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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
06/09/2016	07	 Chapter "Features": new features forZ-PASS2-S-R01 Chapter "LEDs signalling": new par. " Z-PASS2-S-R01" New chapter "Ethernet Mode (Z-PASS2-S-R01)" Chapter: "Discovering the IB address": network parameters setting
		- Chapter "Upgrading the firmware by a USB pen": revision
		- Par. "Web Configuration Pages/Administrator pages": changed
		paragraphs:
		- "Main View" "Network and Services"
		- Network and Services
		- "FW Upgrade"
		new paragraphs:
		- "VPN Configuration/OpenVPN Client/LED signalling (Z-PASS2-S-R01)"
		- "VPN Configuration/VPN Box/LED signalling (Z-PASS2-S-R01)"
		- Par. "Web Configuration Pages/User pages"
		changed paragraphs:
		- "Main View"
		- "Network and Services"
11/01/2017	08	- Renamed "Z-PASS2-S-1" → ", "Z-PASS2-S-R01"
		- Chapter "Discovering the IP address": discovery working on both LAN
		and WAN interfaces
		- New chapter "Network Redundancy"
		- Paragraph "Nature revision (also for User Pages)
		and Network Redundancy parameters: changed some default values
		(also for "User Pages")
		- Paragraph "Real Time Clock Setup": added "Central Europe" time
		zone value
		- Paragraph "VPN Configuration/OpenVPN Client": revision into "VPN
		Configuration/OpenVPN"; added packet/byte counters description
		- Paragraph "VPN Configuration/VPN Box": added packet/byte counters
		description
		description
		- Paragraph "Router Configuration": Port Mapping parameters no more
		disabled when "Use Local Addresses" is ON
		- Paragraph "Users Configuration": added "guest" user credentials
		- New paragraph "Ethernet Interfaces"
		- New paragraph "Modbus Modules"
		- New paragraph "Data Logs"
		- New paragraph "Guest Pages"
		- StratON FBs and Functions, new paragraphs: GET_ALARMS,
		PUT_ALARM, SET_ALARMS_STAT, FM_WRITE_NCRLF, TXBAPPENDFILE,
		GET_MIN_SINCE2K
01/02/2017		- Chapter Z-NE14: added note to "Remote Control Functions"
01/03/2017	09	- New paragraphi Configuration Management
		- "I se I ocal Address through VPN" parameter: "ON" option always
		available
		- Paragraph "Network and Services" (Admin and User): changed default
		value for "Default Gateway" and "DNS Server" parameters; "Default
		Gateway" always in the WAN subnet, in LAN/WAN mode; "DHCP on
		LAN" disabled, in LAN/WAN mode

		- OpenVPN, Configuration File: added rules on "dev" and "log" options		
		- StratON FBs and Functions, new paragraphs: S7 DB READ,		
		S7 DB WRITE		
23/05/2017	10	- Chapter "Features": new features for 7-PASS2-S-IO		
20,00,201,	10	- New "I FDs signaling" sub-paragraph for IO HW revision		
		- New chapter "Remote Access Disable"		
		New chapter "Auto ADN"		
		Decorrection Multi-Arriv		
		- Paragraphi Network and Services . added screen-shots for TO		
		Personale (VDN Dev.", added (Liegene Limit Deeched" error record		
		- Paragraph VPN Box : added License Limit Reached error reason		
		- Paragraph "FW Upgrade": changed "Stop I WS Services" pop-up		
		- Paragraph "Configuration Management": added "Save Debug Logs"		
		feature		
		- Paragraph "Mobile Network": added "APN Mode" parameter		
		- New paragraph "Digital I/O Configuration"		
		 Paragraph "PPP_CONNECT": changes for "Auto-APN" 		
		- StratON FBs and Functions, new paragraphs: PPP_CONNECT_R2,		
		VPNBOX_STATUS, WDOG_KEEP_ALIVE, WDOG_SET_TMO		
02/08/2017	11	- Chapter "Technical Specifications": added features for Z-PASS2-S-IO		
		modem		
		- Paragraph "LEDs signaling"/IO: added info about modem "STAT " LED		
		- Chapter "VPN": added description of Layer 2 and Layer 3 VPN		
		- Paragraph "VPN Configuration/VPN Box": changes related to L2 VPN		
		and info about connected user; added L2 VPN figure		
		- Deleted paragraph "Updating the StratON application by a USB pen"		
		- Chapter "Upgrading the firmware": added notes about LEDs blinking		
		- Paragraph "Main View" (admin): updated figure		
		- Paragraph "Network and Services": added info about new Web Server		
		and File Transfer parameters: updated figures		
		- Paragraph "Real Time Clock Setup": undated figure		
		- Paragraph "Router Configuration": changed default value for "Allow		
		Access through Mobile Public IP Address" parameter		
		- Paragraph "Configuration Management": added info about zin		
		archive: undated figures		
		Daragraph "Mobile Network": undeted figures		
		"Paragraph Wobie Network : updated lightes		
00/10/2017	12	- Remote Access Disable -7 Remote Connection Disable		
06/10/2017	12	- Changed "- $KU2$ " \rightarrow "- IO "		
		- Chapters "Features", "Technical Specifications": note about GPS		
		module and antenna		
		- Chapter "Electrical Connections": added sub-paragraph for Z-PASS2-S-		
		IO Digital I/Os		
		- New sub-paragraph "Z-PASS2-S-IO profiles"		
		- Paragraphs "Main View", "Network and Services": updated figures		
		- Paragraph "Real Time Clock Setup": added figure with new time zones		
		- Paragraph "VPN Box": updated first figure		
		- Paragraph "Router Configuration": updated figures		
		- Paragraph "Users Configuration": updated figure		
		- Paragraph "FW Upgrade": updated figures		
		- Paragraph "Configuration Management": added table about save		
		 Paragraph "Configuration Management": added table about save option and archive contents; updated figure 		
		 Paragraph "Configuration Management": added table about save option and archive contents; updated figure New sub-paragraph "Factory reset by USB pen" 		
		 Paragraph "Configuration Management": added table about save option and archive contents; updated figure New sub-paragraph "Factory reset by USB pen" Paragraph "Mobile Network": added info and figure about "GPS 		
		 Paragraph "Configuration Management": added table about save option and archive contents; updated figure New sub-paragraph "Factory reset by USB pen" Paragraph "Mobile Network": added info and figure about "GPS Location"; updated some figures 		
		 Paragraph "Configuration Management": added table about save option and archive contents; updated figure New sub-paragraph "Factory reset by USB pen" Paragraph "Mobile Network": added info and figure about "GPS Location"; updated some figures Paragraph "Digital I/O Configuration": added info and figure about 		

		- New paragraph "FW Versions"
		- Deleted "DHCP on LAN" parameter
		- Paragraph "Network and Services" (user): updated figures
30/11/2017	13	- Paragraph "Router Configuration": parameter "Access through Mobile
		Public IP Address" changed to "Mobile Network Firewall"
		- Paragraph "Mobile Network": changes related to "Operator
		Selection" and PIN handling
		- New paragraph "DDNS Configuration"
		- Paragraphs "Main View" and "Guest pages": "RESET" button renamed
		to "RESTART"; updated figures
		- Chapter "Remote Connection Disable": added "Security Level 4 (SMS
		Service)"
		- Paragraph "Digital I/O Configuration": added "Security Level 4 (SMS
		Service)" ; updated figures
		- Paragraph "FW Versions": updated figure
		- StratON FBs, new paragraph: SERVICE_CTRL
		- Deleted references to Z-MODEM-3G
18/01/2018	14	- Chapter "Features": added Z-PASS2-S-IO-4G product
		- Chapter "Technical specifications": updated info about modem
		- Removed "None" value of "Security Level / Service Disable"
		parameter.

