic	Select the Last Weel and Testament		-
	topic using the following legenda:		
	%с	Z-PASS Client ID	
	%m	Z-PASS MAC Address	
	%e	Z-PASS IMEI	
	%d	date-time	
	%t	timestamp (number of seconds since the "epoch")	
	%x	text (only in "Publish Payload for Alarms")	

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	hulls /formation acified	
	bulk (format specified %b in "Publish Bulk Format" parameter)	
	%n tag name (only in "Publish Bulk Format")	
	%v tag value (only in "Publish Bulk Format")	
	%i tag validity flag (only in "Publish Bulk Format")	
	%j[field] print [field] as a JSON string	
	%\$tag_name\$ value of tag "tag_name"	
	%#tag_name# validity flag of tag "tag_name"	
LWT Payload	Select the Last Weel and Testament -	
	payload.	
Save Configuration URL	The URL for the "Save	
	Configuration" command received	
	from MQTT	
Load Configuration URL	The URL for the "Load	
	Configuration" command received from MQTT	
FW Update URL	The URL for the "FW Update" command received from MQTT	
Sleep Timeout	Wake-up time of the MQTT task, the	
	shorter it is, the more reactive MQTT	
	is (at the expense of a higher cpu	
	load)	
MQTT Certificates	Used for load the certificates that	
	can be used with the SSL/TLS	
	encryption.	

21.5.5.1 MQTT Example configuration for Databoom.com

MQTT Configuration		
-	eriod is given by "Data Logger/Group 1/Sampling Period" a Logger/Group Configuration").	' parameter
Enable	ON	ON T
Max Failure Counter		3
Wait After Failure (minutes)	15	15
Client ID	q)	q entra series and
Broker Host	mqtt.databoom.com	mqtt.databoom.com
Broker Port	8883	8883
Keep Alive Interval (seconds)	20	20
Clean Session	ON	ON T
Message Retain		OFF •
Quality of Service		QoS 1 V
Authentication	ON	ON T
Username	m	ma
Password	2	Ζ.
SSL/TLS	ON	ON T
Log on change		OFF DATABOOM TOKEN
Publish with multiple tags	ON	ON V
Publish Topic for Logs		seneca/
Publish Payload for Logs		{"type": "data", "message": {"device": "0
Publish Bulk Format		{"name": %jn, "value": %v}
Publish Topic for Alarms		seneca/0gp5znft4q/data
Alarms	{"tms": %t, "msg": %jx}	{"tms": %t, "msg": %jx}
Subscribe Topic		seneca/
LWT Topic		

Then you must add the Databoom certificates.

21.5.5.2 MQTT Example configuration for Amazon AWS

IIIICIIICI AUUCSS, LUICIIICI

Gateway: running [Data Logger: running (no group enabled)]

Router: running

	-	
	CURRENT	UPDATED
MQTT Configuration		
-		
NOTE:		
-	riod is given by "Data Logger/Group 1/Samplin a Logger/Group Configuration").	g Period" parameter
Enable		ON T
Max Failure Counter	3	3
Wait After Failure		45
(minutes)	10	15
Client ID	Any	Any
Broker Host	nazonaws.com	a: azonaws.
Broker Port	8883	8883
Keep Alive Interval (seconds)	20	20
Clean Session	ON	ON V
Message Retain	OFF	OFF T
Quality of Service	QoS 1	QoS 1 V
Authentication	ON	ON V
Username		
Password		
SSL/TLS		ON V
Log on change	OFF	OFF V
Publish with multiple tags		ON V
Publish Topic for Logs	\$aws/things/ZUMTS/shadow/update	Saws/things/ZUMTS/shadow/update
Publish Payload for Logs	%\$ZPASS_DI\$, "ZPASS_DO": %\$ZPASS_DO\$33_"clientToken":	{"state": {"reported": {"ZPASS_DI": %\$ZPASS_DI\$, "ZPAS
Publish Bulk Format	saws/tnings/2011/5/snadow/update/accepted	Saws/things/ZUMTS/shadow/update/accepted
		seneca/%c/events
Alarms	{"tms": %t, "msg": %jx}	{"tms": %t, "msg": %jx}
Subscribe Topic		Saws/things/ZUMTS/shadow/update/accepted
LWT Topic	seneca/%c/lastwill	seneca/%c/lastwill
LWT Payload	Z-PASS has gone with the wind !	Z-PASS has gone with the wind !
Save Configuration		

Then you must add the AWS certificates.

21.5.6 Write a TAG(s) from MQTT

For write a single tag (for example ZPASS_DO_4 to value "1") from MQTT use:

```
seneca/Z-PASS MQTT Client/info/ZPASS DO 4
```

{"val": 1}

21.5.7 Write multiple TAGs from MQTT

For write multiple tags from MQTT use: seneca/Z-PASS MQTT Client/info
{"tags": [{"ZPASS_DO_4": 1}]}
{"tags": [{"ZPASS_DO_2": 1}, {"ZPASS_DO_4": 0}]}
{"tags": [{"SHM_S16": -113}, {"SHM_FP": 0.7564}]}
{"tags": [{"SHM_U16": 69}, {"SHM_FP": -1.3291}]}

21.5.8 Send a command from MQTT

For send a command from MQTT use:

seneca/Z-PASS MQTT Client/info/act

{"act": 1}

This command will do a "RESET"

Other commands are:

RESET	= 1
CONF_SET	= 2
CONF_GET	= 3
FW_UPDATE	= 4
VPN_PPP_ON	= 5
VPN_ON	= 6
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VPN_OFF = 7
VPN_CUSTOM_ON = 8
VPN_CUSTOM_OFF = 9
DL_CLEAN_LOGS = 10

21.6 Logic Configuration

The logic configuration can be used to create programs that run in the gateway.

If you need to send text messages by SMS, EMAIL or HTTP, you have first to setup the corresponding configuration. After that the Rule configuration is used to write the program.

Up to 2000 rules can be written.

The rules are executed from top to down and from left to right.

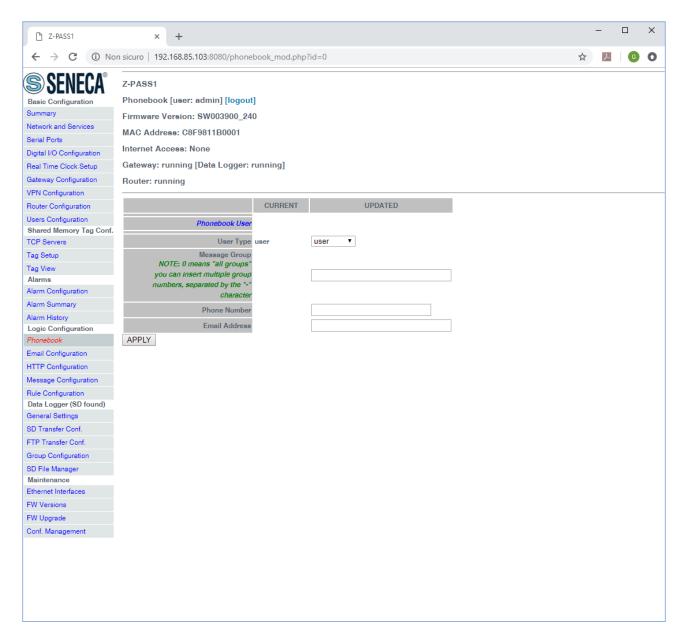
21.6.1 Phonebook

By clicking on the "Phonebook" link, in the "Logic Configuration" section, you come to the following page:



In this page, the list of the Phonebook "users" is shown.

By clicking on the "ADD" button, a new user can be inserted into the Phonebook, as in the following figure.



The following table explains the meaning of the parameters related to a Phonebook user.

Field	Meaning	Default value
User Type	Possible user types:	user
	- "admin": this is the user which	
	receives all the rejected or	
	unrecognized SMS commands, if	
	the "SMS Relay to Admin"	
	parameter is set to ON and the	
	"Startup SMS" messages, if the	
	"Startup SMS" parameter is set	
	to ON; this user can send SMS	
	commands to the device; it also	

	receives all SMS/EMAIL alarms	
	- "manager": this user can send	
	SMS commands to the device; it	
	receives SMS/EMAIL alarms sent	
	to one of the message groups it	
	belongs to	
	- "user": this user receives	
	SMS/EMAIL alarms sent to one	
	of the message groups it belongs	
	to	
Message Group	This parameter contains a list of one	Empty
	or more numbers, separated by the	
	'-' character, which identify the	
	Message Groups which the user	
	belongs to; Message Groups are	
	used as recipients for SMS or EMAIL	
	alarms.	
	The value 0 corresponds to "All	
	Message Groups"	
Phone Number	Phone Number in "international	Empty
	format"; the initial '+' character shall	
	be present	
Email Address	Email Address, used as a recipient	Empty
	for alarms sent via Email	

Two users with the same phone number cannot be present in the Phonebook; so, when trying to add a new user with an already existing phone number, the following error is given.

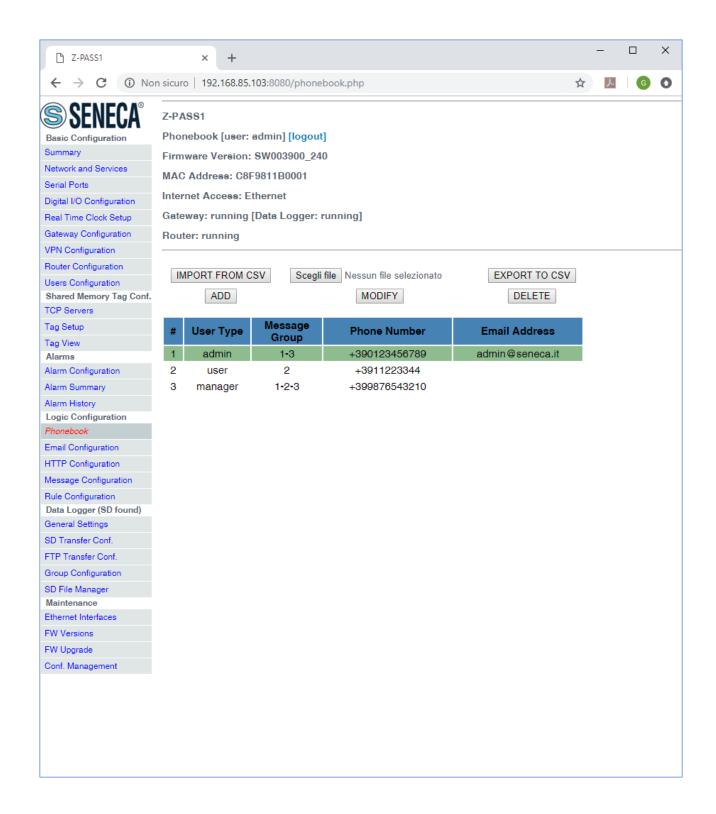
	× + – – ×
\leftrightarrow \rightarrow X (i) Non	sicuro 192.168.85.103:8080/phonebook_save.php?act=save&id=0 🖈 📕 🚺 🚳 🔕
SENECA [®]	Z-PASS1
Basic Configuration	Phonebook [user: admin] [logout]
Summary	Firmware Version: SW003900_240
Network and Services	
Serial Ports	MAC Address: C8F9811B0001
Digital I/O Configuration	Internet Access: Ethernet
Real Time Clock Setup	Gateway: running [Data Logger: running]
Gateway Configuration	
VPN Configuration	Router: running
Router Configuration	
Users Configuration	
Shared Memory Tag Conf.	Number already present ! Phonebook User not added.
TCP Servers	
Tag Setup	
Tag View	
Alarms	
Alarm Configuration	
Alarm Summary	
Alarm History	
Logic Configuration	
Phonebook	
Email Configuration	
HTTP Configuration	
Message Configuration	
Rule Configuration	
Data Logger (SD found)	
General Settings	
SD Transfer Conf.	
FTP Transfer Conf.	
Group Configuration	
SD File Manager	
Maintenance	
Ethernet Interfaces	
FW Versions	
FW Versions FW Upgrade	

It is possible to insert more than one "admin" user into the Phonebook; just note that only the most recently inserted "admin" user will receive "relayed" SMS commands and "Startup SMS" messages.

Conversely, if no "admin" user is present in the Phonebook, rejected and unrecognized SMS commands won't be relayed and "Startup SMS" messages won't be sent, even if the corresponding enable parameters are set to ON.

Selecting a user in the list and clicking on the "MODIFY" button, you can modify the user's parameters, as in the following figures.

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🗅 Z-PASS1	× +		-		×
\leftrightarrow \rightarrow C \odot No	n sicuro 192.168.85.103:8080/phonebook_mod.php?id=10	☆	r	G	0
SENECA® Basic Configuration Summary Network and Services Serial Ports Digital I/O Configuration Real Time Clock Setup Gateway Configuration VPN Configuration VPN Configuration Users Configuration Users Configuration Shared Memory Tag Conf. TCP Servers	Z-PASS1 Phonebook [user: admin] [logout] Firmware Version: SW003900_240 MAC Address: C8F9811B0001 Internet Access: Ethernet Gateway: running [Data Logger: running] Router: running CURRENT UPDATED User Type admin admin				
Tag Setup Tag View Alarms Alarm Configuration Alarm Summary Alarm History Logic Configuration	Message Group Admin NOTE: 0 means "all groups" you can insert multiple group 1-3 numbers, separated by the "-" character Phone Number +390123456789 Email Address admin@seneca.it				
Phonebook Email Configuration HTTP Configuration Message Configuration Rule Configuration Data Logger (SD found) General Settings	APPLY				
SD Transfer Conf. FTP Transfer Conf. Group Configuration SD File Manager Maintenance Ethernet Interfaces FW Versions					
FW Upgrade Conf. Management					

Selecting a user in the list and clicking on the "DELETE" button, you can remove a user from the Phonebook.

Finally, the "EXPORT TO CSV" and "IMPORT FROM CSV" buttons let you export/import the Phonebook to/from a ".csv" file (the separator character is ";").

Please note that, <u>when importing the Phonebook from a .csv file, the previous Phonebook contents are</u> <u>deleted</u>; so, a fast way to "clean" the Phonebook, if it contains many users, is to import an empty .csv file.

21.6.2 SMS Configuration

By clicking on the "SMS Configuration" link, in the "Logic Configuration" section, you come to the following page:

In this page, you can set the parameters related to the "SMS Commands" functionality (see chapter 18), as listed in the following table:

Field	Meaning	Default value
SMS Commands Enable	Flag to enable/disable the SMS commands functionality	ON

SMS Acknowledge	Flag to enable/disable the sending of a response ("acknowledge") to "set" commands (while "get" commands always have a response) (see chapter 18)	ON		
SMS Relay To Admin	Flag to enable/disable the relaying of ON rejected or unrecognized commands to the "admin" user			
Startup SMS	Flag to enable/disable the sending of a "startup" message to the "admin" user	OFF		
SMS Send Attempts	Number of attempts to send an SMS	1		
Additional Alarm Info	Flag telling if "additional info", that is RTU Name and timestamp, shall be put before the message text in alarm SMS	ON		
Send Delay Between Attempts (s)	Delay, in seconds, between attempts to send an SMS	10		
Service Centre	SMS Service Centre (SMS-SC) number Typically, this parameter can be left empty, since SMS-SC number is already configured on the SIM	empty		

The "Startup SMS", controlled by the corresponding parameter, has the following format:

Z-PASS2<hwrev> '<vpnbox tag name>' (IMEI:<modem IMEI>) STARTED

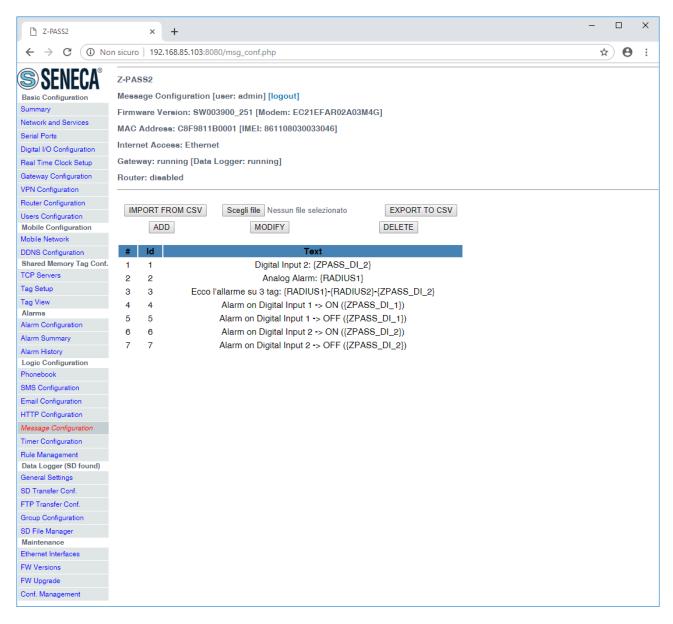
as in the following example:

Z-PASS2-IO 'zpass' (IMEI:861108030033046) STARTED

Obviously, this page is not available for Z-PASS1 products.