2 Features

Z-TWS4, Z-PASS2-S and S6001-RTU are programmable, communication oriented PLCs.

The Z-TWS4/Z-PASS2-S/S6001-RTU StratON[™] PLC is programmable according to the IEC 61131-3 standard, by means of the StratON development environment.

All three devices provide the following features:

- OpenVPN connectivity
- full configuration by means of an integrated web site
- FW upgrade, that can be performed locally, by means of a USB pen, or remotely, through the web site

Z-PASS2-S and S6001-RTU integrate a 3G HSPA modem.

S6001-RTU is equipped with a rich set of analog and digital inputs/outputs.

Z-PASS2-S, S6001-RTU and Z-TWS4 (when connected to an external modem) can be used as a Router, routing packets between the WAN (Mobile Network) and the LAN (Ethernet).

All three devices are based on a 32bits ARM9 processor, equipped with the Linux operating system (Linux kernel 2.6.28).

Z-PASS2-S-R01 is a new version of the Z-PASS2-S product, providing the following new features:

- the two available Ethernet ports can be configured as two fully separated network interfaces ("LAN" and "WAN"), whereas in the older versions they could only work as ports of an Ethernet switch; the user can choose if the two ports shall work in "LAN/WAN" mode or "Switch" mode, by means of a new configuration parameter ("Ethernet Mode");
- there are 4 more LEDs, providing information about the "Ethernet Mode" and the VPN functionalities.

Z-PASS2-S-IO is a new version of the Z-PASS2-S product, providing the following new features:

- one digital input which can be used to disable remote connection to the device
- one digital output which goes HIGH when the device is remotely accessed
- one digital input which can also be used as a local alarm
- one digital output which can also be used as a remote command
- two configurable digital inputs/outputs
- a new set of LEDs
- COM1 RS232/RS485 mode set by software (configuration parameter), instead of HW DIP switch
- a new penta-band 3G+ modem, which also features a GPS module

Z-PASS2-S-IO-4G is a new version of the Z-PASS2-S-IO product, providing a new 4G LTE Cat.1 modem, instead of the 3G+ modem.

NOTE 1:

in the following chapters, the term "Device" will be used when describing features or characteristics that are available in all three products.

NOTE 2:

in the following chapters, any reference to 3G modem/connection applies also to 4G modem/connection.

3 Technical specifications

COMMUNICATION PORTS (Z-TWS4/Z-PASS2-S)			
RS 485	Baud rate: maximum 115 Kbps, minimum 110 bps		
	COM 4 (screw terminals 4-5-6)		
	COM 2 (screw terminals 1-2-3 or IDC10 connector)		
	COM 1 (removable 4 pin connector, as an alternative to RS232)		
RS 232	Baud rate: maximum 115 Kbps, minimum 110 bps		
	COM 1 (removable 4 pin connector, as an alternative to RS485)		
CAN	CAN bus port 2.0A and 2.0B		
	Baud rate: maximum 500 Kbps, minimum 20 Kbps		
	(screw terminals 10-11-12 or IDC10 connector)		
	available only in Z-TWS4		
Ethernet 1 and Ethernet 2	Ethernet 10/100 Mbps		
	Two RJ45 connectors on front-panel		
	Maximum connection length 100 m		
	In Z-PASS2-S-R01/Z-PASS2-S-IO, the two ports can work either as LAN/WAN ports (ETH1=LAN, ETH2=WAN) or ports of an Ethernet switch.		
	In Z-TWS4/Z-PASS2-S, the two ports can work only as ports of an Ethernet switch.		
USB #1 HOST	Plug-in: USB type A		
USB #2 HOST	Plug-in: micro USB (available only in Z-TWS4)		
	COMMUNICATION PORTS (S6001-RTU)		
RS 485	Baud rate: maximum 115 Kbps, minimum 110 bps		
	COM 4 (screw terminals 54-55-56)		
	COM 2 (screw terminals 57-58-59)		
RS 232	Baud rate: maximum 115 Kbps, minimum 110 bps		
	COM 1 (DB9 male connector)		
Optional Bus for future extensions	screw terminals 60-61-62		

Ethernet	Ethernet 10/100 Mbps
	BI45 connector
	Maximum connection length 100 m
USB #1 HOST	Plug-in: USB type A
	CPU AND MEMORY
Microprocessor	ARM 9, 32 bits, 400 MHz
Memories	64 Mbytes of RAM
	1 Gbyte of FLASH
	8 Kbytes of FeRAM, split in 2 partitions (4 Kbytes each) for redundancy
Slot for external memory	Micro SD card: max 32 Gbytes
	I/O CPU (S6001-RTU)
Microprocessor	8 bits, 24 MHz
	3G+ MODEM (Z-PASS2-S/S6001-RTU)
HSPA Modem	14.4 Mbps in downlink, 5.76 Mbps in uplink
Slot for SIM card	Mini SIM with push-push connector
	3G+ MODEM (Z-PASS2-S-IO)
Speed	HSPA+: max 14.4 Mbps DL, max 5.76 Mbps UL
	UMTS: max 384 Kbps (DL), max 384 Kbps (UL)
	EDGE: max 236.8 Kbps (DL), max 236.8 Kbps (UL)
	GPRS: max 85.6 Kbps (DL), max 85.6 Kbps (UL)
GNSS	GPS/GLONASS
	16 GPS channels
	14 GLONASS channels
	Accuracy <1.5m CEP-50 @ Open Sky
Approvals	RoHS Compliant, CE/GCF/Vodafone (Europe), DoC (Russia), FCC/PTCRB/AT&T
	(North America), RCM (Australia), ICASA (South Africa), SRRC/NAL/OFCA
	(Canada), Anatel (Brazil), NBTC (Thailand)
Slot for mini SIM	Mini SIM with push-push connector
	4G (LTE Cat. 1) MODEM (Z-PASS2-S-IO-4G)
Speed	LTE FDD: max 10 Mbps (DL), max 5Mbps (UL)
	LTE TDD: max 8.96 Mbps (DL), max 3.1 Mbps (UL)
	DC-HSPA+: max 42Mbps (DL), max 5.76 Mbps (UL)
	UMTS: max 384 Kbps (DL), max 384 Kbps (UL)
	EDGE: max 296 Kbps (DL), max 236.8 Kbps (UL)

	GPRS: max 107 Kbps (DL), max 85.6 Kbps (UL)		
GNSS	GPS/GLONASS/BeiDou/Galileo/QZSS		
Approvals	RoHS Compliant, CE/GCF/Vodafone (Europe), FCC/PTCRB/AT&T/Verizon*		
	(North America), RCM/Telstra (Australia), JATE/TELEC/DOCOMO* (Japan), NCC		
	(Taiwan), KC/SKT/KT*/LGU+* (Korea), IC/Rogers (Canada), Anatel (Brazil),		
	CCC/SRRC/NAL (China)		
	*= Under Development		
Slot for mini SIM	Mini SIM with push-push connector		
	POWER SUPPLY (Z-TWS4/Z-PASS2-S)		
Power supply	1140 Vdc or 1928 Vac @ 5060 Hz		
Consumption	Typical 4 W @ 24 Vdc; Max 6 W		
	POWER SUPPLY (S6001-RTU)		
Power supply	24 Vac/dc ± 15% @ 50/60Hz		
Consumption	10 VA max , 6 VA typical		
ENV	IRONMENTAL CONDITIONS (Z-TWS4/Z-PASS2-S)		
Temperature	-20+55 °C		
Humidity	3090 % @ 40 °C not condensing		
Storage temperature	-20+85 °C		
Protection degree	IP20		
	ENVIRONMENTAL CONDITIONS (S6001-RTU)		
Temperature	-10+65 °C		
Humidity	1090 % not condensing		
Storage temperature	-40+85 °C		
Protection degree	IP20		
	CONNECTIONS (Z-TWS4/Z-PASS2-S)		
Connections	Removable 3 way screw terminals, 5.08 pitch		
	Rear IDC10 connector for DIN 46277 rail		
	Removable 4 pin connector		
	Two RJ45 connectors		
	Type A USB connector and micro USB connector (only in Z-TWS4)		

	Plug in: micro SD card
	Two SMA antenna connectors:
	- for Main and Diversity antennas (only in Z-PASS2-S, Z-PASS2-S-R01)
	- for 3G and GPS antennas (only in Z-PASS2-S-IO)
	CONNECTIONS (S6001-RTO)
Connections	Removable screw terminals
	DB9 male connector
	RJ45 connector
	Type A USB connector
	Plug in: micro SD card
	Two SMA antenna connectors, for Main and Diversity antennas
	BOX / DIMENSIONS (Z-TWS4/Z-PASS2-S)
Dimensions	Z-TWS4: L: 100 mm; H: 112 mm; W: 35 mm
	Z-PASS2-S: L: 100 mm; H: 112 mm; W: 53 mm
Case	Nylon 6 with 30% fiberglass field, self-extinguishing class V0, black color
	WEIGHT / DIMENSIONS (S6001-RTU)
Dimensions	190 mm x 160 mm x 105 mm
Weight	600 g
	INPUTS / OUTPUTS (Z-PASS2-S-IO)
Digital Inputs	
Digital inputs	Max. number of channels: 4
	Max. number of channels: 4 Voltage: OFF<4V ON>8V; Max. Current (Vout+): 20mA
Digital Outputs	Max. number of channels: 4 Voltage: OFF<4V ON>8V; Max. Current (Vout+): 20mA Current absorbed: 3mA at 12VC; 6mA at 24VC Max. number of channels: 4
Digital Outputs	Max. number of channels: 4 Voltage: OFF<4V ON>8V; Max. Current (Vout+): 20mA Current absorbed: 3mA at 12VC; 6mA at 24VC Max. number of channels: 4 Voltage (+Vext): 10 – 24VC
Digital Outputs	Max. number of channels: 4 Voltage: OFF<4V ON>8V; Max. Current (Vout+): 20mA Current absorbed: 3mA at 12VC; 6mA at 24VC Max. number of channels: 4 Voltage (+Vext): 10 – 24VC Max. current delivered: 400mA
Digital Outputs	Max. number of channels: 4 Voltage: OFF<4V ON>8V; Max. Current (Vout+): 20mA Current absorbed: 3mA at 12VC; 6mA at 24VC Max. number of channels: 4 Voltage (+Vext): 10 – 24VC Max. current delivered: 400mA INPUTS / OUTPUTS (S6001-RTU) ¹
Digital Outputs Analog inputs	Max. number of channels: 4 Voltage: OFF<4V ON>8V; Max. Current (Vout+): 20mA Current absorbed: 3mA at 12VC; 6mA at 24VC Max. number of channels: 4 Voltage (+Vext): 10 – 24VC Max. current delivered: 400mA INPUTS / OUTPUTS (S6001-RTU) ¹ 4, current, 020 mA
Digital Outputs Analog inputs	Max. number of channels: 4 Voltage: OFF<4V ON>8V; Max. Current (Vout+): 20mA Current absorbed: 3mA at 12VC; 6mA at 24VC Max. number of channels: 4 Voltage (+Vext): 10 – 24VC Max. current delivered: 400mA INPUTS / OUTPUTS (S6001-RTU) ¹ 4, current, 020 mA resolution: 12 bit
Digital Outputs Analog inputs	Max. number of channels: 4 Voltage: OFF<4V ON>8V; Max. Current (Vout+): 20mA Current absorbed: 3mA at 12VC; 6mA at 24VC Max. number of channels: 4 Voltage (+Vext): 10 – 24VC Max. current delivered: 400mA INPUTS / OUTPUTS (S6001-RTU) ¹ 4, current, 020 mA resolution: 12 bit accuracy: += 0.3% of full scale input impedance: 50 0
Digital Outputs Analog outputs	Max. number of channels: 4 Voltage: OFF<4V ON>8V; Max. Current (Vout+): 20mA Current absorbed: 3mA at 12VC; 6mA at 24VC Max. number of channels: 4 Voltage (+Vext): $10 - 24VC$ Max. current delivered: 400mA INPUTS / OUTPUTS (S6001-RTU) ¹ 4, current, 020 mA resolution: 12 bit accuracy: $+= 0.3\%$ of full scale input impedance: 50 Ω 1 current 0, 20 mA
Digital Outputs Analog inputs Analog outputs	Max. number of channels: 4 Voltage: OFF<4V ON>8V; Max. Current (Vout+): 20mA Current absorbed: 3mA at 12VC; 6mA at 24VC Max. number of channels: 4 Voltage (+Vext): $10 - 24VC$ Max. current delivered: 400mA INPUTS / OUTPUTS (S6001-RTU) ¹ 4, current, 020 mA resolution: 12 bit accuracy: $+= 0.3\%$ of full scale input impedance: 50 Ω 1, current, 020 mA 1. voltage, 010 Vdc
Digital Outputs Analog inputs Analog outputs	Max. number of channels: 4 Voltage: OFF<4V ON>8V; Max. Current (Vout+): 20mA Current absorbed: 3mA at 12VC; 6mA at 24VC Max. number of channels: 4 Voltage (+Vext): $10 - 24VC$ Max. current delivered: 400mA INPUTS / OUTPUTS (S6001-RTU) ¹ 4, current, 020 mA resolution: 12 bit accuracy: $+= 0.3\%$ of full scale input impedance: 50 Ω 1, current, 020 mA 1, voltage, 010 Vdc resolution: 12 bit
Digital Outputs Analog inputs Analog outputs	Max. number of channels: 4 Voltage: OFF<4V ON>8V; Max. Current (Vout+): 20mA Current absorbed: 3mA at 12VC; 6mA at 24VC Max. number of channels: 4 Voltage (+Vext): 10 – 24VC Max. current delivered: 400mA INPUTS / OUTPUTS (S6001-RTU) ¹ 4, current, 020 mA resolution: 12 bit accuracy: $+= 0.3\%$ of full scale input impedance: 50 Ω 1, current, 020 mA 1, voltage, 010 Vdc resolution: 12 bit accuracy: $+= 0.3\%$ of full scale

¹ For more detailed information about S6001-RTU I/Os, see S6001-RTU Installation Manual.

Digital inputs	15, PNP, with optoisolation
	ON current > 4 mA, OFF current < 3 mA
Digital outputs	8, SPDT relays
	max peak current: 3 A
	operating current: 2 A
	operating voltage: 250 Vac
	minimum load: 0.5 W
	isolation: 3 kV
Liquid level control inputs	conductive liquid level switch, 2 channels
	adjustable sensitivity

The following table shows which frequency bands are supported by the modem available in Z-PASS2-S, Z-PASS2-S-R01, S6001-RTU, Z-PASS2-S-IO and Z-PASS2-S-IO-4G products.