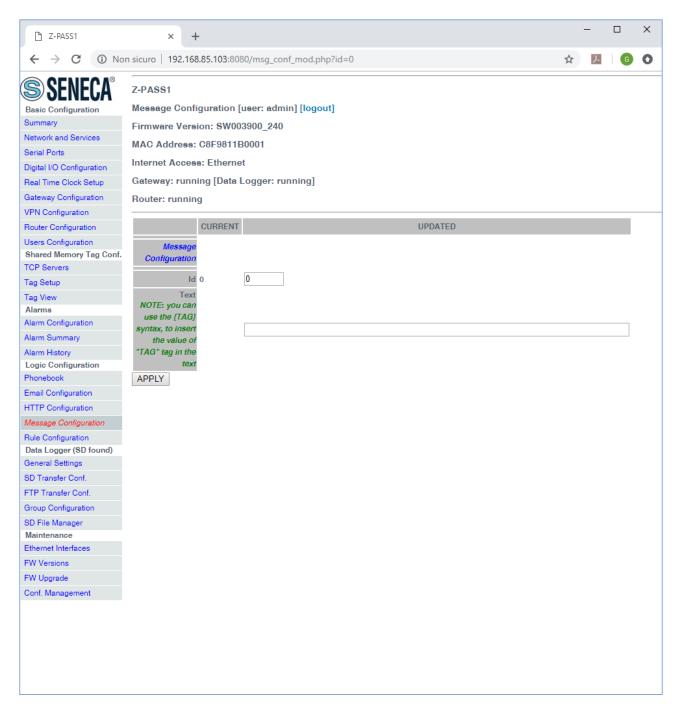
21.6.3 Message Configuration

By clicking on the "Message Configuration" link, in the "Logic Configuration" section, you come to the following page:



This page lets you configure text messages used for alarms sent via SMS, EMAIL, HTTP POST.

By clicking on the "ADD" button, a new message can be configured, as in the following figure.



Messages are identified by a numeric identifier.

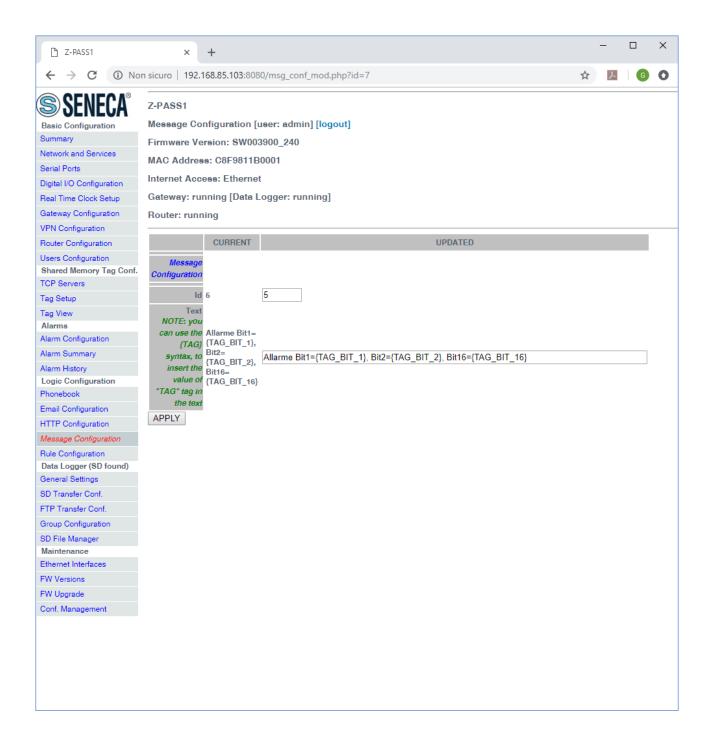
The message text can currently contain only ASCII characters.

As highlighted by the note in the page, <u>the syntax {TAG} will be replaced</u>, in the text, with the current value <u>of the "TAG" tag</u>. This syntax can be used more than once in a message text.

Selecting a message in the list and clicking on the "MODIFY" button, you can modify the message id and text, as in the following figures.

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C Z-PASS1	×	+		-			×
\leftrightarrow \rightarrow C (i) Nor	n sicuro 19	2.168.85.103:8080/msg_conf.php	☆		x	G	0
-	Z-PASS1 Message Firmware MAC Add Internet A Gateway: Router: ru	2.168.85.103:8080/msg_conf.php Configuration [user: admin] [logout] Version: SW003900_240 ess: C8F9811B0001 cccess: Ethernet running [Data Logger: running]					



Selecting a message in the list and clicking on the "DELETE" button, you can delete a message.

Finally, the "EXPORT TO CSV" and "IMPORT FROM CSV" buttons let you export/import the message configuration to/from a ".csv" file (the separator character is ";").