Standard	Frequency/Feature	Z-PASS2-S, Z-PASS2-S- R01, S001-RTU	Z-PASS2-S-IO	Z-PASS2-S-IO-4G
	GSM 850 MHz	ОК	ОК	
CCNA	EGSM 900 MHz	ОК	ОК	ОК
GSIVI	DCS 1800 MHz	ОК	ОК	ОК
	PCS 1900 MHz	ОК	ОК	
	WCDMA 800 MHz		ОК	
	WCDMA 850 MHz		ОК	ОК
WCDMA	WCDMA 900 MHz	ОК	ОК	ОК
	WCDMA 1900 MHz		ОК	
	WCDMA 2100 MHz	ОК	ОК	ОК
	LTE 800 DD			ОК
	LTE 850			ОК
ITE	LTE 900			ОК
LIC	LTE 1800			ОК
	LTE 2100			ОК
	LTE 2600			ОК
	HSDPA	ОК	ОК	
	HSUPA	ОК	ОК	
пэра	HSPA+		OK	
	DC-HSPA+			ОК
DRX	Receiver Diversity	ОК		

4 Electrical Connections

4.1 Z-TWS4, Z-PASS2-S, Z-PASS2-S-R01, Z-PASS2-S-IO

Power Supply and Modbus interface are available by using the bus for the Seneca DIN rail, by the rear IDC10 connector or by <u>Z-PC-DINAL1-35 accessory for Z-TWS4, Z-PC-DINAL2-52.5-17 for Z-PASS2-S</u>. The following picture shows the meaning of the IDC10 connector pins.



Power supply is available only from the rear connector for Z-TWS4, <u>while Z-PASS2-S can be powered also through 14-15 screw terminals</u>.

If **Z-PC-DINAL1-35** or **Z-PC-DINAL2-52.5-17** accessory is used, the power supply signals and communication signals may be provided by the terminals block into the DIN rail support. In the following figure the meaning and the position of the terminal blocks are shown. The DIP-switch that sets the 120 Ω terminator is used only for CAN communication (Z-TWS4 only).

GNDSHLD: shield to protect the connection cables against interference (recommended).



The Device has two RS 485 serial ports for Modbus communication: COM 4 and COM 2. The RS485 connection for COM 2 can be set up by means of the corresponding screw terminals or by the IDC10 connector. On Z-TWS4, to select RS 485 on IDC10 connector, put the SW1 DIP-switch on OFF position; on Z-PASS2-S, no operation is needed.



The Z-TWS4 has a CAN port available on screw terminals 10-11-12. As an alternative, the connection can be set up on the IDC10 connector. To select CAN port on IDC10 connector, put the SW1 DIP-switch on ON position.



Through a removable 4 pin connector, the Device provides a serial RS232 port or, as an alternative, a third RS485 port. In order to select the RS232 port on the removable 4 pin connector, put the SW2 DIP-switch on ON position; to select the RS485 port on the removable 4 pin connector, put the SW2 DIP-switch on OFF position². The cable length for the RS232 interface must be less than 3 meters.

² While in Z-TWS4 the SW2 DIP-switch position can be changed by the user, in Z-PASS2-S the DIP-switch is internal and its position is permanently set in the factory.



The connector pin-out is given in the following table:

Pin	RS232	RS485
1 (bottom)	CTS	-
2	Тх	В
3	Rx	А
4 (top)	GND	GND

The Device has a USB HOST type A connector, that can be used as an additional serial port (using a Seneca S117P1, for example) or to connect an external USB memory; this is used for FW upgrade (see chapter 15).

Please note that, on this USB port, the "hotplug" feature is not available; so, after plugging the USB device, it is necessary to power off/on the Z-TWS4/Z-PASS2-S to let it detect the USB device.



The Z-TWS4 also has a second USB HOST connector, with micro-USB plug-in, that can be used to connect a USB device by means of a "Micro USB to USB" adapter.



The Device has two Ethernet ports with RJ45 connectors on the front panel. <u>The two ports are internally connected in</u> <u>HUB/SWITCH mode. The two ports have the same MAC Address.</u>



The Device has a plug-in connector for micro SD card placed in the side part of the case. To insert the SD card into the connector, be sure that the SD card is oriented with metal contacts facing towards left (with reference to the figure).

The SD card can be of any class.



The Z-PASS2-S has a slot for SIM card, placed on the side of the case. Before pushing the SIM card into this slot, please be sure that the SIM card golden contacts are facing towards right (please see the figure below).



4.1.1 Z-PASS2-S-IO Digital I/Os

In Z-PASS2-S-IO, the electrical connections for the Digital Inputs shall be arranged as in the following figures.



The electrical connections for the Digital Outputs shall be arranged as in the following figure.



4.2 S6001-RTU

Power supply must be connected to screw terminals 52 and 53. The supply voltage must be 24 \pm 15 % Vac/dc (any polarity).



<u>Upper limits must not be exceeded to avoid serious damage to the device</u>. It is necessary to protect the power supply source against any failure of the device by means of an appropriately sized fuse.

S6001-RTU has two RS485 serial ports (COM2 and COM4) available on removable screw terminals, as specified in the following table.

Signal	COM2	COM4
GND	57	54
В	58	55
А	59	56

An RS232 serial port with full handshaking signals is available on DB9 male connector on the left side of S6001-RTU. Use the CS-DB9F-DB9F cable³ to connect RS232 devices. Signals on DB9 connector are listed in the table below.

Pin	Name	Description	IN/OUT
1	DCD	Data carrier detect	In
2	RXD	Receive data	In
3	TXD	Transmit data	Out
4	DTR	Data terminal ready	Out
5	SG	Signal ground	
6	DSR	Data set ready	In
7	RTS	Request to send	Out
8	CTS	Clear to send	In
9	RI	Ring indicator	In

An optional communication bus is available on removable screw terminals 60,61,62, for future extensions.

S6001-RTU has 1 USB port which is an USB HOST with connector type "A", suitable to connect, for example, a mass storage (e.g.: a USB pen) with maximum consumption of 300 mA @ 5 Vdc.

³ The CS-DB9F-DB9F cable is supplied on request.



An Ethernet port is available on the left side of S6001-RTU on an RJ45 connector.

An SD card slot is available, near the optional bus screw terminals; SD cards with storage capacity up to 32 GB can be used.

A SIM card slot, with a push-push connector, is available; 3V mini SIM cards can be used.

Two SMA antenna connectors are available, for Main and Diversity antennas.

Analog inputs and outputs are available on screw terminals 43-50, as shown in the following figure and table.



4 analog current inputs (0-20 mA)	Four active sensors are available from 43 to 46 screw terminals. Screw terminal 49 is a supply voltage (+12 Vdc) for passive current sensor.
1 analog current output (0-20 mA)	Available between 47 and 50 screw terminals.
1 analog voltage output (0-10 Vdc)	Available between 48 and 50 screw terminals.

The Liquid Level Inputs are available on screw terminals 40-42, as shown in the following figure.



The analog level signals from screw terminals 40, 41, 42 can be used to control the level of liquid in a tank.

The supply voltage (12 Vdc @ 50mA) from screw terminals 38 and 37 can be used to connect, for example, an acoustic alarm. Screw terminal 39 must not be connected.



The 8 digital outputs (relays) are available on screw terminals 71-94, as shown in the following figure.



Eight SPDT relays are available to control, for example, external pumps. The operating voltage is 250 Vdc @ 2 A.

The 15 digital inputs are available on screw terminals 1-18, as shown in the following figure.



All digital inputs are PNP type with optoisolation.

5 LEDs signaling

5.1 Z-TWS4, Z-PASS2-S

LED	Status	Meaning
PWR Green	ON	The module is powered on
RUN Red	Blinking	The module is ready for use
LINK1 Yellow	ON	Ethernet 1 connection detected
	OFF	Ethernet 1 connection absent
ACT1 Green	Blinking	There is data activity (Ethernet 1)
	OFF	There is no data activity (Ethernet 1)

LINK2 Yellow	ON	Ethernet 2 connection detected
	OFF	Ethernet 2 connection absent
ACT2 Green	Blinking	There is data activity (Ethernet 2)
	OFF	There is no data activity (Ethernet 2)
RX1-2-4 Red	Blinking	Data reception (COM 1-2-4)
	ON	Check the connection (COM 1-2-4)
	OFF	No data reception (COM 1-2-4)
TX1-2-4 Red	Blinking	Data transmission (COM 1-2-4)
	ON	Check the connection (COM 1-2-4)
	OFF	No data transmission (COM 1-2-4)
3G PWR Green	ON	The 3G Modem is powered on
(Z-PASS2-S only)		
STAT Yellow	ON	Not registered on GSM network
(Z-PASS2-S only)	Slow Blinking	Registered on GSM network
	Fast Blinking	Mobile Network connection active

5.2 Z-PASS2-S-R01

LED	Status	Meaning
PWR Green	ON	The module is powered on
RUN Red	Blinking	The module is ready for use
LAN/WAN Yellow	ON	The Ethernet ports are working in "LAN/WAN" mode
	OFF	-
SWITCH Green	ON	The Ethernet ports are working in "Switch" mode
	OFF	-
VPN Yellow	ON	VPN connection is working properly
	Blinking	VPN connection is not working properly
	OFF	VPN functionality is disabled or
		VPN Box/Point-to-Point functionality is enabled but no client is connected or
		VPN Box/Single LAN functionality is enabled but the Device is not configured
		yet
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
RX1-2-4 Red	Blinking	Data reception (COM 1-2-4)
	ON	Check the connection (COM 1-2-4)
	OFF	No data reception (COM 1-2-4)
TX1-2-4 Red	Blinking	Data transmission (COM 1-2-4)
	ON	Check the connection (COM 1-2-4)
	OFF	No data transmission (COM 1-2-4)
3G PWR Green	ON	The 3G Modem is powered on
STAT Yellow	ON	Not registered on GSM network
	Slow Blinking	Registered on GSM network
	Fast Blinking	Mobile Network connection active

Ethernet Connector LEDS

LED	Status	Meaning
ETH1-2 Green	ON	Ethernet 1-2 connection detected
	OFF	Ethernet 1-2 connection absent
ETH1-2 Yellow	Blinking	There is data activity (Ethernet 1-2)
	OFF	There is no data activity (Ethernet 1-2)

5.3 Z-PASS2-S-IO

LED	Status	Meaning
PWR Green	ON	The module is powered on
RUN Green	Blinking	The module is ready for use
DIDO1 Green	ON	Configurable Digital Input/Output 1 state is HIGH
	OFF	Configurable Digital Input/Output 1 state is LOW
DIDO2 Green	ON	Configurable Digital Input/Output 2 state is HIGH
	OFF	Configurable Digital Input/Output 2 state is LOW
DI Green	ON	Digital Input state is HIGH
	OFF	Digital Input state is LOW

DO Green	ON	Digital Output state is HIGH
	OFF	Digital Output state is LOW
RCD Green	ON	Remote Connection is disabled
	OFF	Remote Connection is enabled
VPN Green	ON	VPN connection is working properly
	Blinking	VPN connection is not working properly
	OFF	VPN functionality is disabled or VPN Box/Point-to-Point functionality is enabled but no client is connected or VPN Box/Single LAN functionality is enabled but the Device is not configured yet
LAN/WAN	ON	The Ethernet ports are working in "LAN/WAN" mode
Green	OFF	The Ethernet ports are working in "Switch" mode
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
RX2-4 Green	Blinking	Data reception (COM 2-4)
	ON	Check the connection (COM 2-4)
	OFF	No data reception (COM 2-4)
TX2-4 Green	Blinking	Data transmission (COM 2-4)
	ON	Check the connection (COM 2-4)
	OFF	No data transmission (COM 2-4)
3G PWR Green	ON	The 3G Modem is powered on
STAT Yellow	Slow blinking (200 ms OFF, 1800 ms ON)	Searching for GSM network
	Slow blinking (1800 ms OFF, 200 ms ON)	Registered on GSM network
	Fast blinking (125 ms OFF, 125 ms ON)	Data transfer is ongoing

Ethernet Connector LEDS

LED	Status	Meaning
ETH1-2 Green	ON	Ethernet 1-2 connection detected
	OFF	Ethernet 1-2 connection absent
ETH1-2 Yellow	Blinking	There is data activity (Ethernet 1-2)
	OFF	There is no data activity (Ethernet 1-2)

5.4 S6001-RTU

Frontal LEDS

Group	Number	Colour	Status		Meaning
Digital Inputs	1,2,3,4,5,6,7,8	Green	ON	High	
	9,10,11,12,13,14,15		OFF	Low	
Digital Outputs	1,2,3,4,5,6,7,8	Red	ON	Closed	
			OFF	Open	
3G Power Signal	2,3,4,5,6	Vallow	OFF	ON	6 ON = Max
	1	renow	Blinking	ON	1 Blinking = Min
Comm. Port COM2	RX, TX	Red	Blinking		RS485 activity
		Red	Fixed ON		Verify connection
Comm. Port COM4	RX, TX	Red	Blinking		RS485 activity
		Red	Fixed ON		Verify connection
Run	1	Red	Blinking	Run	
Level switch	L1, L2	Green	OFF, OFF (value 0)		Under min level
			ON, OFF (value	e 1)	Between min and max levels
			ON, ON (value	e 2)	Over max level

Following are some further notes about LED behavior:

- at power on, during the bootstrap phase, all LEDS, except for the COM PORT LEDs, are ON; when the system is fully operational, RUN LED is blinking
- when Straton application is not running, all LEDS, except for the COM PORT LEDs, are blinking
- 3G PWR SIG LED 1 is blinking, synchronously with RUN LED, in the following situations:
 - GSM/3G network is not available (or signal level is too low)
 - SIM is not inserted

Modem LEDS

LED	Status	Meaning
3G PWR Green	ON	The 3G Modem is powered on
STAT Yellow	ON	Not registered on GSM network
	Slow Blinking	Registered on GSM network
	Fast Blinking	Mobile Network connection active

6 Discovering the IP address

Z-TWS4/Z-PASS2-S/S6001-RTU devices come out of the factory with the default 192.168.90.101 IP address on the Ethernet network interface.

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

#	IP	Mode	MAC	Ping	Name	Hostname	Firmware	CRC	Comm
₽	192.168.85.8	STATIC	C8:F9:81:0C:01:9D	2 ms	Z-KEY	192.168.85.8	110.0	ОК	Assi
₽	192.168.1.101	STATIC	C8:F9:81:0C:00:07	Different Subnet	Z-KEY	192.168.1.101	112.0	ОК	Assi
₽	192.168.84.192	STATIC	C8:F9:81:02:03:5F	2 ms	Z-TWS4	ZTWS4	2940.210	ОК	
₽	192.168.85.7	STATIC	C8:F9:81:02:02:85	2 ms	Z-PASS	192.168.85.7	3900.122	ОК	
€	192.168.85.6	STATIC	C8:F9:81:11:00:02	2 ms	Z-PASS2-S	192.168.85.6	2940.221	ОК	
€	192.168.84.155	STATIC	00:22:4D:B6:D4:06	2 ms	Cloud BOX	cloud-dev.seneca	7800.106	OK	
€	192.168.95.101	STATIC	C8:FA:81:16:00:02	Different Subnet	Z-PASS2-S	192.168.95.101	2940.310	ОК	Assi
€	192.168.85.102	STATIC	C8:F9:81:02:01:5B	2 ms	Z-TWS4	ZTWS4	2940.222	OK	
€	192.168.85.106	STATIC	96:00:00:EA:18:F3	6 ms	S6001-RTU	S6001RTU	2940.310	OK	Assi
€	192.168.85.200	STATIC	C8:F9:81:02:01:BD	2 ms	Z-TWS4	ZTWS4	2940.220	OK	
€	192.168.85.69	STATIC	08:00:27:5B:CB:12	1 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-TWS4/Z-PASS2-S/S6001-RTU 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	x
	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 16.1.2); in this case, the following error message is shown, after clicking on the "Assign" button".