Please note that, when importing the message configuration from a .csv file, the previously existing messages are deleted; so, a fast way to "clean" the message configuration, if it contains many entries, is to import an empty .csv file.

```
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```

Also it is important to note that, to let the Z-PASS properly handle the messages, the imported text must contain only ASCII characters.

21.6.4 Timer Configuration

The "Timer Configuration" page lets you define up to 100 timers to be used in the logic rules.

	CURRENT	UPDATED
Timer Configuration		
Id	1	1
Enabled	ON	ON 🔻
Duration (ms)	60000	60000
APPLY		

The ID represents the timer mnemonic that must be used in the rules.

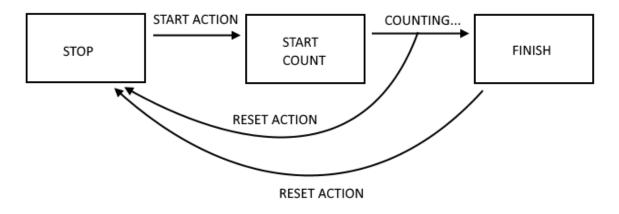
Enabled selects if the timer is active or not.

Duration is the trigger value in [ms].

1	ADD	MODIFY	DELETE
#	ld	Enabled	Duration (ms)
1	1	ON	60000
2	2	ON	10000
3	3	ON	30000
4	100	ON	3600000

Note

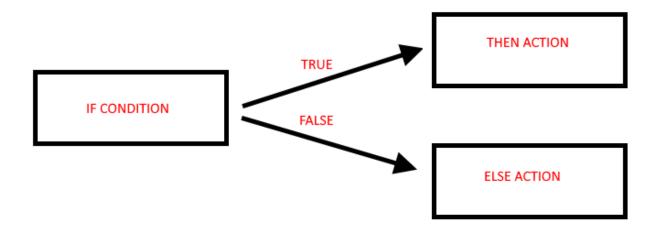
The Timers by default are in stop mode, they need an action for start and an action for reset, see the following diagram:



21.6.5 Rule Management

21.6.5.1 Basic Information

A Rule is composed by "If Condition(s)", "Then Action(s)" and "Else Action(s)".



If the "If condition" is true the "then action" is executed

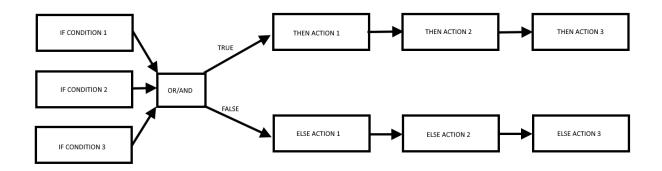
If the "if condition" is false the "else action" is executed

The Rules are executed from top to down and from left to right (in figure 1->2->3->4):

	C	URRENT		UPDATED										
RULE GENERAL CONFIGURATION														
Writing Mode	After exec	cution	After	execution •										
APPLY														
RULE STATUS														
Run Status			RUN	INING										
Cycle Time (ms)			0											
Rule Management		ADD		MODIFY		COPY	MOVE	DELE	TE	DELETE ALL				
Rule Debugger				SET/RESET	BREA	KPOINT		PLAY		SHOW TAGS				
# Enabled Index Description	Period (ms)	If condition 1		If condition 2		If condition 3	Then action 1	Then action 2	Then action 3	Else action 1	Else action 2	Else action 3	Condition Status	Breakpoint
1 ON 1 Biggest Circumference	1000	RADIUS1 > RADIUS2	OR		OR		CIRCUMFERENCE = RADIUS1 * 6 28			CIRCUMFERENCE			FALSE	2
2 Cit 2 Calculate Biggest Area	1000	RADIUS1 > RADIUS2	OR		OR		AREA sor RADIUS1	AREA = AREA * 3.14		AREA sor RADIUS2	AREA - AREA * 3.14		PALSE	→ 4

When the rules are terminated then the execution returns to the first.

More in details the correct diagram is:



The "If conditions" can be combined together in "OR" or "AND" logic to obtain a unique boolean state:

IF CONDITION 1	IF CONDITION 2	IF CONDITION 3	"OR" RESULT	"AND" RESULT
FALSE	FALSE	FALSE	FALSE	FALSE
FALSE	FALSE	TRUE	FALSE	
FALSE	TRUE	FALSE	FALSE	
FALSE	TRUE	TRUE TRUE		FALSE
TRUE	FALSE	FALSE	TRUE	FALSE
TRUE	FALSE	FALSE TRUE TRUE		FALSE
TRUE	TRUE	FALSE	TRUE	FALSE

TRUE TR	RUE TRUE	TRUE	TRUE
---------	----------	------	------

Up to 3 different actions can be executed for each true/false result, the execution order is from 1 to 3.

Combining more than one rules, you can create a program, up to 2000 rules can be created.

A rule can be configured to execute actions:

-Only when there is a change in the "OR/AND" result

-At every loop

In the "Rule General Configuration" we can choose when the Tags are written to the external (Modbus) memory image:

Z-PASS2					
Rule Configuration [user: admin] [l	Rule Configuration [user: admin] [logout]				
Firmware Version: SW003900_250					
MAC Address: C8F9811B0001					
Internet Access: Ethernet					
Gateway: running [Data Logger: ru	nning]				
Router: disabled					
	CURRENT	UPDATED			
RULE GENERAL CONFIGURATION					
Writing Mode	After execution	After execution <			
APPLY		During execution After execution			
RULE STATUS					

With "After Execution", we obtain that the tag values are copied to the external image memory at the end of all rules.

With "During Execution", we obtain that the tag values are copied to the external image memory at the end of each rule.

So, using the "After Execution" mode, the new tag values will be refreshed only at end of all rules (also tags that must be written to Mobus RTU/TCP-IP).

The Rule Status will show the Run status (if the rules are in run or pause mode) and the Cycle time that is the time spent to execute all the rules (note that if you need to write tags with modbus protocol the cycle time will include also the time spent for this operation):

	Alter execution
RULE STATUS	
Run Status	RUNNING
Cycle Time (ms)	1

21.6.5.2 Add a Rule

By clicking on the "ADD" button, a new rule can be configured:

	CURRENT	UPDATED
RULE CONFIGURATION		
NOTE: "Then Actions'	' are execute	ed when the condition result, as a whole, is TRUE; otherwise
'Else Actions" are exe	cuted.	
		tions in rules with Period>0 are always executed. cuted only when there is a change in the condition result.
Enabled		OFF T
Index	3	3
Description		
Period (ms)	0	0
If Condition 1		
Туре	None	None v
If Condition 2		
Туре	None	None 🔻
If Condition 3		
Туре	None	None 🔻
If Condition Operator		
Operator	OR	OR V
Then Action 1		
Туре		None
Then Action 2		
Type		None
Then Action 3		Nono I
Titen Action 5		None
Else Action 1		NOUG Y
		None
Type Else Action 2		None T
		Nano
Туре		None v
Else Action 3		
Type		None T

To configure a rule, the parameters explained in the following table are available.

Field	Meaning	Default value
Enabled	Flag telling if the rule is enabled or	OFF
	disabled, that is if the rule will be	
	processed or not	

Index	This parameter defines the rule	-
index	execution order $(1 = \text{first rule to be})$	
	executed)	
Description	Rule text description	-
Period [ms]	If the value is = 0 then the Actions are	0
[]	executed only if there is a change in the	
	"OR/AND" result.	
	If the value is different from 0 the	
	Actions are executed every Period [ms].	
	Don't use little Period values for	
	sending EMAIL/SMS Actions!	
	Note that the Period is in milliseconds	
	(seconds/1000).	
	NOTE:	
	If Period is >0 the Actions are always	
	executed in "repeat" mode	
If Condition X Type	This parameter defines the type of	None
X=[13]	condition, for each of the three available	
	"if conditions"	
	Possible types are:	
	- None	
	- Alarm State	
	- Alarm Active	
	- Always	
	- Digital Tag	
	- Analog Tag	
	- Timer	
	- Scheduler	
	- Rule Status	
	- Bitmask	
	See paragraph 21.6.5.2.1	
If Condition Operator	The possible types are: OR/AND	OR
in condition operator	IF Conditions can be combined in OR or	
	AND boolean operations.	
	Remember that using "OR" the result is	
	true if at least one condition is true.	
	Using "AND" the result is true if all the	
	conditions are true.	
Then/Else	This parameter defines the type of	None
Action X with X=[13]	action, for each of the three available	
	"then/else actions"	

F	Possible types are:
	- None
	- Send Alarm SMS ²²
	- Send Alarm EMAIL
	- Send Alarm HTTP POST
	- Digital Tag
	- Analog Tag
	- Timer
	- Scheduler
	- Datalogger
	- Network
	- Set Bits
9	See paragraph 21.6.5.2.2

21.6.5.2.1 If Condition

Alarm State parameters

Field	Meaning	Default value
Alarm Name	The name of the alarm can be selected	First alarm name in the list
	from the list of all configured alarms	
Alarm State	The state of the alarm; possible states are: - None - Alarm (digital only) - Alarm Low Low (analog only) - Alarm Low (analog only) - Alarm High (analog only) - Alarm High (analog only) - Alarm High High (analog only) - Acknowledge - Return - End Depending on the type (digital or analog) of the selected alarm, some states are disabled	None
Analog Danger Alarm	Flag telling if alarm level shall be "Analog Danger" or not, meaningful only for analog alarms	OFF

 $^{^{\}rm 22}$ This option is not available in Z-PASS1 product. MI00380-35

Alarm Active parameters

Field	Meaning	Default value
Alarm Name	The name of the alarm can be selected	First alarm name in the list
	from the list of all configured alarms	
Alarm Active	Flag telling if alarm shall be "active" or	OFF
	not	
	Alarm is "active" if it is in one of the	
	states:	
	- Alarm (digital only)	
	 Alarm Low Low (analog only) 	
	- Alarm Low (analog only)	
	- Alarm High (analog only)	
	- Alarm High High (analog	
	only)	
	- Acknowledge	
	Alarm is "not active" if it is in one of the	
	states:	
	- None	
	- Return	
	- End	
Analog Danger Alarm	Flag telling if alarm level shall be	OFF
-	"Analog Danger" or not, meaningful only	
	for analog alarms.	

<u>Always</u>

The If condition is always true.

Note that the Rule is executed only one time if Period is = 0 ms or if the actions are in one time mode. If you need to execute a rule at every cycle you must put the actions in "repeat mode". If you need to execute a rule every xx ms you need to put Period > 0ms.

Digital Tag

Field	Meaning	Default value
Тад	Select the Tag that must be used for the	-
	condition	
Operator	Can be only "="	=
Tag / Constant value	Select if the comparison is between a	-
	tag or a constant boolean value	

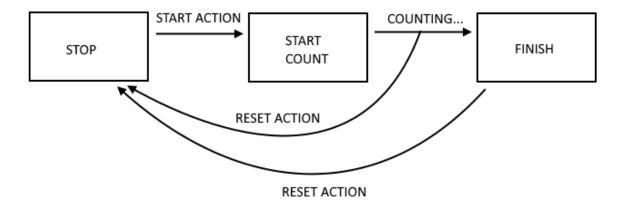
Analog Tag

Field	Meaning	Default value
Тад	Select the Tag that must be used for the	-
	condition	
Operator	Can be :	=
	" <u></u> "	
	">"	
	"<"	
	">="	
	"<="	
Tag / Constant value	Select if the comparison is between a	-
	tag or a constant value	

<u>Timer</u>

Field	Meaning	Default value
ID	Select the Timer ID to be used	-
Expired	Can be:	OFF
	"OFF" or "ON"	
	With "ON" the condition is true only	
	when the timer is expired (finish state).	
	With "OFF" the condition is true until	
	the timer is in STOP or COUNTING	
	STATE. When the timer is in FINISH state	
	the condition became false.	
	See chapter 21.6.4	

The Timer functioning is represented in the following diagram:



Schedule

Field	Meaning	Default value
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Туре	Can be Daily, Weekly Monthly	-
	Daily: the condition is true every day at	
	Hour:minute configured	
	Weekly: the condition is true the	
	selected day of the week at hour:minute	
	Monthly: : the condition is true the	
	selected day of the month at	
	hour:minute	
Day	If type is Weekly:	-
	0 = Sunday	
	1 = Monday	
	2 = Tuesday	
	3 = Wednesday	
	4 = Thursday	
	5 = Friday	
	6 = Saturday	
	If type is Monthly:	
	Select the day of the month from 1 to 31	
Hour	Hours	-
Minute	Seconds	-

Rule Status

Field	Meaning	Default value
ID	Select which Rule ID	-
Enabled	Select between Enabled or Disabled.	-
	If "Enabled" the condition is TRUE if the	
	selected Rule is enabled.	
	If "Disabled" the condition is TRUE if the	
	selected Rule is disabled.	

<u>Bitmask</u>

Field	Meaning	Default value
Тад	Select which tag the bit mask shall be	-
	applied to from a list containing all the	
	tags with data type "16Bit Unsigned"	
	and bit index 0	
Mask	The bitmask represented as a string of 4	0000
	hexadecimal digits	

The "Bitmask" condition is TRUE if the bitwise AND operation between the given Tag and Mask is different from 0; FALSE otherwise.

21.6.5.2.2 Then/Else Actions

None

No Action must be executed

Send Alarm SMS, Send Alarm EMAIL parameters

Field	Meaning	Default value
Message	The message text to be inserted in the	First message in the list
	SMS or EMAIL	
Group	The group of users the alarm will be	First group in the list
	sent to	

Send Alarm HTTP POST parameters

Field	Meaning	Default value
Message	The message text to be inserted in the	First message in the list
	HTTP POST	

Please note that the currently available conditions ("Alarm State", "Alarm Active") act as "event triggered", that is the condition is true, and the action is executed, only when:

- the specified state is entered, for "Alarm State"
- one of the states of the "active" or "not active" sets is entered, for "Alarm Active"

Digital Tag

Field	Meaning	Default value
Action Mode	Action mode, select from "One time" or	One time
	"Repeat".	
	With "One Time" the Actions are executed only if there is a change in the OR/AND Conditions Result.	
	With "Repeat" the Actions are executed	
	at every loop (if the rule is enabled and	
	if there is no period configured).	
Destination Tag	It's the Tag where the calculated result	-
	is copied to	
Operator	It's the boolean operator to use, select	-
	between =, NOT, OR etc	
Source Tag 1 / Constant value 1	Select the Tag to use in the boolen	-

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	calculation. You can also use a boolean constant	
Source Tag 2 / Constant value 2	Select the second Tag if the operator needs 2 inputs (For example "OR" operator). You can also use a boolean constant	-

<u>Analog Tag</u>

Field	Meaning	Default value
Action Mode	Action mode, select from "One time" or	One time
	"Repeat".	
	With "One Time" the Actions are	
	executed only if there is a change in the	
	OR/AND Conditions Result.	
	With "Repeat" the Actions are executed	
	at every loop (if the rule is enabled and	
	if there is no period configured).	
Destination Tag	It's the Tag where the calculated result	-
	is copied to	
Operator	It's the mathematical operator to use,	-
	select between: "="	
	copy the Source Tag 1/ Constant value 1	
	into the Destination Tag	
	Example: Destination Tag = Source Tag 1	
	Or	
	Destination Tag = Constant value 1	
	"+="	
	Sum to the Destination Tag the value of	
	Source Tag1 / Constant value 1 and copy	
	the result to the Destination Tag.	
	Example:	
	Destination Tag = Destination Tag+Source	
	Tag1	
	""	
	Subtract to the Destination Tag the	
	value of Source Tag1 and copy the result	
	to the Destination Tag.	
	Example:	
	Destination Tag = Destination Tag -	

Source Tag1	
"* <u>-</u> "	
Multiply the Destination Tag with the	
value of Source Tag1 and copy the result	
to the Destination Tag.	
Example:	
Destination Tag = Destination Tag $*$	
Source Tag1	
<i>"/="</i>	
Divide the Destination Tag with the	
value of Source Tag1 and copy the result	
to the Destination Tag. Example:	
Destination Tag = Destination Tag /	
Source Tag1	
"%="	
Calculate the rest of the division From	
the Destination Tag and the value of	
Source Tag1 and copy the result to the	
Destination Tag.	
(Note that 53%7 = 4)	
Fremales	
Example:	
Destination Tag = Destination Tag % Source Tag1	
"abs"	
Calculate the absolute value of Source	
Tag 1/ Constant value 1 and copy the	
result to the Destination Tag	
(Note that abs(-4) = 4)	
Formula	
Example:	
Destination Tag = abs(Source Tag 1)	
"sqrt"	
Calculate the square root value of	
Source Tag 1 / Constant value 1 and	
copy the result to the Destination Tag.	
(Note that sqrt(9) = $\sqrt{9}$ = 3)	
Example:	
Destination Tag = sqrt(Source Tag 1)	

"sqr"	
Calculate the square value of Source Tag	
1 / Constant value 1 and copy the result	
to the Destination Tag.	
(Note that $sqr(3) = 3^2 = 9$)	
Example:	
Destination Tag = sqr(Source Tag 1)	
"log"	
Calculate the decimal logarithm of	
Source Tag 1 / Constant value 1 and	
copy the result to the Destination Tag.	
(Note that log(3) = 0.4771212)	
Example:	
Destination Tag = log (Source Tag 1)	
"In"	
Calculate the natural logarithm of	
Source Tag 1 / Constant value 1 and	
copy the result to the Destination Tag.	
(Note that In(3) = 1.09861228867)	
Example:	
Destination Tag = In (Source Tag 1)	
"exp"	
Calculate the Euler's number raised to	
Source Tag 1 / Constant value 1 and	
copy the result to the Destination Tag.	
(Note that	
$exp(3) = e^3 = 20.0855369232$	
ln(exp(3)) = 3	
Example:	
Destination Tag = exp(Source Tag 1)	
" ₊ "	
Sum to Source Tag 1 / Constant value 1	
With the value of Source Tag 2 /	
Constant value 2 and copy the result to	
the Destination Tag.	
Example:	
Example. Destination Tag = Source Tag 1+ Source Tag 2	
Deschation rag - Source rag IT Source rag Z	
<i>u_n</i>	
-	
Subtract the Source Tag 1 / Constant	
value 1 With the value of Source Tag 2 /	
Constant value 2 and copy the result to	

	the Destination Tag.	
	Example:	
	Destination Tag = Source Tag 1- Source Tag 2	
	"*"	
	Multiply the Source Tag 1 / Constant	
	value 1 With the value of Source Tag 2 /	
	Constant value 2 and copy the result to	
	the Destination Tag.	
	Example:	
	Destination Tag = Source Tag 1* Source Tag 2	
	"/"	
	Divide the Source Tag 1 / Constant value	
	1 With the value of Source Tag 2 /	
	Constant value 2 and copy the result to	
	the Destination Tag.	
	Example:	
	Destination Tag = Source Tag 1 / Source Tag	
	2	
	(In C.)	
	"%"	
	Calculate the rest of the division between	
	the Source Tag 1 / Constant value 1 and	