-		
SENECA D	iscovery	×
8	Error changing IP (maybe this option has been disabled from configuration)!	
	ОК	

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

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

NOTE:

- when the Device 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 the Device 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.

7 FTP/SFTP access

To easily access the Device 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 192.168.85.106 IP address):

Sessione	Sessione		
 Sessioni salvate 	Nome server		Numero po <u>r</u> ta
- Creazione log Ambiente	192.168.85.106		22 🐑
- Cartelle	Nome utente	Password	
SCP	user	•••••	
Connessione Proxy	File chiave privata		
SSH SSH			
- Scambio chiave	Protocollo		cco (albert
Bug	Protocolio țile Sr	Consen	u SCP (alback
Preferenze			Scegli colore

The credentials (username and password) are those ("user", "123456") set for the "FTP USER" (see "Users Configuration" web page in paragraph 16.1.6).

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.

5			log	g - user@192.	68.85.106 - WinSCP					- 🗆 🗙
Locale Seleziona File Comandi Sessione O	pzioni Remoto Aiuto									
🌘 🗏 🖓 - 🛛 📽 🐼 🛄 🦧 🚟		Predefinito •	<u>چ</u> -							
Documenti 🔹 🔄 🔶 🛁	- 🖻 🔯 🚮 🕅 🗞				🚹 log	• 😋 🛶 • 🤿 • 🔯 🙆	🕼 🖗 🗽			
C:\Users\Spagiari\Documents					/log					
Nome Estensione	Dimensi Tipo	Modificato	Attr		Nome Estensione	Dimensi	Modificato	Diritti	Proprietario	
🛋	Cartella superi	29/10/2014 17.43.39	r		🔒		01/01/1970 01	rwxr-xr-x	root	
Amministrazione	Cartella di file	05/11/2014 09.14.15			conf		05/11/2014 15	INXINXINX	root	
Bluetooth Folder	Cartella di file	15/11/2013 07.46.42			disk		05/11/2014 15	INXINXINX	root	
Boards	Cartella di file	27/06/2014 13.58.25			.ash_history	672	05/11/2014 15	rw-rr	user	
Bug 1474 – Etc GMT Timezones misplaced	Cartella di file	22/11/2013 18.19.50			cron.log	45	05/11/2014 15	rw	root	
Codesys	Cartella di file	07/10/2014 10.07.56			messages	4.014	05/11/2014 15	rw-rw-rw-	root	
Copalp	Cartella di file	05/03/2014 12.14.09			mmc	16	05/11/2014 15	INXIWXIWX	root	
File di Outlook	Cartella di file	05/11/2014 14.28.18								
Freescale	Cartella di file	29/10/2014 17.43.51								
🕒 Immagini	Cartella di file	03/12/2013 19.31.43	sh							
🐌 JMobile Suite	Cartella di file	12/09/2014 16.17.37								
\mu Manuali	Cartella di file	17/06/2014 13.19.38								
Musica 🔡	Cartella di file	03/12/2013 19.31.43	sh							
NAT with Linux and iptables - Tutorial (Intr	Cartella di file	26/03/2014 13.41.54								
OpenEmbedded	Cartella di file	10/09/2014 11.23.41								
Progetti ZNET3	Cartella di file	07/10/2014 08.27.09								
Progetti ZNET4	Cartella di file	28/08/2014 13.13.54								
Progetti_ZNET4	Cartella di file	29/08/2014 16.04.31								
Progetti_ZNET4_2	Cartella di file	02/10/2014 08.24.04								
Progetti_ZNET4_TWS5	Cartella di file	05/11/2014 12.06.19								
\mu Seneca	Cartella di file	26/03/2014 10.09.45								
\mu SIMCom	Cartella di file	17/10/2014 08.32.33								
🍌 Standards	Cartella di file	21/03/2014 08.43.04								
🌛 Straton	Cartella di file	26/09/2014 13.32.03								
🍌 Tutorials	Cartella di file	22/04/2014 06.28.46								
J TWS3	Cartella di file	17/07/2014 14.20.45								
TWS5	Cartella di file	06/06/2014 07.37.59								
Video	Cartella di file	03/12/2013 19.31.43	sh							
Visual Studio 2008	Cartella di file	27/10/2014 14.57.02								
Uisual Studio 2010	Cartella di file	27/10/2014 14.33.32								
0 B di 93.891 B in 0 di 40					0 B di 4.747 B in 0 di 6					
🛛 🖉 F2 Rinomina 📝 F4 Modifica 📸 F5 Copia	🗳 F6 Sposta 💣 F7 Crea carte	lla 🗙 F8 Elimina 💣 F9	Proprietà	🚊 F10 Esci						
								۵	SFTP-3	0.00.37

The WinSCP program can be used both as an FTP or SFTP client to transfer files to/from the Device; 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.

8 StratON PLC

Z-TWS4/Z-PASS2-S/S6001-RTU StratON PLC provides the full support for IEC 61131-3 PLC Standard; an Integrated Development Environment (IDE) is available for Windows™ PCs.

The StratON IDE includes several tools such as: a fieldbus configuration tool, an analog signal editor and program editors compliant with the five languages of the IEC 61131-3 Standard: Sequential Function Chart (SFC), Function Block Diagram (FBD), Ladder Diagram (LD), Structured Text (ST), Instruction List (IL).

With StratON IDE, it's simple to write, download and debug IEC 61131-3 code.

8.1 Writing, downloading and running the first program

To let the PLC developer easily create StratON applications for Seneca CPUs, the following libraries are available:

- a Function Block (FB) and Functions library, which provides some frequently used functionalities, particularly related to communication and data transfer tasks, compiled in the CPU firmware; the direct use of these FBs and functions is targeted at skilled PLC developers (a detailed description of the FBs and Functions is given in chapter 17);
- a "Profiles" library, which provides access to the CPU I/Os by means of "profiled" variables; this is needed for S6001-RTU and Z-PASS2-S-IO CPUs;
- a "User Defined Function Block" (UDFB) library, in ST language, which simplifies the use of the above FBs, providing a simpler and "higher level" access to their functionalities.

Furthermore, two project templates are available for Z-PASS2-S and S6001-RTU CPUs, respectively.

An installer program, called *"Seneca StratON Package setup"*, is available which automatically installs the above Seneca libraries and templates. The installer can also be used to install the StratON IDE and Z-NET4 <u>SW</u> (see chapter 18).

The installer is available at the following link:

http://www.seneca.it/products/seneca-straton-package

If, for some reasons, the installer can't be run, the above libraries and templates can be installed manually as described in the following sub-paragraph.

8.1.1 Seneca libraries and templates installation

The following steps are needed to integrate the Seneca libraries and templates in the StratON IDE.

First, we must add the Seneca FB Library (file *SenecaStratonLibrary.XL5*) to the IDE, using the "Library Manager" tool:

S Library Manager - User		- 🗆 🗙
<u>F</u> ile <u>T</u> ools <u>W</u> izard <u>H</u> elp		
Function and FBs 1/Os Profiles AS-i Types		
		<u>N</u> ew
		<u>R</u> ename
Parameters Description		<u>D</u> elete
	^	<u>S</u> tore
		Reset <u>C</u> hanges
	~	
< 3		

Select the "File / Open Library" option and enter the "Seneca" name to create the new Seneca library.