	the value of Source Tag 2 / Constant	
	value 2 and copy the result to the	
	Destination Tag.	
	(Note that 53%7 = 4)	
	Example:	
	Destination Tag = Source Tag 1 % Source Tag	
	2	
	""	
	"pow"	
	Calculate the Source Tag1 /	
	Constant value 1 raised to the power	
	of the Sorce Tag2 / Constant value 2	
	and copy the result to the Destination	
	Tag.	
	Example:	
	DestinationTag	
	$= Source Tag1^{Source Tag2}$	
Source Tag 1 / Constant value 1	Select the Tag to use as input 1 for the	-
	operator used. You can also use a	
	constant value.	
Source Tag 2 / Constant value 2	Select the Tag to use as input 2 in the	-
	calculation if the operator needs 2	
	inputs.	

<u>Timer</u>

Field	Meaning	Default value
ID	Select the Timer ID to use.	-
	See chapter 21.6.4	
Action	Select the action to be done to the	-
	specified timer:	
	"Start" will start a timer to count	
	"Reset" will reset the timer to the stop	
	state (See chapter 21.6.4)	

Rule Status

Field	Meaning	Default value
ID	Select the Rule to Control	-
Enable	Select the action to be done to the	-
	specified rule:	
	"ON" will enable a disabled Rule	
	"OFF" will disable an enabled Rule	

Data Logger

Field	Meaning	Default value
Group	Select the Logger group to start/stop	-
	Select between ALL, 1, 2, 3, 4	
Enable	Select the action to be done to the	-
	specified rule:	
	"ON" will start to log the selected	
	group(s)	
	"OFF" will stop to log the selected	
	group(s)	

<u>Network</u>

Field	Meaning	Default value
Feature	Select the action to be done to a network feature, select between: PPP* (Start or Stop the connection to the data mobile connection) VPN (Start or Stop the VPN /Let's connection)	-
	Firewall (Start or Stop the Firewall)	

	* Only for Z-PASS2 model	
Start	Select the action to be done to the specified Feature: "ON" will enable the feature "OFF" will disabled the feature	-

Set Bits

Field	Meaning	Default value
Action Mode	Action mode, select from "One time" or	One Time
	"Repeat".	
	With "One Time", the Actions are	
	executed only if there is a change in the	
	OR/AND Conditions Result.	
	With "Repeat", the Actions are executed	
	at every loop (if the rule is enabled and	
	if there is no period configured).	
Destination Tag	Select the destination tag from a list	-
	containing all the tags with data type	
	"16Bit Unsigned" and bit index 0	
Source Tag	Select the source tag from a list	-
	containing all the tags with data type	
	"16Bit Unsigned" and bit index 0	
Mask	The bitmask represented as a string of 4	0000
	hexadecimal digits	
Action	Reset: set the masked bits to 0	Reset
	Set: set the masked bits to 1	

21.6.5.3 Example Program

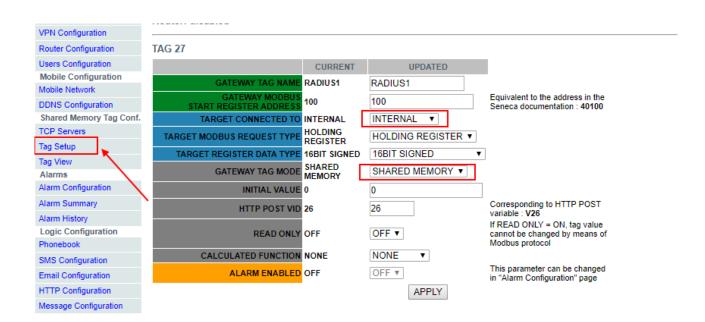
Now we want to create a program that calculate the maximum Circumference and the maximum Area from 2 radius.

21.6.5.3.1 Add the Tags

First of all we add the Tags that we need for the program:

We define Radius1 and Radius2 tags in integer type

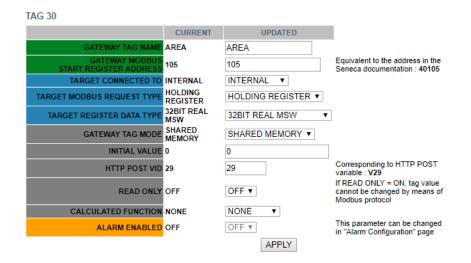
Circumference and Area in Real 32 bits (floating point single precision) type:



	CURRENT	UPDATED	
GATEWAY TAG NAME		RADIUS2	
GATEWAY MODBUS START REGISTER ADDRESS	101	101	Equivalent to the address in the Seneca documentation : 40101
TARGET CONNECTED TO	INTERNAL	INTERNAL 🔻	
TARGET MODBUS REQUEST TYPE	HOLDING REGISTER	HOLDING REGISTER V	
TARGET REGISTER DATA TYPE	16BIT SIGNED	16BIT SIGNED V	
GATEWAY TAG MODE	SHARED MEMORY	SHARED MEMORY V	
INITIAL VALUE	0	0	
HTTP POST VID	27	27	Corresponding to HTTP POST variable : V27
READ ONLY	OFF	OFF V	If READ ONLY = ON, tag value cannot be changed by means of Modbus protocol
CALCULATED FUNCTION	NONE	NONE V	
ALARM ENABLED	OFF	OFF T	This parameter can be changed in "Alarm Configuration" page
		APPLY	

TAG 29

	CURRENT	UPDATED	
GATEWAY TAG NAME	CIRCUMFERENCE	CIRCUMFERENCE	
GATEWAY MODBUS START REGISTER ADDRESS	103	103	Equivalent to the address in the Seneca documentation : 40103
TARGET CONNECTED TO	INTERNAL	INTERNAL V	
TARGET MODBUS REQUEST TYPE	HOLDING REGISTER	HOLDING REGISTER V	
TARGET REGISTER DATA TYPE	32BIT REAL MSW	32BIT REAL MSW	
GATEWAY TAG MODE	SHARED MEMORY	SHARED MEMORY V	
INITIAL VALUE	0	0	
HTTP POST VID	28	28	Corresponding to HTTP POST variable : V28
READ ONLY	OFF	OFF V	If READ ONLY = ON, tag value cannot be changed by means of Modbus protocol
CALCULATED FUNCTION	NONE	NONE V	
ALARM ENABLED	OFF	OFF V	This parameter can be changed in "Alarm Configuration" page
		APPLY	



21.6.5.3.2 Add the Rules

Now click on "Rule Mangement" and then ADD to add a new rule:

Sentecca Basic Configuration Summary Network and Services Serial Ports Digital I/O Configuration Real Time Clock Setup Catewary Configuration VPH Configuration VPH Configuration	Z-PASS2 Rule Configur Firmware Vers MAC Address Internet Acces Gateway: run Router: disabl	sion: SV : C8F98 ss: Ethe ning [Da	V003900_250 11B0001 ernet	nning]		/	/												
Users Configuration				(CURRENT		UPDATED												
Mobile Configuration	RULE GE	NERAL C	ONFIGURATION																
Mobile Network			Writing Mode	After exe	ecution	After	execution •												
DDNS Configuration Shared Memory Tag Conf.	APPLY																		
TCP Servers			RULE STATUS																
Tag Setup			Run Status			RUI	NING												
Tag View			Cycle Time (ms)			0													
Alarms	D	I. Marc	agement		ADD		MODIFY	1	COPY	MOVE		DEL	ETC		DELETE /				
Alarm Configuration Alarm Summary	RU	ne wana	agement		ADD		MODIFY		COPY	MOVE		DEL	EIE		DELETE	ALL			
Alarm History		Dulo Do	bugger				SET/RESET BR	EAL	ROINT			PLAY			SHOW TAGS				
Logic Configuration		Rule De	nuggei				SET/RESET BR		REGINI			PLAT			3HOW 1A03				
Phonebook	# Enabled	un et e un	Description	Period	If condition 1		If condition 2		If condition 3						The section of	Electronic de la companya de la comp	2 Else action 3	Condition	Breakpoint
SMS Configuration	# Enabled I	Index	Description	(ms)	If condition 1		If condition 2		if condition 3	Then action 1	Ine	en action 2	Inen	action 3	Else action 1	Else action	2 Else action 3	Status	вгеакроіпт
Email Configuration			No rule																
HTTP Configuration	-																		
Message Configuration																			
Timer Configuration Rule Management																			
Data Logger (SD found)																			
General Settings	\sim																		
SD Transfer Conf.																			
FTP Transfer Conf.																			
Group Configuration																			
SD File Manager																			
Maintenance																			
Maintenance Ethernet Interfaces																			
Ethernet Interfaces																			
Ethernet Interfaces FW Versions																			

We Create now the first Rule for calculate the circumference using the biggest Radius between Radius1 and Radius2:

We need that the Rule will be executed every 1000 ms:

	CURRENT	UPDATED
RULE CONFIGURATION		
NOTE: "Then Actions" are executed when the condition rea Actions with Mode=Repeat and actions in rules with Period In all other cases, actions are executed only when there is	l>0 are always e	xecuted.
Enabled	ON	ON V
Index	1	1
Description	Calculate Biggest Circumference	Calculate Biggest Circumference
Period (ms)	1000	1000
15 Constitution 4		

Then the "if condition" with the biggest radius (we need only 1 if condition):

			If Condition 1		
			Туре	Analog Tag	Analog Tag 🔻
Tag	RADIU \$1	RADIUS1	T		
Operator	>	> 🔻			
Tag	RADIU \$2	RADIUS2	۲		
			If Condition 2		
			Туре	None	None V
			If Condition 3		
			Туре	None	None V
		If Cond	ition Operator		
			Operator	OR	OR V

So, if the condition is true the Radius1 > Radius2 so we must calculate the circumference with Radius1 (Circumference = Radius 1 * 6.28):

	Then Action 1	
	Type Analog Tag	Analog Tag 🔹 🔻
Action Mode One time	One time 🔻	
Destination Tag CIRCUMFERENCE	CIRCUMFERENCE V	
Operator *	* V	
Source Tag 1 RADIUS1	RADIUS1	
Source Tag 2 constant value	constant value	
Constant Value 2 6.28 6.2	28	
	Then Action 2	
	Туре	None 🔻
	Then Action 3	
	Туре	None 🔻

Else the Radius 1< Radius 2 so we need to calculate the circumference with Radius2 (Circumference = Radius 2 * 6.28):

Else Action 1	
Туре	Analog Tag 🛛 🔻
Action Mode One time One time V	
Destination Tag CIRCUMFERENCE CIRCUMFERENCE ▼	
Operator *	
Source Tag 1 RADIUS2 RADIUS2 V	
Source Tag 2 constant value ▼	
Constant Value 2 6.28 6.28	
Else Action 2	
Туре	None 🔻
Else Action 3	
Туре	None 🔻

Now click on "APPLY" to save the first Rule:

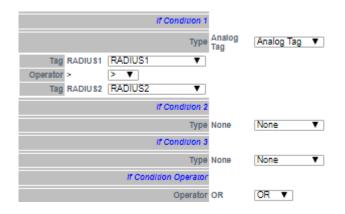
#	Enabled	Index	Description	Period (ms)	If condition 1		If condition 2		If condition 3	Then action 1	Then action 2	Then action 3	Else action 1	Else action 2	Else action 3	Condition Status	Breakpoint
1	ON	1	Calculate Biggest Circumference	1000	RADIUS1 > RADIUS2	OR		OR		CIRCUMFERENCE = RADIUS1 * 6.28			CIRCUMFERENCE = RADIUS2 * 6.28			FALSE	

In the same way we create the Second Rule for calculate the biggest Area:

Also this rule must be execute every 1000ms:

	CURRENT	UPDATED									
RULE CONFIGURATION											
NOTE: "Then Actions" are executed when the condition result, as a whole, is TRUE; otherwise "Else Actions" are executed. Actions with Mode=Repeat and actions in rules with Period>0 are always executed. In all other cases, actions are executed only when there is a change in the condition result.											
Enabled	ON	ON V									
Index	Index 2 2										
Description Biggest Area											
Period (ma)	1000	1000									

The "if condition" is the same of the first rule:



Now we must calculate the AREA using the following calculation:

$$AREA = (RADIUS^2) * 3.14$$

We need to brench the realtion in two step:

In the first step we calculate:

$$AREA = RADIUS1^2$$

And in the second:

$$AREA = AREA * 3.14$$

So, in our rule if RADIUS1 > RADIUS2 we calculate AREA with RADIUS1 using the square function (sqr):

AREA = sqr(RADIUS1)

And then

AREA = AREA*3.14

Then Action 1	
Type Analo Tag	Analog Tag 🔹 🔻
Action Mode One time One time ▼	
Tag AREA AREA	
Operator aqr sqr ▼	
Source Tag 1 RADIUS1 TADIUS1	
Then Action 2	
Type Analo Tag	Analog Tag 🔹 🔻
Action Mode One time V	
Tag AREA AREA	
Operator *	
Source Tag 1 AREA AREA V	
Source constant Tag 2 value Constant value	
Constant Value 2 3.14 3.14	
Then Action 3	
Туре	None 🔻

Then if RADIUS1 < RADIUS2 we calculate AREA with RADIUS2:

Else Action 1	
Тура Analog Tag	Analog Tag 🛛 🔻
Action Mode One time One time ▼	
Tag AREA AREA	
Operator aqr sqr 🔻	
Source Tag 1 RADIUS2 TADIUS2	
Else Action 2	
Туре <mark>Analog</mark> Tag	Analog Tag 🛛 🔻
Action Mode One time ▼	
Destination Tag	
Operator *	
Source Tag 1 AREA AREA V	
Source constant Tag 2 value	
Constant Value 2 3.14 3.14	
Else Action 3	
Туре	None 🔻
APPLY	

Now click on "APPLY" to save the second Rule too:

#	Enabled	Index	Description	Period (ms)	If condition 1		If condition 2		If condition 3	Then action 1	Then action 2	Then action 3	Else action 1	Else action 2	Else action 3	Condition Status	Breakpoint
1	ON	1	Calculate Biggest Circumference	1000	RADIUS1 > RADIUS2	OR		OR		CIRCUMFERENCE = RADIUS1 * 6.28			CIRCUMFERENCE = RADIUS2 * 6.28			FALSE	
2	ON	2	Calculate Biggest Area	1000	RADIUS1 > RADIUS2	OR		OR		AREA sqr RADIUS1	AREA = AREA * 3.14		AREA sqr RADIUS2	AREA = AREA * 3.14		FALSE	

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21.6.5.4 Testing the Example Program

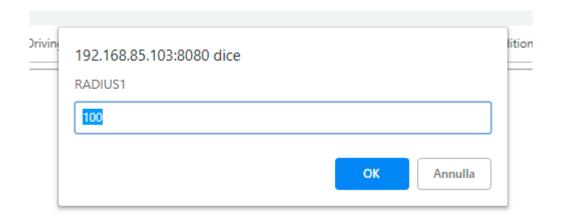
When a rule is added the Rule start automatically (RUNNING):

	C	JRRENT		UPDATED										
RULE GENERAL CONFIGURATION														
Writing Mode	After exec	ution	After	execution 🔻		/								
APPLY														
RULE STATUS														
Run Status			RUN											
Cycle Time (ms)			0											
Rule Management		ADD		MODIFY		COPY	MOVE	DELE	TE	DELETE ALL				
				_										
Rule Debugger				SET/RESET E	BREA	KPOINT		PLAY		SHOW TAGS				
	Period	If condition		If condition		If condition		Then action	Then action		Else action	Else action	Condition	
# Enabled Index Description	(ms)	1		2		3	Then action 1	2	3	Else action 1	2	3	Status	Breakpoint
1 ON 1 Calculate Biggest Circumference	1000	RADIUS1 > RADIUS2	OR		OR		CIRCUMFERENCE = RADIUS1 * 6.28			CIRCUMFERENCE = RADIUS2 * 6.28			FALSE	
2 ON 2 Calculate Biggest Area	1000	RADIUS1 > RADIUS2	OR		OR		AREA sqr RADIUS1	AREA = AREA * 3.14		AREA sqr RADIUS2	AREA = AREA * 3.14		FALSE	

For testing the program we can write the tags RADIUS1 and RADIUS2 from Modbus RTU/MODBUS TCP-IP (registers 40100-40101 in our example) or using the page "Tag View":

VER COMPARING										
Router Configuration										
Users Configuration		Data Lo	ogger:	START STOP C	LEAN CAC	HE				
Mobile Configuration						_				
Mobile Network		Page :	1/20	PREVIOUS PAGE	NEXT PAG	E				
DDNS Configuration		-		REGISTER UNSIGN	ED					
Shared Memory Tag Conf.	17	GPS YEAR	16	HOLDING 16BIT				NONE	NONE	
TCP Servers		010_12.01		REGISTER UNSIGN	ED -				HOLL	
Tag Setup	18	GPS_LATITUDE	17	HOLDING 64BIT REGISTER REAL		-		NONE	NONE	
Tag View Alarms	19	GPS_LONGITUDE	21	HOLDING 64BIT REGISTER REAL		-		NONE	NONE	
Alarm Configuration	20	GPS_HDOP	25	HOLDING 64BIT REGISTER REAL		-		NONE	NONE	
Alarm Summary Alarm History	21	GPS_ALTITUDE	29	HOLDING 64BIT REGISTER REAL		-		NONE	NONE	
Logic Configuration Phonebook	22	GPS_COG	33	HOLDING 64BIT REGISTER REAL		-		NONE	NONE	- 1
SMS Configuration	23	GPS_SPEED_KM	37	HOLDING 64BIT REGISTER REAL		-		NONE	NONE	I
Email Configuration HTTP Configuration	24	GPS_SPEED_KN	41	HOLDING 64BIT REGISTER REAL		-		NONE	NONE	
Message Configuration	25	GPS_FIX	45	HOLDING 16BIT REGISTER UNSIGN		-		NONE	NONE	
Timer Configuration	26	GPS_NUM_SAT	46	HOLDING 16BIT REGISTER UNSIGN		-		NONE	NONE	
Rule Management				HOLDING 16BIT			07/03/2019			
Data Logger (SD found)	27	RADIUS1	100	REGISTER SIGNE		-	10:07:25.651279	NONE	NONE	CHANGE
General Settings SD Transfer Conf.	28	RADIUS2	101	HOLDING 16BIT REGISTER SIGNE		-	07/03/2019 10:07:25.651519	NONE	NONE	CHANGE
FTP Transfer Conf.	29	CIRCUMFERENCE	103	HOLDING 32BIT REGISTER REAL M	0	-	07/03/2019	NONE	NONE	CHANGE
Group Configuration SD File Manager	30	AREA	105	HOLDING 32BIT REGISTER REAL M		-	07/03/2019 11:11:16.130488	NONE	NONE	CHANGE
Maintenance										-
Ethernet Interfaces										

Now we change the RADIUS1=100 and RADIUS2=50 by clicking on "CHANGE" button:



-
]

Now we can pass to "Rule Management" page for view the result:

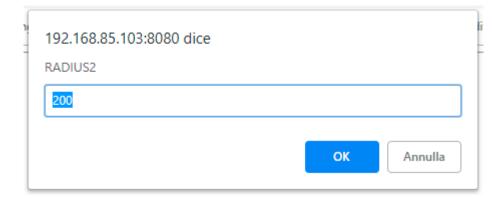
			CI	JRRENT		UPDATED										
			C			ULDATED										
RULE GEI	NERAL (CONFIGURATION														
		Writing Mode	After exec	ution	After	execution •										
APPLY																
		RULE STATUS														
		Run Status			RUN	INING										
		Cycle Time (ms)			0											
]			
Ru	ule Mar	nagement		ADD		MODIFY		COPY	MOVE	DELE	TE	DELETE ALL				
	Rule D	ebugger				SET/RESET E	BREA	KPOINT		PLAY		SHOW TAGS				
			Period	If condition		If condition		If condition		Then action	Then action		Else action	Else action	Condition	
# Enabled	Index	Description	(ms)	1		2		3	Then action 1	2	3	Else action 1	2	3	Status	Breakpoint
	1	Calculate	1000	RADIUS1 >	OR				CIRCUMFERENCE			CIRCUMFERENCE			TRUE	
1 ON	'	Biggest Circumference		RADIUS2	OR		OR		= RADIUS1 * 6.28			= RADIUS2 * 6.28			IRUE	
2 ON	2	Calculate	1000	RADIUS1 >	OR		OR		AREA sqr	AREA =		AREA sqr	AREA =		TRUE	
	2	Biggest Area	1000	RADIUS2					RADIUS ¹	AREA * 3.14		RADIUS2	AREA * 3.14		IRUE	

Now the condition status of the 2 rules is true because the RADIUS1 > RADIUS2, so are executed the "Then Actions"

In Tag view the calculation of CIRCUMFERENCE and AREA are updated:

27	RADIUS1	100	HOLDING 168 REGISTER SIGN	NED 100	-	07/03/2019 11:15:56.934313	NONE	NONE	CHANGE
28	RADIUS2	101	HOLDING 16E REGISTER SIGN	NED 50	-	07/03/2019 11:34:12.465220	NONE	NONE	CHANGE
29	CIRCUMFERENCE	103	HOLDING 32E REGISTER REAL	BIT 628 MSW 628	-	07/03/2019 11:34:39.634836	NONE	NONE	CHANGE
30	AREA	105	HOLDING 32E REGISTER REAL	BIT 31400 MSW 31400	-	07/03/2019 11:34:39.634973	NONE	NONE	CHANGE

Now we change to 200 the RADIUS2 value in the tag view pages:



And now:

			CI	JRRENT		UPDATED										
RULE	GENERAL	CONFIGURATION														
		Writing Mode	After exec	ution	After	execution 🔻										
APPLY																
		RULE STATUS														
		Run Status				INING										
		Cycle Time (ms)			D											
	Rule Ma	nagement		ADD		MODIFY		COPY	MOVE	DELE	TE	DELETE ALL				
	Rule [Debugger				SET/RESET E	BREA	KPOINT		PLAY		SHOW TAGS				
# Enable	ed Index	Description	Period (ms)	If condition 1		If condition 2		If condition 3	Then action 1	Then action 2	Then action 3	Else action 1	Else action 2	Else action 3	Condition Status	Breakpoint
1 ON	1	Calculate Biggest Circumference	1000	RADIUS1 > RADIUS2	OR		OR		CIRCUMFERENCE = RADIUS1 * 6.28			CIRCUMFERENCE = RADIUS2 * 6.28			FALSE	
2 ON	2	Calculate Biggest Area	1000	RADIUS1 > RADIUS2	OR		OR		AREA sqr RADIUS1	AREA = AREA * 3.14		AREA sqr RADIUS2	AREA = AREA * 3.14		FALSE	

Now the condition status of the 2 rules is false because the RADIUS1 < RADIUS2, so are executed the "Else Actions"

In Tag view the calculation of CIRCUMFERENCE and AREA are updated:

27	RADIUS1	100	HOLDING 16BI I REGISTER SIGNED	100	-	07/03/2019 11:15:56.934313	NONE	NONE	CHANGE
28	RADIUS2	101	HOLDING 16BIT REGISTER SIGNED	200	-	07/03/2019 11:35:39.122325	NONE	NONE	CHANGE
29	CIRCUMFERENCE	103	HOLDING 32BIT REGISTER REAL MS	W 1256	-	07/03/2019 11:35:43.55955	NONE	NONE	CHANGE
30	AREA	105	HOLDING 32BIT REGISTER REAL MS	W 125600	-	07/03/2019 11:35:43.56111	NONE	NONE	CHANGE

21.6.5.5 Debug the Example Program

A program can be debugged by using the internal Rule debugger.

With the internal debugger you can:

-Insert a Breakpoint before the execution of a rule

-View the tag values before/after the execution of a rule

				CL	JRRENT		UPDATED										
	RULE GE	ENERAL	CONFIGURATION														
			Writing Mode	After exec	ution	After	execution •										
AF	PLY																
			RULE STATUS														
			Run Status				INING										
			Cycle Time (ms)			0											
	R	ule Ma	nagement		ADD		MODIFY		COPY	MOVE	DELE	TE	DELETE ALL				
		Rule D)ebugger				SET/RESET E	BREA	KPOINT		PLAY		SHOW TAGS]		
#	Enabled	Index	Description	Period (ms)	If condition 1		If condition 2		If condition 3	Then action 1	Then action 2	Then action 3	Else action 1	Else action 2	Else action 3	Condition Status	Breakpoint
1	ON	1	Calculate Biggest Circumference	1000	RADIUS1 > RADIUS2	OR		OR		CIRCUMFERENCE = RADIUS1 * 6.28			CIRCUMFERENCE = RADIUS2 * 6.28			FALSE	
2	ON	2	Calculate Biggest Area	1000	RADIUS1 > RADIUS2	OR		OR		AREA sqr RADIUS1	AREA = AREA * 3.14		AREA sqr RADIUS2	AREA = AREA * 3.14		FALSE	

For adding a breakpoint select the a rule and then press the "SET/RESET BREAKPOINT":

		CI	URRENT		UPDATED										
RULE GENERA	L CONFIGURATION														
	Writing Mode	After exec	ution	After	execution •										
APPLY															
	RULE STATUS														
	Run Status			PAU	SED										
	Cycle Time (ms)			0											
Rule M	anagement		ADD		MODIFY		COPY	MOVE	DELE	TE	DELETE ALL				
Rule	Debugger				SET/RESET E	BREA	KPOINT		PLAY		SHOW TAGS				
# Enabled Inde	x Description	Period (ms)	If condition 1		If condition 2		If condition 3	Then action 1	Then action 2	Then action 3	Else action 1	Else action 2	Else action 3	Condition Status	Breakpoint
1 ON 1	Calculate Biggest Circumference	1000	RADIUS1 > RADIUS2	OR		OR		CIRCUMFERENCI = RADIUS1 * 6.28			CIRCUMFERENCE = RADIUS2 * 6.28			FALSE	ON
2 ON 2	Calculate Biggest Area	1000	RADIUS1 > RADIUS2	OR		OR		AREA sqr RADIUS1	AREA = AREA * 3.14		AREA sqr RADIUS2	AREA = AREA * 3.14		FALSE	

The rule became yellow and the rule status change in "paused". Note that the breakpoint is **before** the execution of the rule.

By clicking on "Show tags" the actual tags values are displayed:

				CL	URRENT		UPDATED										
RU	JLE GENER		GURATION						-								
		Wr	iting Mode A	After exec	ution	After	execution •										
APPLY	·																
		RUL	E STATUS														
		F	Run Status			PAU	ISED										
		Cycle	Time (ms)			0											
	Rule	Managem	nent		ADD		MODIFY		COPY	MOVE	DELE	TE	DELETE ALL				
	Ru	e Debugg	ger				SET/RESET	BREAI	KPOINT		PLAY		SHOW TAGS				
# Ena	bled Ind	ex Des	cription	Period (ms)	If condition 1		If condition 2		If condition 3	Then action 1	Then action 2	Then action 3	Else action 1	Else action 2	Else action 3	Condition Status	¹ Breakpoint
1 C	DN 1	B	alculate iggest imference	1000	RADIUS1 > RADIUS2	OR		OR		CIRCUMFERENCE = RADIUS1 * 6.28			CIRCUMFERENCE = RADIUS2 * 6.28			FALSE	ON
2 0	DN 2		alculate jest Area	1000	RADIUS1 > RADIUS2	OR		OR		AREA sqr RADIUS1	AREA = AREA * 3.14		AREA sqr RADIUS2	AREA = AREA * 3.14		FALSE	
#		TAG NAME	E		1	TAG VA	ALUE										
1		RADIUS1				10	0										
2		RADIUS2				20											
3	CIF	CUMFERE	NCE			125											
4		AREA				1256	600										

Now you can move the breakpoint to the following rule, select the next rule and press the "SET/RESET BREAKPOINT" button:

			C	URRENT		UPDATED										
RU	JLE GENERAL	CONFIGURATION														
		Writing Mode	After exec	ution	After	execution •										
APPLY	•															
		RULE STATUS														
		Run Status			PAU	ISED										
		Cycle Time (ms)			0											
	Bule Ma	nagement		ADD		MODIFY		COPY	MOVE	DELE	TE	DELETE ALL				
	Rule Ma	nagement		ADD		MODIT		COFT	MOVE			DELETE ALL				
	Rule I	Debugger				SET/RESET	BREAK	POINT		PLAY		SHOW TAGS				
# Ena	bled Index	Description	Period (ms)	If condition 1		If condition 2		If condition 3	Then action 1	Then action 2	Then action 3	Else action 1	Else action 2	Else action 3	Condition Status	Breakpoint
1 0	DN 1	Calculate Biggest Circumference	1000	RADIUS1 > RADIUS2	OR		OR		CIRCUMFERENCE = RADIUS1 * 6.28			CIRCUMFERENCE = RADIUS2 * 6.28			FALSE	
2 0	DN 2	Calculate Biggest Area	1000	RADIUS1 > RADIUS2	OR		OR		AREA sqr RADIUS1	AREA = AREA * 3.14		AREA sqr RADIUS2	AREA = AREA * 3.14		FALSE	ON
#	TA	G NAME		1	TAG VA	ALUE										
1	R	ADIUS1			10	0										
2		ADIUS2			20											
3		IMFERENCE			125											
4		AREA			1256	00										

Note that the execution is pause because you must press "PLAY" for advance to the next breakpoint, press "PLAY":

				C	URRENT		UPDATED										
R	ULE GENE	ERAL	CONFIGURATION														
			Writing Mode	After exec	ution	After	execution •										
APPL	Y																
			RULE STATUS														
			Run Status			PAU	SED										
			Cycle Time (ms)			0											
	Rul	le Mai	nagement		ADD		MODIFY		COPY	MOVE	DELE	TE	DELETE ALL				
L																	
	R	tule D	ebugger				SET/RESET	BREA	KPOINT		PLAY		SHOW TAGS				
# En	abled In	ndex	Description	Period (ms)	If condition 1		If condition 2		If condition 3	Then action 1	Then action 2	Then action 3	Else action 1	Else action 2	Else action 3	Condition Status	Breakpoint
1	ON	1	Calculate Biggest Circumference	1000	RADIUS1 > RADIUS2	OR		OR		CIRCUMFERENCE = RADIUS1 * 6.28			CIRCUMFERENCE = RADIUS2 * 6.28			FALSE	
2	ON	2	Calculate Biggest Area	1000	RADIUS1 > RADIUS2	OR		OR		AREA sqr RADIUS1	AREA = AREA * 3.14		AREA sqr RADIUS2	AREA = AREA * 3.14		FALSE	ON
#		TAC	G NAME		1	rag va	LUE										
1		R/	ADIUS1			100)										
2			ADIUS2			200											
3	C		MFERENCE			125											
4		1	AREA			1256	00										

The execution is stopped before the Rule nr 2.

21.7 Data Logger

21.7.1 General Settings

By clicking on the "General Settings" link, in the "Data Logger" section, you come to the following page:

🗅 Z-PASS2	× +		-		×
← → C ③ No	n sicuro 192.168.85.105:8080/datalog_gen_conf.php	☆	J.	G	0
SENECA Basic Configuration Summary Network and Services Serial Ports Real Time Clock Setup Gateway Configuration VPN Configuration Router Configuration Mobile Configuration Mobile Configuration Mobile Network DDNS Configuration Shared Memory Tag Conf. TCP Servers Tag Setup Tag Setup Tag View Alarms Alarm Configuration Alarm Summary Alarm History Logic Configuration Phonebook SMS Configuration Email Configuration HTTP Configuration	Z-PASS2 General Settings [user: admin] [logout] Firmware Version: SW003900_240 [Modem: 1231B02SIM5350E] MAC Address: C8F981160043 [IMEI: 862264020406335] Internet Access: Ethernet Gateway: running [Data Logger: running (no group enabled)] Router: disabled CURRENT UPDATED General Settings RTU Name Z-PASS Z-PASS RTU Name Z-PASS Z-PASS New files first Decimal Separator Point (.) CSV Separator Semicolon (:) Semicolon (.) Timestamp Format d/mm/yyyy HH:MM:SS HTTP POST Enable OFF OFF POST to 150 APPLY				
Rule Configuration Data Logger (SD missing) General Settings SD Transfer Conf. FTP Transfer Conf. Group Configuration Maintenance Ethernet Interfaces FW Versions FW Upgrade Conf. Management	Transfer SettingsSD EnableOFFFTP EnableOFFEMAIL EnableONHTTP POST EnableOFF				

In the "General Settings" section, this page contains the general parameters related to the Data Logger functionality, as listed in the following table.

Field	Meaning	Default value
RTU Name	Name identifying the Z-PASS device.	Z-PASS
	It is used in log file names, transferred	
	via FTP or sent as email attachments	
Transfer Priority	This field tells if newer or older log files	New files first
	shall be transferred first.	

	Possible values are:	
	- Old files first	
	 New files first 	
Desimal segerator		Deint ()
Decimal separator	Character used as decimal separator for	Point (.)
	floating point values in log files.	
	Possible values are:	
	- Point (.)	
	- Comma (,)	
CSV Separator	Character used as field separator in <i>csv</i>	Semicolon (;)
	log files.	
	Possible values are:	
	- Semicolon (;)	
	- Point (.)	
	- Blank ()	
INDEX Column	Flag telling if the "INDEX" column,	ON
	containing the line (sample) progressive	
	index, shall be present in the log files or	
	not	
TYPE Column	Flag telling if the "TYPE" column,	ON
	containing the line (sample) type, shall	
	be present in the log files or not.	
	NOTE: currently, this column always	
	contains the "LOG" string	
Timestamp Format	Format of the timestamp value in the	dd/mm/yyyy HH:MM:SS
	"TIMESTAMP" column.	
	Possible formats are:	
	dd/mm/yyyy HH:MM:SS	
	yyyy/mm/dd HH:MM:SS	
	dd/mm/yy HH:MM:SS	
	yy/mm/dd HH:MM:SS	
	seconds since the Epoch	
HTTP POST Enable	Flag to enable/disable the HTTP POST	OFF
	protocol (see paragraph 10.1)	
HTTP POST Tag Limitation	When this parameter is set to ON, the	OFF
	HTTP POST requests contain a maximum	
	of 150 tags, even if Group 1 contains a	
	larger number of tags; conversely, when	
	it is set to OFF, the HTTP POST requests	
	contain all the Group 1 tags.	
	This limitation is needed when using the	
	Z-PASS with the Seneca Cloud Box	
	product.	
		•

Please note that, when the "HTTP POST Enable" parameter is changed from OFF to ON, the following changes are also automatically applied:

- the "Enable" parameter in the "HTTP POST Configuration" page is set to ON;
- the "Sampling Mode" parameter for all the groups in the "Group Configuration" page is set to Disabled; then, it can be changed only for Group 1;
- the "Sampling Period" parameter for Group 1 in the "Group Configuration" page shall be a multiple of 30 (seconds).

In the "Transfer Settings" section, the "enable" (OFF/ON) status for all the transfer methods is shown.

Note that from release FW SW00390_297 it's also possible to use the Datalogger on trigger feature. In this mode the data acquisition it's made only when a rule command it's "TRIGGER LOG" (see Logic Configuration).

21.7.2 Group Configuration

By clicking on the "Group Configuration" link, in the "Data Logger" section, you come to the following page:

C Z-PASS1	× +			-		×
← → C ① No	n sicuro 192.168.85.103:8080/datalog_gro	oup_conf.php		\$ ょ	G	0
Sentecta Basic Configuration Summary Network and Services Serial Ports Digital I/O Configuration Real Time Clock Setup	Z-PASS1 Group Configuration [user: admin] [ld Firmware Version: SW003900_240 MAC Address: C8F9811B0001 Internet Access: Ethernet Gateway: running [Data Logger: runn					
Gateway Configuration VPN Configuration	Router: running					
Router Configuration Users Configuration Shared Memory Tag Conf. TCP Servers Tag Setup Tag View Alarms Alarm Configuration Alarm Summary Alarm History Logic Configuration Phonebook Email Configuration HTTP Configuration Message Configuration Rule Configuration Data Logger (SD found) General Settings	Group 1 Group 1 Group 1 Group 1 Gampling Mode P Sampling Period (s) 3 Transfer Period (min) 6 Time before overflow HTTP POST Time before overflow TAG LIST Group 2 Sampling Mode D Sampling Period (s) 11 Transfer Period (min) 11 Time before overflow TAG LIST	i0 i0 Disabled 5	UPDATED Periodic G G G B S S C Disabled I I S O			
SD Transfer Conf. FTP Transfer Conf. Group Configuration SD File Manager Maintenance Ethernet Interfaces FW Versions	Group 3 Sampling Mode D Sampling Period (s) 10 Transfer Period (min) 10 Time before overflow TAG LIST	б	Disabled			
FW Upgrade Conf. Management	Group 4 Sampling Mode D Sampling Period (s) 10 Transfer Period (min) 10 Time before overflow TAG LIST	б	Disabled ▼ 15 15 0			ļ

The page contains four sections, one for each Data Logger group.

Each section contains the parameters described in the following table.

Meaning Default	value
sampling mode is "Periodic", this parameter is actually a flag used to enable ("Periodic") or disable	I
	Since, currently, the only supported Disabled sampling mode is "Periodic", this parameter is actually a flag used to

Sampling Period (s)	This parameter defines the sampling	15
	period, in seconds.	
	Minimum: 1, Maximum: 7200	
Transfer Period (min)	This parameter defines the transfer	15
	period, in minutes; that is every time	
	interval defined by this parameter the	
	log file is closed and transferred.	
	Minimum: 1, Maximum: 43200	

For any group with "Sampling Mode" set to "Periodic", the "Time before overflow" information is given; this is the time (given in hour, minutes, seconds) after which the oldest log files will be overwritten by the new files; in other words, this value represents the time interval during which Z-PASS can store data samples, before data loss occurs.

If "HTTP POST Enable" is set to ON, for Group 1 with "Sampling Mode" set to "Periodic", also the "HTTP POST Time before overflow" is given, which is the same concept of "Time before overflow" applied to data samples sent via HTTP POST.

It should be noticed that <u>the values of the "Sampling Period" and "Transfer Period" parameters determine</u> the maximum number of lines (samples) in a log file.

The "Transfer Period" (in seconds) shall be a multiple of the "Sampling Period": if this condition is not satisfied the following error message is shown:

 I 32.168.85.104.8080//datalog_conf_save.php?act=save&ttype=grp I 32.169.808.169.161.161.161.161.161.161.161.161.161	 	Z-PASS2	x
Concent Configuration Date Logger Configuration [user: admin] [logout] Main View Firmware Version: \$W003900_230 [Modem: UC20GQBR03A14E1G] Network and Services Firmware Version: \$W003900_230 [Modem: UC20GQBR03A14E1G] Serial Ports MaC Address: CSF9811B0000 [IMEI: 861075026666172] [IMSI: 222013200438015] Gateway Configuration Firmware Version: \$W003900_230 [Modem: UC20GQBR03A14E1G] Real Time Clock Setup Gateway: running [Data Logger: running (no group enabled)] VPN Configuration Router: running Router: Configuration Firmsfer Period (in seconds) must be a multiple of Sampling Period ! Group Configuration not changed Yag View Torp Servers Mobile Network Dista Loggering Digita I/O Configuration Firmware Version: SMS Configuration Firmware Version:	Concisionation Data Logger Configuration [user: admin] [logout] Main View Firmware Version: SW003900_230 [Modem: UC200GQBR03A14E1G] Network and Services Firmware Version: SW003900_230 [Modem: UC200GQBR03A14E1G] Serial Ports Main View Galeway Configuration Firmware Version: SW003900_230 [Modem: UC200GQBR03A14E1G] Real Time Clock Setup Mac Address: C8F981180000 [IMEI: 861075026666172] [IMSI: 222013200438015] Real Time Clock Setup Gateway: running [Data Logger: running (no group enabled)] Router: Configuration Router: running Pub Configuration Firmsfer Period (in seconds) must be a multiple of Sampling Period ! Group Configuration not changed Transfer Period (in seconds) must be a multiple of Sampling Period ! Group Configuration not changed Firmsfer Period (in seconds) must be a multiple of Sampling Period ! Group Configuration not changed Top Servers Mobile Network Firmsfer Period (in seconds) must be a multiple of Sampling Period ! Group Configuration not changed Dons Configuration Firmsfer Period (in seconds) must be a multiple of Sampling Period ! Group Configuration function Digita I/O Configuration Firmsfer Period ! Group Configuration Digita I/O Configuration Firmsfer Period ! Group Configuration Bala Logger (S0 missing) F		8.85.104:8080/datalog_conf_save.php?act=save&type=grp 🖈 🗵 :