Open Libra	ary 🗙
Seneca	OK
ProfDP PRP QBF Registers Registers (typed) Selectors Seneca Standard Strings TCP-IP Text buffers Timers UDP User	∧ Cancel
Select a library in the list or enter name for creating a new library.	a

Then, import the Library (menu "Tools / Import"):



S Library Manager - Seneca	_	
File Tools Wizard Help		
Function and FBs I/Os Profiles AS-i Types		
AIN_CFG (* Configure Analog Inputs (Z-MINIRTU, Z-TWS11) *)		New
CNT_SET (* Set counter (Z-MINIRTU, Z-TWS11) *)		Panama
CREATE_DIR(Create a directory (2-MINIR IU, 2-TWSTI))		nename
DATETIME GET (Get umen date fine (Z-MINIFIO, Z-190511))		Delete
DATETIME SET (* Set current date/time (Z-MINIRTU, Z-TWS11)*)		
DIN_DOUT_CFG (* Configure Digital Inputs/Outputs (Z-MINIRTU, Z-TWS11) *)		
FM_WRITE_NCRLF (* Write a string to a file without adding CR/LF *)		
ETP_GET (* File download by means of FTP protocol (Z-TWS4, Z-PASS2-S, Z-MINIRTU, Z-TWS11, S6001-RTU) *)		
ETERPUT ("Hie upload by means of FIP protocol (2-1WS4, 2-PASS2-S, 2-MINIRTU, 2-1WS11, S6001-RTU)")		
BIT I SNY_CHO (Computer Firsterver (2-min(in (0, 2-min(in (2, 2-min(in(in(in(in(in(in(in(in(in(in(in(in(i		
GET ALARMS (* Retrieve alams with the specified status from the DB, *)		
GET_MIN_SINCE2K (* Get the number of minutes since year 2000 *)		
GET_SMS (* Get a received SMS (Z-TWS4, Z-PASS2-S, Z-MINIRTU, S6001-RTU) *)		
HTTP_POST (* Send an HTTP POST request (Z-MINIRTU, Z-TWS11) *)		
IP_CFG (* Configure IP parameters (2-MINIRTU, 2-TWS11) *)		
BIT-CFC_FEAD (head current in contriguiration (2-WININE) 0, 2-1WS11) (2-2WS11) (2-2WS12) (2-2WS		
a LINUX SHELL (* Execute a command in a linux shell (2-TWS4, 2-PAS2-2, S6001-RTU) *)		
MODEM_CTRL (* Execute a generic AT command (Z-TWS4, Z-PASS2-S, S6001-RTU) *)		
BMODEM_ONOFF (* Power on/off the Modem (Z-MINIRTU) *)		
MODEM_RESET (* Execute a modem reset (Z-TWS4, Z-PASS2-S, Z-MINIRTU) *)		
NIP_CFG (Configure NIP (2-MINIRIU, 2-IWS11) 7) THE OF CFG (Configure NIP (2-MINIRIU, 2-IWS11) 7) THE OF CFG (Configure NIP (2-MINIRIU, 2-IWS11) 7)		
PLAY WAVE (* Events en audio PCM file (2-MININET (), 2-1WSTI))		
PPP CONNECT (* PPP connection setup/release (Z-TWS4, Z-PASS2-S, Z-MINIRTU, S6001-RTU) *)		
PPP_STATUS (* PPP connection status (Z-TWS4, Z-PASS2-S, Z-MINIRTU, Z-TWS11, S6001-RTU) *)		
PUT_ALARM (* Store an alarm into the DB. *)		
RESET (* Reset the device (Z-MINIRTU, Z-TWSTI) *)		
B SEND_MAIL (`Send an email (∠-1WS4, ∠-PASS2-S, 2-MINIRTU, ∠-1WS1, S5001-RTU)') SEND SMS (*Send an SMS (*TWS4, Z-PASS2-S, 2-MINIRTU, 2-1WS1, S5001-RTU)')		
a SET ALARMS STAT ("Set the status of the sneether alarms in the DB *)		
TIME_SYNC (* Time synchronization by means of NTP protocol (Z-TWS4, Z-PASS2-S, Z-MINIRTU, Z-TWS11, S6001-RTU) *)		
TOT_SET (* Set totalizer value (Z-MINIRTU, Z-TWS11) *)		
TXBAPPENDFILE (* Append a Text Bufferto a file *)		
WEBSRV_CFG (* Configure the web server (Z-MINIRTU, Z-TWS11) *)		
WEBSRV_CHG_READ ("Get the web server configuration (2-MINIRTU, 2-TWSTT)")	*	
Parameters Description		
	\sim	Store
		Reset Changes
		00000
	\vee	
< >>		
T		

Save the library (menu "File / Save Library").

The procedure to add the "Profiles library" to the IDE is identical to the one just explained; the only difference is that the *SenecaStratonProfiles.XL5* file shall be selected (instead of the *SenecaStratonLibrary.XL5* file).

Now that the "low-level" FBs are available, we have to install the UDFB library.

The UDFB library is provided as a zip file, containing the following folders:

- TWS_MISC
- ZPASS2_Template
- S6001_Template

The *TWS_MISC* folder shall be copied into the following directory: *C:\Users\Public\Documents\Copalp\STRATON\LIBS*

🔐 l ⊋ 🚻 🗢 l		LIBS			×
File Home Condividi Visu	alizza				^ 🕐
Copia Incolla Copia Incolla Appunti	Sposta Copia in v in v Crganizza	Nuova elemento • Nuova cartella	Proprieta Apri • Modifica Cronologia	Seleziona tutto Deseleziona tutto Inverti selezione Seleziona	
A T A Martine Public	lica N Documenti nubblici N Cona		M C. Cerc	a in LIRS	0
 Work TWS Questo PC Desktop Download TWS Questo PC Desktop Documenti Download Immagini Musica Video 	slica > Documenti pubblici > Copa	Ilp → STRATON_3 → LIBS Ultima modifica 19/09/2014 12.14 19/09/2014 12.14 19/09/2014 12.14 25/11/2015 09.11	V Cerc Tipo Cartella di file Cartella di file Cartella di file Cartella di file	a in LIBS Dimensione	Q
 Disco rimovibile (J:) Archivio_Tecnico (\\WIN-KTTN7I Rete 					
4 elementi					

The *ZPASS2_Template* and *S6001_Template* folders shall be copied into the following directory: *C:\Users\Public\Documents\Copalp\STRATON\Template*



8.1.2 Creating a project for Seneca CPUs

Run the StratON IDE and create a new project based on a template, as in the following figure:
ß	Project wizard	×
Roject From template XML Import Library Automation script		
		8-8- 8-8- 8-8-
Creates a new projec	t using a template	~ ~
New project		
Destination folder :	C:\Users\Spagiari\Desktop\TWS4\StratonExamples V	
Name:	zpass2s	
Comment:	First project for Z-PASS2-S CPU	
	Next Cancel Help	P

Select the "ZPASS2_Template" (or "S6001_Template") in the template list.

Template:	ZPASS2_Template			~
		Previous	Next	Help

Now, as you can see in the following figure, in the *Main* program a *ZMODEM_MNG* UDFB instance is already available, which lets you easily control the Z-PASS2-S/S6001-RTU modem.