Concent Configuration Date Logger Configuration [user: admin] [logout] Main View Firmware Version: \$W003900_230 [Modem: UC20GQBR03A14E1G] Network and Services Firmware Version: \$W003900_230 [Modem: UC20GQBR03A14E1G] Serial Ports MaC Address: CSF9811B0000 [IMEI: 861075026666172] [IMSI: 222013200438015] Gateway Configuration Firmware Version: \$W003900_230 [Modem: UC20GQBR03A14E1G] Real Time Clock Setup Gateway: running [Data Logger: running (no group enabled)] VPN Configuration Router: running Router: Configuration Firmsfer Period (in seconds) must be a multiple of Sampling Period ! Group Configuration not changed Yag View Torp Servers Mobile Network Dista Loggering Digita I/O Configuration Firmware Version: SMS Configuration Firmware Version:	Concisionation Data Logger Configuration [user: admin] [logout] Main View Firmware Version: SW003900_230 [Modem: UC200GQBR03A14E1G] Network and Services Firmware Version: SW003900_230 [Modem: UC200GQBR03A14E1G] Serial Ports Main View Galeway Configuration Firmware Version: SW003900_230 [Modem: UC200GQBR03A14E1G] Real Time Clock Setup Mac Address: C8F981180000 [IMEI: 861075026666172] [IMSI: 222013200438015] Real Time Clock Setup Gateway: running [Data Logger: running (no group enabled)] Router: Configuration Router: running Pub Configuration Firmsfer Period (in seconds) must be a multiple of Sampling Period ! Group Configuration not changed Transfer Period (in seconds) must be a multiple of Sampling Period ! Group Configuration not changed Firmsfer Period (in seconds) must be a multiple of Sampling Period ! Group Configuration not changed Top Servers Mobile Network Firmsfer Period (in seconds) must be a multiple of Sampling Period ! Group Configuration not changed Dons Configuration Firmsfer Period (in seconds) must be a multiple of Sampling Period ! Group Configuration function Digita I/O Configuration Firmsfer Period ! Group Configuration Digita I/O Configuration Firmsfer Period ! Group Configuration Bala Logger (S0 missing) F	© SENEC A®	Z-PASS2
Main View Firmware Version: SW003900_230 [Modem: UC20GQBR03A14E1G] Network and Services MAC Addrese: C8F9811B0000 [IMEI: 861075026666172] [IMSI: 222013200438015] Serial Ports Gateway Configuration Real Time Clock Setup Gateway: running [Data Logger: running (no group enabled)] Router Configuration Forts Users Configuration Fransfer Period (in seconds) must be a multiple of Sampling Period ! Group Configuration not changed Top Servers Mobile Configuration Mobile Configuration Fort Configuration Digital I/O Configuration Fort Configuration Digital I/O Configuration Fort Configuration Mobile Configuration Fort Configuration Digital I/O Configuration Fort Configuration Phonebook Fort Configuration Fibereet Interfaces Fort Configuration Dial Logger (S0 missing) Fort Configuration Gatemal Interfaces Fort Configuration Gatalonger (S0 missing) Fort Configu	Main View Firmware Version: SW003900_230 [Modem: UC20GQBR03A14E1G] Network and Senices Firmware Version: SW003900_230 [Modem: UC20GQBR03A14E1G] Serial Ports Gateway Configuration Gateway Configuration Internet Access: Ethernet Real Time Clock Setup Gateway: running [Data Logger: running (no group enabled)] PN Configuration Fouter: running Users Configuration Fouter: running Fouter Configuration Fouter: running Tag View Transfer Period (in seconds) must be a multiple of Sampling Period ! Group Configuration not changed Mobile Configuration Hobile Network Digital I/O Configuration Firmware Version: SMS Configuration Firmware Version: Phonebook Firmware Version: Ethernet Interfaces Firmware Version: Bub Logger (SB missing) Firmware Version: Getway: Transfer Period (in seconds) must be a multiple of Sampling Period ! Group Configuration not changed Digital I/O Configuration Firmware Version: Digital I/O Configuration Firmware Version: Dia Logger (SB missing) Firmware Version: Getway: Transfer Period (In seconds) Firmware Versine: Distore		
Network and Services Finitivate Version: SW00300_250 [noted::: 0C2/03QBR05A14E10] Serial Ports MAC Address: C8F9811B0000 [IMEI: 861075026666172] [IMSI: 222013200438015] Galeway Configuration Internet Access: Ethernet Real Time Clock Setup Gateway: running [Data Logger: running (no group enabled)] VPN Configuration Router: running Users Configuration Router: running VB Configuration Transfer Period (in seconds) must be a multiple of Sampling Period ! Group Configuration not changed Shared Memory Tag Configuration And Configuration Mobile Configuration Mobile Network DPNS Configuration Servers Mobile Configuration Servers Mobile Network Digital I/O Configuration Digital I/O Configuration Servers Mobile Configuration Servers Digital I/O Configuration Servers Digital I/O Configuration Servers Budgostics FW Versions Ethernet Interfaces Digital I/O Configuration Dat Logger (S0 missing) Servers	Network and Services Firmware Version: Sw003s0_2s0 [modeln: 002000Bh03h14E10] MAC Address: C8F9811B0000 [IMEI: 861075026666172] [IMSI: 222013200438015] Internet Access: Ethernet Galeway: Configuration Real Time Clock Setup OPN Configuration Users Configuration FW Upgrade Cord. Management Shared Memory Tag Configuration Top Servers Mobile Configuration Digital I/O Configuration Digital I/O Configuration Digital I/O Configuration Digital I/O Configuration Bigato Sconfiguration Digital I/O Configuration Dia Logger (SD missing) <td>-</td> <td></td>	-	
Serial Ports MAC Address: CBF 9811B0000 [IME]: 861075026666172] [IMSI: 222013200438015] Gateway Configuration Internet Access: Ethernet Real Time Clock Setup Gateway: running [Data Logger: running (no group enabled)] VPN Configuration Router: running Router Configuration Transfer Period (in seconds) must be a multiple of Sampling Period ! Group Configuration not changed YPN Upgrade Fransfer Period (in seconds) must be a multiple of Sampling Period ! Group Configuration not changed Tag Step Fransfer Period (in seconds) must be a multiple of Sampling Period ! Group Configuration not changed Mobile Configuration Divention Mobile Configuration Gigtal I/O Configuration Digital I/O Configuration Digital I/O Configuration Digital I/O Configuration Second partial Phonebock FW versions Bitherent Interfaces Data Logger (8D missing) General Settings General Settings	Serial Ports MAC Address: C8F9811B0000 [IMEI: 861075026666172] [IMSI: 222013200438015] Gateway Configuration Internet Acceess: Ethernet Real Time Clock Setup Gateway: running [Deta Logger: running (no group enabled)] VPR Configuration Router: running Router Configuration Router: running Ver Configuration Transfer Period (in seconds) must be a multiple of Sampling Period ! Group Configuration not changed Tag Steup Transfer Period (in seconds) must be a multiple of Sampling Period ! Group Configuration not changed Top Servers Doble Configuration Mobile Configuration Digital I/O Configuration Digital I/O Configuration Digital I/O Configuration Phonebook Diagnostices FW versions Ethernet Interfaces Data Logger (8D missing) General Settings		Firmware Version: SW003900_230 [Modem: UC20GQBR03A14E1G]
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Data Logger (SD missing) General Settings	Data Logger (SD missing) General Settings	Ethernet Interfaces	
General Settings	General Settings		
Group Configuration	Group Configuration		
		Group Configuration	

To prevent creating log files that are too large to store and transfer, a maximum number of 10000 lines (samples) per log file has been set; if the "Sampling Period" and "Transfer Period" values are such that this limit is overcome, the following error message is shown.

Serial Ports Gateway Configuration Real Time Clock Setup VPN Configuration Firmware Ver MAC Address Internet Acces Gateway: run VPN Configuration Router Configuration Wugrade Conf. Management Shared Memory Tag Conf. Tag Setup Tag View TCP Servers Mobile Configuration Digital I/O Configuration Digital I/O Configuration Digital I/O Configuration Digital I/O Configuration Digital I/O Configuration SMS Configuration	datalog_conf_save.php?act=save&type=grp ★ ▶ r Configuration [user: admin] [logout] pression: \$W003900_230 [Modem: UC20GQBR03A14E1G] ses: C8F9811B0000 [IMEI: 861075026666172] [IMSI: 222013200438015] pression: Support for the set of the s
General Configuration Main ViewData Logger Firmware Ver MAC AddressNetwork and ServicesFirmware Ver MAC AddressSerial PortsInternet AccesGateway ConfigurationInternet AccesReal Time Clock SetupGateway: run Router: runniVPN ConfigurationRouter: runni Router: runniRouter ConfigurationEtog Files cFW UpgradeLog Files cConf. Management Shared Memory Tag Conf. Tag SetupLog Files cTag ViewTCP ServersMobile Configuration Digital I/O Configuration Logic ConfigurationHouse configuration Digital I/O Configuration SMS Configuration	ersion: \$W003900_230 [Modem: UC20GQBR03A14E1G] se: C8F9811B0000 [IMEI: 861075026666172] [IMSI: 222013200438015] sess: Ethernet nning [Data Logger: running (no group enabled)] ning
Main ViewFirmware VerNetwork and ServicesMAC AddressSerial PortsInternet AccesGateway ConfigurationGateway: runReal Time Clock SetupGateway: runVPN ConfigurationRouter: runniRouter ConfigurationRouter: runniUsers ConfigurationLog Files ofShared Memory Tag Conf.Tag SetupTag SetupTag ViewTCP ServersMobile ConfigurationMobile NetworkDDNS ConfigurationDigital I/O ConfigurationDigital I/O ConfigurationSMS ConfigurationSMS Configuration	ersion: \$W003900_230 [Modem: UC20GQBR03A14E1G] se: C8F9811B0000 [IMEI: 861075026666172] [IMSI: 222013200438015] sess: Ethernet nning [Data Logger: running (no group enabled)] ning
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Gateway Configuration Gateway: run Real Time Clock Setup Gateway: run VPN Configuration Router: runni Router Configuration Bouter: runni Users Configuration Eog Files of Stateway: run FW Upgrade Log Files of Stateway: run Conf. Management Shared Memory Tag Conf. Tag Setup Tag View TCP Servers Mobile Configuration Mobile Network DDNS Configuration Digital I/O Configuration Digital I/O Configuration SMS Configuration SMS Configuration	nning [Data Logger: running (no group enabled)] ning
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FW Upgrade Conf. Management Shared Memory Tag Conf. Tag Setup Tag View TCP Servers Mobile Configuration Mobile Network DDNS Configuration Digital I/O Configuration Digital I/O Configuration Logic Configuration SMS Configuration	cannot contain more than 10000 samples ! Group Configuration not changed
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Digital I/O Configuration Digital I/O Configuration Logic Configuration SMS Configuration	
Digital I/O Configuration Logic Configuration SMS Configuration	
SMS Configuration	
Phonebook	
Diagnostics FW Versions	
Ethernet Interfaces	
Data Logger (SD missing)	
General Settings	
Group Configuration	

When HTTP POST protocol is enabled and the Group 1 Sampling Mode parameter is set to a value that is not a multiple of 30, the following error message is shown.

Z-PASS2	×	Ciovanti	-		;	×
← → C ③ 192.168	3.85.104:8080/datalog_conf_save.php?act=save&type=grp			☆	۶.	:
SENECA General Configuration Main View Network and Services Serial Ports Gateway Configuration Real Time Clock Setup VPN Configuration Router Configuration	Z-PASS2 Data Logger Configuration [user: admin] [logout] Firmware Version: SW003900_232 [Modem: UC20GQBR03A14E1G] MAC Address: C8F9811B0000 [IMEI: 861075026666172] [IMSI: 222101600237893] Internet Access: Ethernet Gateway: running [Data Logger: running (no group enabled)] Router: disabled					
Users Configuration FW Upgrade Conf. Management Shared Memory Tag Conf. Tag Setup	For HTTP POST, Sampling Period must be a multiple of 30 seconds ! Gr changed	oup Com	figura	ntion	not	t
Tag View TCP Servers Mobile Configuration Mobile Network DDNS Configuration Digital I/O Configuration						
Digital I/O Configuration Logic Configuration SMS Configuration Phonebook Diagnostics FW Versions						
Ethernet Interfaces Data Logger (SD found) General Settings Group Configuration						
SD File Manager						

If the Data Logger is running but no group is enabled, the Data Logger status in the page headers is reported as:

[Data Logger: running (no group enabled)]

Instead, if the Data Logger is running and at least one group is enabled, the Data Logger status in the page headers is reported as:

[Data Logger: running]

The Data Logger implementation is such that a log file is closed and transferred when the current date-time in seconds is a multiple of the "Transfer Period" in seconds; so, for example, if the "Transfer Period" is set to 60 (1 hour), the log files are closed and transferred at the beginning of each hour (00:00, 01:00, 02:00 etc.); obviously, if the Data Logger is started after the beginning of the current hour, the first log file will contain less lines that the expected number.

For enabled groups, the log files are closed and transferred, regardless of the transfer period, also in the following situations:

- if any change to Data Logger configuration parameters is applied;
- if Data Logger is stopped and restarted.

Each group section contains a button named "TAG LIST"; by clicking on this button, you come to a page like the following:

Z-PASS2	×		Ciovanti —		×
	168.85.104:8080/datalog_tag_conf.pl	hp?id=0	Q	☆ 🔼	:
		nphu-0	~	A	•
🥌 JENELA	Z-PASS2				
General Configuration	Tag Configuration [user: admin] [lo	ogout]			
Main View	Firmware Version: SW003900_230	[Modem: LIC20GOBB03A14E1G]			
Network and Services					
Serial Ports	MAC Address: C8F9811B0000 [IME	El: 861075026666172] [IMSI: 222013200438015]			
Gateway Configuration	Internet Access: Ethernet				
Real Time Clock Setup	Gateway: running [Data Logger: ru	inning (no group enabled)]			
VPN Configuration	Router: running				
Router Configuration	nouter. running				
Users Configuration					
FW Upgrade	PREV GROUP	Group 1	NEXT GROUP		
Conf. Management	IMPORT FROM CSV	Scegli file Nessun file selezionato	EXPORT TO CSV		
Shared Memory Tag Conf.	ADD		DELETE		
Tag Setup			DELETE		
Tag View	#	Name			
TCP Servers	1	ZPASS_DI			
Mobile Configuration	2	ZPASS_DO			
Mobile Network	3	ZPASS_DI_1			
DDNS Configuration	4	ZPASS_DI_2			
Digital I/O Configuration	5	ZPASS_DI_3			
Digital I/O Configuration	6	ZPASS_DI_4			
Logic Configuration SMS Configuration	7	ZPASS_DO_1			
Phonebook	8	ZPASS_DO_2			
Diagnostics	9	ZPASS_DO_3			
FW Versions	10	ZPASS_DO_4			
Ethernet Interfaces	11	GPS_ERROR			
Data Logger (SD missing)	12	GPS_HOUR			
General Settings	13	GPS_MINUTE			
Group Configuration	14	GPS_SECOND			
	15	GPS_DAY			
	16	GPS_MONTH			
	17				
	18				
	19 20				
	20	GPS_HDOP GPS_ALTITUDE			
	21	GPS_ALTTODE GPS_COG			
	22	GPS_SPEED_KM			
	24	GPS_SPEED_KN			
	25	GPS_FIX			
	26	GPS_NUM_SAT			
	20				

In this page, the list of the Modbus Shared Memory Gateway tags associated to the group (Group 1, in the above figure) is shown.

Please note that the order of the tags in the list corresponds to the order of the tag columns in the log files.

In this page, you can:

- select a tag and delete it (that is de-associate it from the group), by means of the "DELETE" button

- export the tag list to a csv file (actually, containing a single column, that is the tag names), by means of the "EXPORT TO CSV" button; by default, the name of the exported file is: *zpass_dl_tags_X.csv*, where X=[1..4] is the group number)
- importing the tag list from a csv file, by means of the "IMPORT FROM CSV" button
- go to the next/previous group, by means of the "NEXT GROUP"/"PREV GROUP" button

Finally, by clicking on the "ADD" button, you come to a page like the following.

Z-PASS2	×			Ciovanti	-		>	×
← → C ① 192.16	8.85.104:8080/datalog_tag_mod.php?id=0&grp=1					☆	ん	:
SENECA®	Z-PASS2							
General Configuration	Tag Configuration [user: admin] [logout]							
Main View	Firmware Version: SW003900_230 [Modem: U	C20GQBB03A14	F1G1					
Network and Services			-					
Serial Ports	MAC Address: C8F9811B0000 [IMEI: 8610750	26666172] [IMSI:	222013200438015]					
Gateway Configuration	Internet Access: Ethernet							
Real Time Clock Setup	Gateway: running [Data Logger: running (no	group enabled)]						
VPN Configuration	Router: running							
Router Configuration								
Users Configuration								
FW Upgrade	Add Tag to Group 2							
Conf. Management	Colort too to be added	T N	ZPASS DI					
Shared Memory Tag Conf.	Select tag to be added	Tag Name	ZPASS_DI ZPASS_DI					
Tag Setup	APPLY		ZPASS_DO					
Tag View			ZPASS_DI_1 ZPASS_DI_2					
TCP Servers			ZPASS_DI_2 ZPASS_DI_3					
Mobile Configuration			ZPASS_DI_4					
Mobile Network			ZPASS_DO_1					
DDNS Configuration			ZPASS_DO_2 ZPASS_DO_3					
Digital I/O Configuration			ZPASS_DO_4					
Digital I/O Configuration Logic Configuration			GPS_ERROR					
SMS Configuration			GPS_HOUR GPS_MINUTE					
Phonebook			GPS_SECOND					
Diagnostics			GPS_DAY					
FW Versions			GPS_MONTH GPS_YEAR					
Ethernet Interfaces			GPS_LATITUDE					
Data Logger (SD missing)			GPS_LONGITUDE					
General Settings			GPS_HDOP -					
Group Configuration								

In this page, the list of the tags not associated to the group is shown. MI00380-35 By selecting a tag and clicking on the "APPLY" button, the tag is added to the group.

It is important to highlight some points about the association between tags and groups:

- a tag can be associated to more than one group;
- when a tag is added, in the "Tag Setup" page, it is automatically added to Group 1;
- when a tag is deleted, in the "Tag Setup" page, it is automatically deleted from all the groups;
- when a tag name is changed, in the "Tag Setup" page, it is automatically changed in all the groups which contain it;
- when the tag configuration is imported from a "cgi" file, in the "Tag Setup" page, the tag list is cleaned for all the groups and all imported tags are associated to Group 1.

Finally, it is useful to note that a very fast and simple way to modify the tag list for the groups (e.g., to change the tag order) is to export the list, modify it and then import it.

21.7.3 SD File Manager

If the SD Card is not inserted in the Z-PASS, the "Data Logger" section of the web pages menu is like the following:

Data Logger (SD missing) General Settings SD Transfer Conf. FTP Transfer Conf. Group Configuration

When the SD Card is inserted in the Z-PASS, the "Data Logger" section of the web pages menu becomes:

Data Logger (SD found) General Settings SD Transfer Conf. FTP Transfer Conf. Group Configuration SD File Manager

By clicking on the "SD File Manager" link, you come to the following page:

	SERVECAP Z-PASS2 General Configuration SUP Life Manager [user: admin] [logout] Main View Firmware Version: SW003900_230 [Modem: UC20GQBR03A14E1G] Mach Sevices MAC Addrese: C8F9811B0036 [IMEI: 861075026651331] [IMSI: 222101600237891] Brian Data Internet Access: Mobile Gateway Configuration Gateway: running [Data Logger: stopped] Router: Configuration Router: disabled Router: Configuration Router: disabled Conf Management Drag Files Here To Upload or Scegli file Nessun file selezionato Stared Memory Tag Conf. Drag Files Here To Upload or Scegli file Nessun file selezionato Drag Files Here To Upload or Scegli file Nessun file selezionato Image Scegli file Nessun file selezionato Drag Files Here To Upload or Scegli file Nessun file selezionato Image Scegli file Nessun file selezionato Drag Files Here To Upload or Scegli file Nessun file selezionato Image Scegli file Nessun file selezionato Drag Files Here To Upload or Scegli file Nessun file selezionato Image Scegli file Nessun file selezionato Drag Files Here To Upload or Scegli file Nessun file selezionato Image Scegli file Nessun file selezionato Drag Files Here To Upload or Scegli file Nessun file selezionato Image Scegli file Nessun file selezionato Drag Files	C Z-PASS2	×				Ciovanti	-		×
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FW Versions Ethernet Interfaces Data Logger (SD found) General Settings Group Configuration	FW Versions Ethernet Interfaces Data Logger (SD found) General Settings Group Configuration		20180614		Jun 14, 2018 6:00 AM	💢 delete				
Data Logger (SD found) General Settings Group Configuration	Data Logger (SD found) General Settings Group Configuration									
Data Logger (SD found) General Settings Group Configuration	Data Logger (SD found) General Settings Group Configuration	Ethernet Interfaces								
Group Configuration	Group Configuration									
		General Settings								
SD File Manager	SD File Manager	Group Configuration								
		SD File Manager								

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\leftarrow \rightarrow C (i) 192.16	8.85.105:8080/file	mgr.php#c	latalogs/20180611			☆	J.	
SFNFCA [®]	Z-PASS2							
	SD Eilo Meneo	or fueor:	admin] [logout]					
General Configuration Main View	-	-						
Network and Services	Firmware Vere	ion: SW0	03900_230 [Modem: UC2	0GQBR03A14E1GJ				
Serial Ports	MAC Address	: C8F9811	B0036 [IMEI: 8610750266	51331] [IMSI: 222101600237891]				
Gateway Configuration	Internet Acces	a: Mobile						
Real Time Clock Setup	Gateway: runr	ning (Dete	Logger: stopped]					
VPN Configuration	-	0.	Eoggen eropped]					
	Router: disabl	ed						
Router Configuration								
Users Configuration	Create New Folder		Create Clean SD					
FW Upgrade			Create Clean SD					
Conf. Management Shared Memory Tag Conf.								
Tag Setup	Drag File	s Here To U	pload or Scegli file Nessun	file selezionato				
Tag View				i				
TCP Servers								
Mobile Configuration	Home 🕨 datale	ogs 🕨 201	80611					
Mobile Network	Name	Size	Modified	Actions				
DDNS Configuration	log1		Jun 12, 2018 2:00 AM	💥 delete				
Digital I/O Configuration Digital I/O Configuration	log2		Jun 12, 2018 7:29 AM	38 delete				
Logic Configuration								
SMS Configuration	log3		Jun 12, 2018 7:28 AM	💥 delete				
Phonebook	log4		Jun 12, 2018 7:28 AM	💥 delete				
Diagnostics FW Versions	logi		001112, 2010 7.207011	20 000				
Ethernet Interfaces Data Logger (SD found)								
General Settings								
Group Configuration								
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C Z-PASS2	×					Ciovanni	-			×
$\leftarrow \rightarrow \mathbf{C}$ (i) 192.168	8.85.105:8080/filemgr.pl	np#datalogs/201	80611/log1					\mathbf{r}	J.,	
SENECCA General Configuration Main View Network and Services Serial Ports Gateway Configuration Real Time Clock Setup VPN Configuration Router Configuration Users Configuration EW Upgrade Conf. Management Shared Memory Tag Conf. Tag Setup	MAC Address: C8F9 Internet Access: Mo Gateway: running [C Router: disabled	6W003900_230 1811B0036 [IME bile Data Logger: st Create	[Modem: UC20GQBR0 El: 861075026651331] [I	MSI: 2221016002	237891]					
Tag View TCP Servers Mobile Configuration	Home ► datalogs ►		-							
Mobile Network DDNS Configuration	Name L9700781.csv	Size 950.8 KB	Modified Jun 11, 2018 6:00 PM	Actions	💥 delete					
Digital I/O Configuration	L9700860.csv	2.8 MB	Jun 11, 2018 10:00 PM	🕹 download	💢 delete					
Logic Configuration SMS Configuration	L9701100.csv	2.8 MB	Jun 12, 2018 2:00 AM	🕹 download	💥 delete					
Phonebook Diagnostics FW Versions Ethernet Interfaces Data Logger (SD found) General Settings Group Configuration SD File Manager										

This page shows the contents of the SD card which, typically, is used to store the data log files.

The page lets you perform the following operations:

- browse the SD folder tree, clicking on the folder name links
- delete a folder, clicking on the "delete" link
- create a new folder, by means of the "Create New Folder" text-box and "Create" button; the new folder is created in the folder currently shown
- download a file, clicking on the filename link or on the "download" link

- delete a file, clicking on the "delete" link
- uploading a file, selecting it by means of the "Choose file" button or dragging it into the dashed area; the file is created in the folder currently shown
- clean the SD, by means of the "Clean SD" button; please note that this is done by formatting the SD, so all SD contents will be lost

Please note that the "guest" user (see 21.8.3 paragraph) cannot access the "SD File Manager" page.

21.8 Maintenance

21.8.1 Ethernet Interfaces

By clicking on the "Ethernet Interfaces" link, in the "Maintenance" section, you come to the following page:

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← → C 🛈 192.168	3.85.104:8080/eth_stats.php		☆ 🔎	:
 ← → C ① 192.168 ② SENECAS General Configuration Main View Network and Services Serial Ports Gateway Configuration Real Time Clock Setup VPN Configuration Router Configuration Users Configuration FW Upgrade Conf. Management Shared Memory Tag Conf. Tag View Mobile Configuration Mobile Configuration Digital VO Digital I/O Digital I/O Digital I/O Ethernet Interfaces 	2-PASS2 Ethernet Status [user: admin] [logout] Firmware Version: SW003900_224 [Modem: UC20G MAC Address: C8F9811B0000 [IMEI: 861075026500 Internet Access: Mobile Modbus Shared Memory Gateway: running Router: running I LAN ETHERNET Link Status RX Packets / Bytes TX Packets / Bytes REFRESH			

The above figure applies to a Z-PASS2, when the "Ethernet Mode" is "LAN/WAN.

In this page, for each of the two available Ethernet interfaces (LAN and WAN), the following information is shown:

• the Ethernet link status (i.e. "Down" or "Up")

- the number of packets/bytes received from the Ethernet interface, when the link is up; "0/0" when the link is down
- the number of packets/bytes sent to the Ethernet interface, when the link is up; "0/0" when the link is down

For Z-PASS1, Z-PASS2 when the "Ethernet Mode" is "Switch", the "Ethernet Interfaces" page is similar to the one shown in the following figure.

Z-PASS2	×	😲 Ciovanni — 🗆 🗙
	8.85.104:8080/eth_stats.php	☆ ▷ :
S SENECA [®]	Z-PASS2	
General Configuration	Ethernet Status [user: admin] [logout]	
Main View	Firmware Version: SW003900_224 [Modem: UC20GQE	200241/E1G1
Network and Services		
Serial Ports	MAC Address: C8F9811B0000 [IMEI: 86107502650097	5] [IMSI: 222101600237890]
Gateway Configuration	Internet Access: Mobile	
Real Time Clock Setup	Modbus Shared Memory Gateway: running	
VPN Configuration	Router: running	
Router Configuration		
Users Configuration	ETHERNET	
FW Upgrade		
Conf. Management	RX Packets / Bytes	50470 / 4.5M
Shared Memory Tag Conf.	TX Packets / Bytes	1085 / 227.2K
Tag Setup	REFRESH	
Tag View		
Mobile Configuration		
Mobile Network		
DDNS Configuration		
Digital I/O		
Digital I/O Configuration		
Diagnostics FW Versions		
Ethernet Interfaces		
L		

In this page, for the one available Ethernet interface, the following information is shown:

- the number of packets/bytes received from the Ethernet interface
- the number of packets/bytes sent to the Ethernet interface

You can refresh the Ethernet status, by clicking on the "REFRESH" button.

21.8.2 Modbus Serial Trace

This is a serial sniffer useful for analyzing serial traffic. It is also possible to export the traffic to analyze it later.

21.8.3 FW Versions

By clicking on the "FW Versions" link, in the "Diagnostics" section, you come to the following page:

🗋 Z-PASS2	× Silvenni – C ×
\leftrightarrow \rightarrow C (i) 192.168	8.85.104:8080/fwver_full.php 🖈 🗷
SENECCA General Configuration Main View Network and Services Serial Ports Gateway Configuration Real Time Clock Setup VPN Configuration Router Configuration Users Configuration FW Upgrade Conf. Management Shared Memory Tag Conf. Tag Setup Tag View	Z-PASS2 FW Versions [user: admin] [logout] Firmware Version: SW003900_224 [Modem: UC20GQBR03A14E1G] MAC Address: C8F9811B0000 [IMEI: 861075026500975] [IMSI: 222101600237890] Internet Access: Mobile Modbus Shared Memory Gateway: running Router: running Router: running <i>HW Version</i> HW Revision Z-PASS2-IO <i>FW Components Versions</i> Linux Kernel 2.6.28 #137 PREEMPT Tue Jun 20 10:46:10 CEST 2017
Mobile Configuration Mobile Network DDNS Configuration Digital I/O Digital I/O Configuration Diagnostics FW Versions	Initial RAM DiskJun 1 13:55:29 2017Root File System227_20171201Default Disk File SystemSW003900_224Disk File SystemSW003900_224
Ethernet Interfaces	

In this page, the following information are shown:

- the product name along with its HW revision (in the above figure: "Z-PASS2-R01")
- the version strings of all the FW components, which are:
 - Linux Kernel (kernel)
 - Initial RAM Disk (*initrd*)

- Root File System (*rootfs*)
- Default Disk File System (*diskdfl*)
- Disk File System (*disk*)

21.8.4 FW Upgrade

When clicking on the "FW Upgrade" link, in the "Maintenance" section, the following pop-up is shown:

192.168.85.104:8080 dice:	×
Do you want to stop gateway services during upload ?	
(Once services are stopped, you can restart them by clicking on the 'RESTART GATEWAY SERVICES' button.)	
OK Annulla	

If you click on the "OK" button, Modbus Ethernet to Serial/Transparent/Modbus Shared Memory Gateway Services are stopped and you come to the "FW Upgrade" page, shown in the following figure.

Z-PASS2	(!) Ciovanni -	- 🗆 X
	8.85.104:8080/fw_files_bin.php?stop=1	☆ 🔎 :
SENECA (S)	Z-PASS2	
General Configuration	FW Upgrade [user: admin] [logout]	
Main View	Firmware Version: SW003900_224 [Modem: UC20GQBR03A14E1G]	
Network and Services	MAC Address: C8F9811B0000 [IMEI: 861075026500975] [IMSI: 222101600237890]	
Serial Ports	Internet Access: Mobile	
Gateway Configuration		
Real Time Clock Setup	Modbus Shared Memory Gateway: stopped	
VPN Configuration	Router: running	
Router Configuration		
Users Configuration	FW Upgrade	
FW Upgrade		
Conf. Management Shared Memory Tag Conf.	FW file (SW003900_*.bin) Scegli file Nessun file selezionato	
Tag Setup	UPLOAD RESTART GATEWAY SERVICES	
Tag View		
Mobile Configuration		
Mobile Network		
DDNS Configuration		
Digital I/O		
Digital I/O Configuration Diagnostics		
FW Versions		
Ethernet Interfaces		

Now, if you want to leave this page without performing the FW upgrade, the "RESTART GATEWAY SERVICES" button lets you restart the gateway services which, otherwise, would remain in the "stopped" state.

Otherwise, if you click on the "Cancel" button of the pop-up, Gateway Services are not stopped and you come to the same page where the "RESTART TWS SERVICES" button is disabled.

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		*
< 7 C U 152.100.		
S SENECA General Configuration Main View Network and Services Serial Ports Gateway Configuration Real Time Clock Setup	X & Bosendi K. Struktson, Stru	

So, it is up to the user to choose if Gateway Services shall be stopped or not, during FW Upload; on one side, stopping them is more safe and let the upload be completed in a shorter time; on the other side, there are situations in which gateway services stop time shall be as short as possible.

Since an erroneous use of the FW Upgrade functionality might compromise the proper Z-PASS operation, use this page only to apply upgrades provided by Seneca, with the support of Seneca personnel.

This page lets you browse your PC to select the file containing the FW, which shall have a name of the following type:

*SW003900_xxx.bin*²³

If you select a file with a different name, an error will be shown at the end of the upload, as in the following figure.

²³ The FW file can be downloaded from Seneca web site (see chapter "Upgrading the firmware by USB pen"). MI00380-35

Z-PASS2	× ×
← → C ① 192.16	8.85.104:8080/fw_upgrade_bin.php 🖈 🗵 🗄
SENECA®	Z-PASS2
General Configuration	FW Upgrade [user: admin] [logout]
Main View	Firmware Version: SW003900_224 [Modem: UC20GQBR03A14E1G]
Network and Services	MAC Address: C8F9811B0000 [IMEI: 861075026500975] [IMSI: 222101600237890]
Serial Ports	
Gateway Configuration	Internet Access: Mobile
Real Time Clock Setup	Modbus Shared Memory Gateway: running
VPN Configuration	Router: running
Router Configuration	
Users Configuration	
FW Upgrade	Invalid file 'disk.tar.gz' !
Conf. Management	A 'SW003900_*.bin' file is needed.
Shared Memory Tag Conf.	A Swoosoobhi hie la heeded.
Tag Setup	
Tag View	
Mobile Configuration	
Mobile Network	
DDNS Configuration Digital I/O	
Digital I/O Configuration	
Diagnostics	
FW Versions	
Ethernet Interfaces	

Once a file is selected, you can start the upload, by pressing the "UPLOAD" button.

Z-PASS2	(*) Giovanni —		×	(
← → C ① 192.16	8.85.104:8080/fw_files_bin.php?stop=1	☆		:
 ← → C ① 192.16i SENECA® General Configuration Main View Network and Services Serial Ports Gateway Configuration Real Time Clock Setup VPN Configuration Router Configuration Users Configuration <i>FW Upgrade</i> Conf. Management Shared Memory Tag Conf. Tag Setup Tag View Mobile Configuration DDNS Configuration Digital I/O Digital I/O Configuration Diagnostics FW Versions Ethernet Interfaces 	8.85.104:8080/fw_files_bin.php?stop=1 Z-PASS2 FW Upgrade [user: admin] [logout] Firmware Version: SW003900_224 [Modem: UC20GQBR03A14E1G] MAC Address: C8F9811B0000 [IMEI: 861075026500975] [IMSI: 222101600237890] Internet Access: Mobile Modbus Shared Memory Gateway: stopped Router: running FW Upgrade FW Upgrade FW Upgrade FW Upgrade FW Upgrade FW Upgrade Scegili file SW003900_224 bin UPLOAD RESTART GATEWAY SERVICES			

Once the upload is successfully completed, the following page is shown:

Z-PASS2	× 🖾 – – ×
\leftrightarrow \rightarrow C (i) 192.168	8.85.104:8080/fw_upgrade_bin.php ☆ 🗵 :
 C (1) 192.168 SENECAS General Configuration Main View Network and Services Serial Ports Gateway Configuration Real Time Clock Setup VPN Configuration Router Configuration Users Configuration FW Upgrade Conf. Management Shared Memory Tag Conf. Tag Setup Tag View Mobile Configuration Digital I/O Digital I/O Digital I/O Configuration Diagnostics FW Versions Ethernet Interfaces 	333.104.2000/hv.upgrade_bn.php ZPASS2 FW Upgrade [user: admin] [logoul] Eirmware Vereion: SW003900_224 [Modem: UC20GQBR03A14E1G] MacAddress: C8F3011B0000 [IMEI: 8:1075026509975] [IMSI: 222101600237890] Internet Access: Mobile Modbus Shared Memory Gateway: stopped Router: running File 'SW003900_224.bin' successfully uploaded ! Upgrade and Reboot Cancel and Reboot

In this page, you can:

 press the "Upgrade and Reboot" button: this will start the upgrade procedure, which takes some minutes to be completed; during this time, the Z-PASS MUST NOT be switched off; during the procedure, the Z-PASS will be rebooted several times; also, during the procedure, several LEDS will blink simultaneously²⁴; the upgrade procedure is ended when only the LED "RUN" is blinking²⁵;

²⁴ This applies only to products with HW revisions IO and R01; in details: for IO HW revision, all LEDs will blink simultaneously, except for Power, LAN/WAN, COM and modem LEDs; for R01 HW revision, RUN, VPN and SERV LEDs will blink.

²⁵ Also SERV and VPN LEDs might blink, depending on the Device configuration and status.

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Z-PASS2	🗘 (Stovenni — 🗆 🗙
\leftrightarrow \rightarrow C (i) 192.168	8.85.104:8080/fw_upgrade_start.php?do=3 ☆ 🗵 :
SENECA®	Z-PASS2 FW Upgrade [user: admin] [logout]
Main View Network and Services	Firmware Version: SW003900_224 [Modem: UC20GQBR03A14E1G]
Serial Ports Gateway Configuration	MAC Address: C8F9811B0000 [IMEI: 861075026500975] [IMSI: 222101600237890] Internet Access: Mobile
Real Time Clock Setup VPN Configuration	Modbus Shared Memory Gateway: stopped Router: running
Router Configuration Users Configuration	
<i>FW Upgrade</i> Conf. Management	Upgrading firmware, this will take some time
Shared Memory Tag Conf. Tag Setup	
Tag View Mobile Configuration Mobile Network	
DDNS Configuration Digital I/O	
Digital I/O Configuration Diagnostics	
FW Versions Ethernet Interfaces	

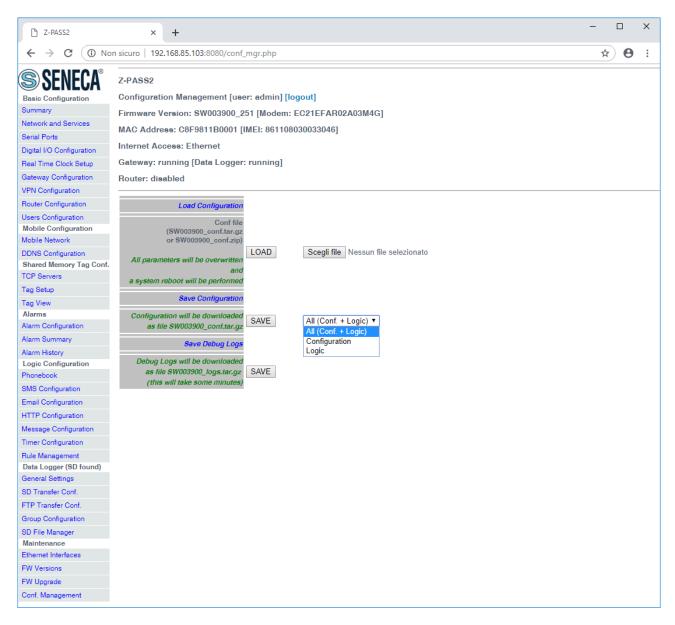
• press the "Cancel and Reboot" button: this will delete the uploaded file on the Z-PASS and perform the reboot.

🗋 Z-PASS2	(*) Giovanni — — X
← → C ① 192.16	8.85.104:8080/fw_upgrade_start.php?do=0 ☆ 🗵 🗄
SFNFCA [®]	Z-PASS2
	FW Upgrade [user: admin] [logout]
General Configuration Main View	
Network and Services	Firmware Version: SW003900_224 [Modem: UC20GQBR03A14E1G]
Serial Ports	MAC Address: C8F9811B0000 [IMEI: 861075026500975] [IMSI: 222101600237890]
Gateway Configuration	Internet Access: Mobile
	Modbus Shared Memory Gateway: stopped
Real Time Clock Setup	
VPN Configuration	Router: running
Router Configuration	
Users Configuration	Upgrade cancelled, rebooting
FW Upgrade	
Conf. Management	
Shared Memory Tag Conf.	
Tag Setup	
Tag View Mobile Configuration	
Mobile Network	
DDNS Configuration	
Digital I/O	
Digital I/O Configuration	
Diagnostics	
FW Versions	
Ethernet Interfaces	

Please note that the "guest" user (see 21.8.3 paragraph) cannot access the "FW Upgrade" page.

21.8.5 Configuration Management

By clicking on the "Conf. Management" link, in the "Maintenance" section, you come to the following page:



This page lets you save and load the whole Z-PASS configuration; this is very useful, for example, when you have to apply the same configuration to many devices.

The configuration archive file is named *SW003900_conf.tar.gz*; its contents depend on the selected option, as shown in the following table:

Option Files					
All (Conf. + Logic)	- configuration parameters				
	- OpenVPN configuration (if present)				
	- Modbus Shared Memory Gateway tags				
	- Logic configuration				
	- web user pages (if present)				
Configuration	- configuration parameters				
	- OpenVPN configuration (if present)				

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Logic	- Modbus Shared Memory Gateway tags
	- Logic configuration
	- web user pages (if present)

The configuration archive, once created and downloaded by means of the "SAVE" button can be uploaded to the same or another device, in two ways:

- by means of the "LOAD" button, in this page
- by means of a USB pen

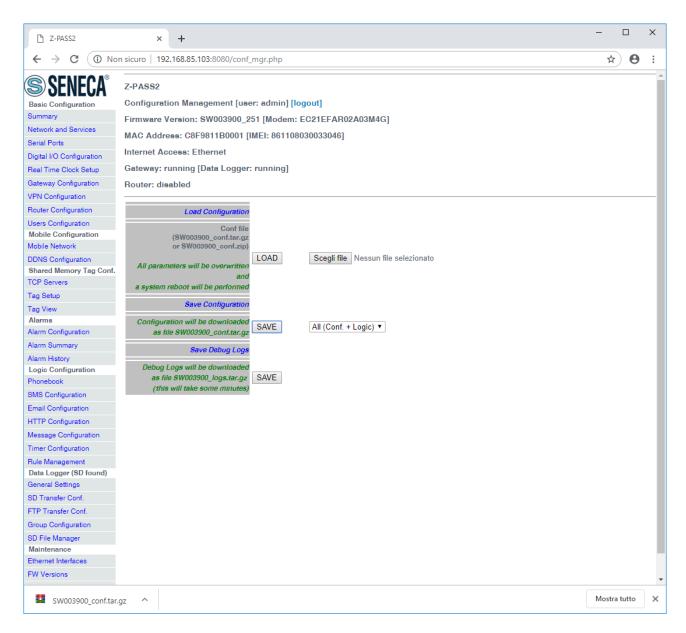
The procedure to load the configuration into the Z-PASS by means of a USB pen is the following:

- copy the *SW003900_conf.tar.gz* file into the root folder of the USB pen;
- switch off the Device;
- insert the USB pen into the USB#1 port of the Z-PASS;
- switch on the Z-PASS; the procedure will take some minutes to be completed; during this time, the Z-PASS MUST NOT be switched off; during the procedure, the Z-PASS will be rebooted;
- after the reboot, wait until you see the "RUN" LED blinking;
- remove the USB pen;
- the configuration has been applied to the Z-PASS.

The only care <u>when you carry the configuration archive from a device to another one is that the two</u> <u>devices should be the same product model</u>; for example, it's not safe to load the configuration archive saved on a Z-PASS1 into a Z-PASS2.

This page lets you also load the configuration archive as a zip file (SW003900_conf.zip).

Another useful feature available in this page is the one provided by the "Save Debug Logs / SAVE" button: when you click on it, a file named *SW003900_logs.tar.gz* is downloaded, which contains the debug logs stored by the CPU during its operation.



Please note that, to get detailed debug logs, the "DEBUG LOGS / Enable" parameter, in "Network and Services" page, shall be set to ON.

Also note that the "guest" user (see 21.8.3 paragraph) cannot access the "Configuration Management" page.

21.8.5.1 Factory reset by USB pen

A USB pen can be used also to reset the Z-PASS to its factory state; the procedure is the following:

- create an empty file named SW003900_reset_cmd into the root of the USB pen;
- switch off the Z-PASS;
- insert the USB pen into the USB#1 port of the Z-PASS;
- switch on the Z-PASS; the procedure will take some minutes to be completed; during this time, the Z-PASS MUST NOT be switched off; during the procedure, the Z-PASS will be rebooted;

- after the reboot, wait until you see the "RUN" LED blinking;
- remove the USB pen;
- the factory reset has been performed.

21.9 Guest pages

It is also possible to access the Z-PASS configuration site as a "guest" user; this user is allowed to access all the pages except for "FW Upgrade", "Configuration Management" and "SD File Manager" pages, viewing all configuration parameters and status information, without changing any parameter; so, in all the pages, the "APPLY" buttons (and any other button used to perform changes) are disabled.

To login as "guest" user, connect the browser to the Device IP address on port 8080, e.g.:

http://192.168.90.101:8080

and, when asked, provide the following credentials (default values):

Username: guest Password: guest

You come to the "Summary" page, shown in the following figure.

Z-PASS2	×	😲 Ciovanni — 🗆 🗙
	① 192.168.85.104:8080/index.php	Q ☞ ☆ 🗵 🗄
@ QENEC A®	Z-PASS2	
SEINE CA	Main View [user: guest] [logout]	
General Configuration	Firmware Version: SW003900_224 [Modem: UC20GQBR03A14E1G]	
Network and Services		
Serial Ports	MAC Address: C8F9811B0000 [IMEI: 861075026500975] [IMSI: 222101600237890]	
Gateway Configuration	Internet Access: Mobile	
Real Time Clock Setup	Modbus Ethernet to Serial Gateway: running	
VPN Configuration	Router: running	
Router Configuration Users Configuration	NETWORK	
Mobile Configuration	Ethernet Mode LANWAN	
Mobile Network	DHCP on WAN OFF	
DDNS Configuration	LAN IP Address 192.168.90.101	
Digital I/O Digital I/O Configuration	LAN Network Mask 255.255.255.0	
Diagnostios	WAN IP Address 192.168.85.104 WAN Network Mask 255.255.252.0	
FW Versions	Default Gateway 10.64.64	
Ethernet Interfaces	DNS Mode Statio	
	DNS Server 83.224.65.143 83.224.65.134 IP Configuration from Discovery ON	
	WEB SERVER	
	Protocol HTTP/HTTPS	
	HTTP Conf Part 8080	
	HTTP User Port 80	
	HTTPS Port 443	
	FILE TRANSFER	
	Protocol FTP/SFTP	
	FTP Port 21 SFTP Port 22	
	NTP	
	Enable ON	
	Primary Server ntp1.inrim.it	
	Secondary Server ntp2.inrim.it	
	Time Zone Central Europe (CET/CEST)	
	VPN	
	Mode VPN Box Enable ON	
	Server 192.168.85.176	
	Password seneoa	
	Tag Name zpace	
	MOBILE NETWORK	
	Enable ON APN Mode Manual	
	APN mode manual APN m2mbis.vodafone.it	
	Authentioation Type None	
	Usemane user Password pass	
	Pille 8342	
	Ping Connection Testing IP Address www.google.com	
	NETWORK REDUNDANCY	
	Enable OFF	
	Ping Address 8.8.4.4	
	WATCHDOG	
	Enable ON Timeout (c) 60	
	DEBUG LOGS	
	Enable ON	
	COM1	
	Mode RS485	
	FACTORY DEFAULT RESTART	

Note that, as told above, the "FACTORY DEFAULT" and "RESTART" buttons are disabled.

Another example of a page accessed by the "guest" user is given in the following figure.

Z-PASS2	×	(!) Giovanni	– 🗆 X
← → C 🛈 192.	168.85.104:8080/mobile_network.php?showinfo=1		९☆ 🗵 :
SENECA General Configuration Main View Network and Services Serial Ports Gateway Configuration Real Time Clock Setup VPN Configuration	Z-PASS2 Mobile Network [user: guest] [logout] Firmware Version: SW003900_224 [Modem: UC20GQBR03A14E1G] MAC Address: C8F9811B0000 [IMEI: 861075026500975] [IMSI: 222101600237890] Internet Access: Mobile Modbus Shared Memory Gateway: running Router: running		
Router Configuration Users Configuration	CURRENT UPDATED		
Shared Memory Tag Conf. Tag Setup Tag View Mobile Configuration <i>Mobile Network</i> DDNS Configuration Digital I/O Digital I/O Digital I/O Ethernet Interfaces Ethernet Interfaces	SiM PIN (if required by SIM) Operator Selection Mode Automatic Operator (22210) vodafone IT Operator (Manual Manual Manual		

In the "Mobile Network" page, the "APPLY" and "GET OPERATOR LIST" buttons are disabled, whereas the "SHOW MOBILE STATUS"/"HIDE MOBILE STATUS" and "REFRESH" buttons are enabled, letting the "guest" user view the Mobile Status.

21.10 User Pages

It is also possible to access the Z-PASS configuration site as a "user" user; this user is allowed to access only to the "Summary" and the "tag view" pages.

To login as "user" user, connect the browser to the Device IP address on port 8080, e.g.:

http://192.168.90.101:8080

and, when asked, provide the following credentials (default values):

Username: user Password: user

You come to the "Summary" page.

22 FTP/SFTP access

To easily access the Z-PASS by means of FTP/SFTP, you can use the WINSCP[™] program; you can free download WINSCP[™] from:

http://winscp.net/eng/download.php

You must set the connection as in the following figure (the screenshot shows a connection to the 192.168.85.103 IP address):

🌆 Login		- 🗆 X
 Nuovo sito MyFTP Sviluppo@194.184.235.245 Telecontrollo test@82.106.249.61 user@ZTWS4 vpnbox 	Sessione Protocollo file SFTP Nome server 192.168.85.103 Nome utente User Salva	
S <u>t</u> rumenti 🔻 Gestisci	Accedi 🔽 Cł	niudi Aiuto

The credentials (username and password) are those ("user", "123456") set for the "FTP USER" (see "Users Configuration" web page in paragraph 21.1.9).

After clicking the "Access" button, you will get a new window, as in the following screenshot; on the right, you can copy and delete files directly to/from the Device.

🌆 user - user@192.168.85.103 - WinSCP											-		×
Locale Seleziona File Comandi Sessione Op	pzioni Remot	o Aiuto											
🛞 🎒 Coda 👻 🎛 🔀 🍃 Sincronizza 🗾 🐙 💽		Impostazioni trasferim	Impostazioni trasferimento Predefinito 🔹 🥑 🗸										
user@192.168.85.103 💣 Nuova sessione													
🗄 Documenti 🔹 🚰 🔽 (-	1 2 %				user	• 🚰 🔽 🦛	- E 7	🏫 🏖 💫 Trova file	2			
🖟 Upload 👻 🖉 Modifica 👻 🔏 🕞 Pro							d 🗸 🖉 Modifica 👻 🔏 🕞			-			
C:\Users\Spagiari\Documents						/disk/pages/us							
Nome	Dimensi	Tine	Modificato	Attr	^	Nome	c	Dimonsi	Modificato	Diritti	Proprietario	•	
t								Dimensi				0	
		Cartella superi	23/12/2016 11.04.47	r		t			16/01/2017 09.43.41	rwxrwxr-x	root		
Adf_lighting		Cartella di file	27/04/2016 09.05.43										
Azienda		Cartella di file	23/12/2016 11.04.14										
Bluetooth Folder		Cartella di file Cartella di file	15/11/2013 07.46.42										
Boards			24/06/2016 13.54.46										
Bug 1474 – Etc GMT Timezones misplaced CaseHistory		Cartella di file Cartella di file	22/11/2013 18.19.50 07/10/2016 13.12.38										
		Cartella di file	07/10/2016 13.12.38										
Codesys		Cartella di file	05/03/2014 12.14.09										
Copalp CPU_Linux		Cartella di file	23/12/2016 11.33.53										
Crickets		Cartella di file	15/04/2015 15.38.59										
Downloaded Installations		Cartella di file	29/03/2016 09.52.49										
File di Outlook		Cartella di file	18/01/2017 09.21.16										
Freescale		Cartella di file	29/10/2014 17.43.51										
Gara Pubbliacque		Cartella di file	24/11/2016 07.33.24										
Huawei		Cartella di file	30/01/2015 10.21.17										
HW		Cartella di file	01/06/2016 13.20.27										
■ Immagini		Cartella di file	25/07/2016 18.42.40	sh									
JMobile Suite		Cartella di file	12/09/2014 17.17.37	511									
Manuali		Cartella di file	01/09/2016 10.49.25										
MQX		Cartella di file	13/01/2017 15.52.36										
Musica		Cartella di file	25/07/2016 18.42.40	sh									
NAT with Linux and iptables - Tutorial (Intr		Cartella di file	26/03/2014 13.41.54	30									
Oldies		Cartella di file	13/03/2015 14.07.57										
OPC_Server_IO		Cartella di file	26/08/2016 09.59.37										
OpenEmbedded		Cartella di file	10/09/2014 12.23.41										
OpenSIPS		Cartella di file	14/12/2015 13.57.38										
Origini dati utente		Cartella di file	04/11/2015 07.43.41	<.									
Processo Sviluppo		Cartella di file	12/01/2015 10.26.13	1	~	<							
B di 886 KB in 0 di 88		content of the				0 B di 0 B in 0 d	i0						
3 di 000 kb ili 0 di 00						0000000000				0	тр-з 💷		00.16

The WinSCP program can be used both as an FTP or SFTP client to transfer files to/from the Z-PASS; just select "FTP" or "SFTP" protocol in the "WinSCP Login" window; normally, it's better to use SFTP, since it provides a secure (i.e. encrypted) service.

23 Glossary

Bridge: a device that translates from one communications protocol into another.

<u>Gateway</u>: a device that acts as a portal between two programs allowing them to share information by communicating between different protocols.

<u>Serial Device Server</u>: a device that enables devices with an RS-232, RS-422 or RS-485 serial interface to connect to a local area network (LAN) or, more generally, an IP network.

<u>Router</u>: a networking device that forwards data packets between computer networks, e.g. between a LAN and a WAN (the Internet).

<u>Switch</u>: a networking device that connects devices together on a computer network, by using a form of packet switching to forward data to the destination device.

<u>VPN</u>: a Virtual Private Network extends a private network across a public network, such as the Internet. It enables a device to send and receive data across the public network as if it were directly connected to the private network. A VPN is created by establishing a virtual point-to-point connection through the use of tunnelling protocols, with traffic encryption.

<u>Tunnel</u>: an IP tunnel is an Internet Protocol (IP) network communications channel between two networks. It is used to transport another network protocol by encapsulation of its packets.

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<u>Tunnel Point-to-Point</u>: an IP tunnel between a single Master device and a single Slave device.

Tunnel Point-to-Multipoint: an IP tunnel between a single Master device and multiple Slave devices.