5	STRATON - zpass2s	- 0 ×
File Edit View Insert Project Tools W	/indow Help	
2 🖬 🕑 🖪 🗼 🖻 X 🥆 ち	- ^ ^ 語 調 品 物 9 4 6 6 7 6 7 6 7 7 7 7 7 7 7 7 7 7 7 7 7	
Workspace	Main	E KX
🗄 🖓 zpass2s		A Type Dim. Attrib. Syb. Init value
Exception programs	Template utilizzo biocoo gestione modem	E 🗋 Main
iii 🛄 Programs	0	Inst_ZMODEM_MNG ZMODEM
		MDM_MNG_ON_OFF BOOL
Watch (for debugging)	Inst ZNODEM MNG	MDM_MNG_PPP_ON BOOL
Soft Scope	ZMODEM_MNG	MDM_MNG_BUSY BOOL
	MDM_MN0_ON_OFF PWR_ON PWR_OK MDM_MN0_PWR_OK	MDM_MNG_PPP_OK BOOL
Binding Configuration	MDM_MNG_PPP_ON	MDM_MNG_PWR_OK BOOL
	DISCHLAR UNKS ANY BUSY MUGNING SON	MDM_MNG_ERR BOOL
Valiables	10885' PASSWORD RESULT MOM MNG RESULT	MDM_MNG_KESOLI INI
Type:	SIGLEV MOM_MNO_SIGLEV	MUM_MING_SIGLEV INI
	->> REG MDM_MNG_REG	MDW_MMG_REG BOOL
	CPID MDM_MM3_OPID	MON_MING_OF D STRING(15)
	JL By MUM_SINS_P	tet BOOI
		Global variables
		C 3
	0	Variables / Proorties /
		🗉 🦢 (A)
		🗉 🛄 (Used)
	32	🗉 🚞 (Project)
		🗉 🛄 Advanced
	24	E Arthmetic
	Jer.	E Anays
	54	As-methace
		Contraction of Contra
		Clock
		Comparisons
		conversions
		😑 🧫 Counters
		😑 🖼 🖿 DNP3
		Transfer UM
	Duile .	DECKS SOVIET DECKS SOVIET
	- Constant	^
	All Ball Consultances Destroy Destroy Destroyers Destroyers Destroyers	
Pearty	ST ones class lenses investes cassics preserves classics where the second secon	
roomy		Grade 192.100.70.1011302 🖉 0,0 200 X 10 0,0 100% 👰

Set the correct target IP address (for example 192.168.85.106); normally, the port shall be set to 502:

	Project settings		×
C:\Users\Sp	Communication Settings	×	
General Runtime Compiler Debugging Advanced (All)	T5 Runtime ✓ 192.168.85.106:502 192.168.85.103:1100 192.168.85.103:502 192.168.85.105:502 192.168.85.105:502 192.168.85.106:502 192.168.85.106:502 192.168.85.106:502 192.168.85.83:502 192.168.90.101:502	OK Cancel Browse Help	:502
			Cancel

Then press the icon:

ß

to compile the project.

Download the code by pressing the icon:

الكر

The project file will be placed into the */disk* directory of the Device.

If the Straton project is not based on "ZPASS2_Template"/"S6001_Template", the Seneca UDFB library can still be used, as described in the following.

In the Straton IDE, go to the "Project Settings" window, shown below (menu "Project/Settings"):

	Project settings	×
C:\Users\Spagiari\Docun	nents\Progetti_ZNET4_STEP3\s6001_default\s6001_defa	ult
General Runtime Compiler Debugging Advanced (All)	Name Image: Communication parameters Image: Code Generation Image: Code Generation	Value 192.168.85.104:502 2000 ms Release No Disabled V4 - 2016/01/22 12:32 Edit Edit
	Communication parameters for On Line connection to the Double click to edit	e runtime. OK Cancel

Click on "Libraries / Edit..."; the following window is shown:

Libraries	×
	Add Remove Close Help
Standard: FBD_WITH_ENENO INTCOUNTERS SAMA TWS_MISC	Add

Select the "TWS_MISC" library and click on "Add".

Libraries	×
C:\Users\Public\Documents\Copalp\STRATON_3\Libs\TWS_MISC	Add Remove Close Help
Standard: FBD_WITH_ENENO INTCOUNTERS SAMA	Add

Finally, click on "Close".

Now, the UDFB library is available in the project, as shown in the following figure:

S	STRATON - s6001_default								-	
File Edit View Insert Project Tools Win	dow Help									
6 🖬 🗃 🖓 🖓 k hi 🕅 X 🐄 🕞	이 ~ [部] 調査 % 중 집 특 % [양 달 관									
Workspace	main									12
💷 📴 s6001_default	5	^	Name	Type	Dim.	Attrib.	Syb.	Init value	User	Tag Di
Exception programs	2		📄 main (*main program*)						
			🗉 🚮 Global	variables						
Par pOnDivZero			Z_TARGET	STRING(10)				Z-PAS		U
🖬 pShutDown			Z_MUTEX	BOOL						L
st pStartup	e		Z_MUTEX_	BOOL						U
🔚 Graphic			Z_MODEM	BOOL						u
Programs	610		Z_MODEM	BOOL						U.
			Z_bPPPon	BOOL						u
- Recipe			Z_bPoiRiac	c BOOL						u
Signale			Z_bReqMO	BOOL						u
Soft Scope			Z_bReqMO	BOOL						L L
Spy			M0_AI_CUE	R1 INT						-4
Sting Lables			MU_AI_CUN	K2 INT			H			-4
Calification California			MU_AI_CUR	C3 INT						-4
Piedous Contiguiations			NO_ALCOP	(4 INI			H			-1
Dinang Coniguration			MO_AO_UC				H			-4
IN LOP			MO AO EL	DVTE			H			
Sa Skihal definer			M0_AU ELE	BYTE			H			
Variables			WIND POLICIC	DTTL		_	-			-*
- S Tunes										,
,,=			E E Registers	(typed)						
			E Selectors							
			E Seneca							
			Standard							
			Stangs							
			🗉 🛄 Turke							
			Timera	15						
			Obj							
			Discrete Contraction Contra	c.						
			38 7FTP	GET						
			36 ZETP	PUT						
			36 ZIP I	IPDATE						
			36 ZMAI	SEND						
			36 ZM00	DEM DIAG						
			35 ZM00	DEM MNG						
			36 ZM00	DEM_PPP						
			35 ZSMS	GET						
		~	S ZSMS	SEND						
	C 100 C 1		() Blooks St	vist Define El	IUM /					
	() Drivers main									
	Build									
	(1) Build Cross references Runtime Cali stack Breakpoints Diptal sampling trace Promot HMI							_	_	
Ready	Offline 192	. 168.85	. 104:502	/ 0,-540	517	x 18 0,0		100%	44	

If the Straton project has been built using the Seneca Z-NET4 SW (see chapter 18), the *TWS_MISC* is already included, so the above procedure is not needed.

In particular, when using S6001-RTU CPU, Z-NET4 SW provides a simple way to create the base Straton project; in fact, all the variables corresponding to the CPU I/Os will be inserted in the project, as shown in the following figure.

T	Name	Value	Туре	Dim.	Attrib.	Syb.	Init value	User	Tag	Descript
	M0_AI_CUR1	5	INT							_ZNE 🔨
	M0_AI_CUR2	8	INT							_ZNE
	M0_AI_CUR3	2	INT							_ZNE
	M0_AI_CUR4	14	INT							_ZNE
	M0_AO_CUR	0	INT							_ZNE
	M0_AO_VOLT	0	INT							ZNE
	M0_AO_ELEC_SENS	0	BYTE							ZNE
	M0_AI_ELEC_LEVEL	0	BYTE							ZNE
	M0_ADC_ERROR_STATUS	0	INT							_ZNE
	M0_ADC_CRC_ERR_CNT	0	UINT							_ZNE
	M0_DI_01	FALSE	BOOL							_ZNE
	M0_DI_02	FALSE	BOOL							_ZNE
	M0_DI_03	FALSE	BOOL							_ZNE
	M0_DI_04	FALSE	BOOL							_ZNE
	M0_DI_05	FALSE	BOOL							_ZNE
	M0_DI_06	FALSE	BOOL							_ZNE
	M0_DI_07	FALSE	BOOL							_ZNE
	M0_DI_08	FALSE	BOOL							_ZNE
	M0_DI_09	FALSE	BOOL							_ZNE
	M0 DI 10	FALSE	ROOI							7NF Y
	<									>

For more information about Straton IDE and related tools, please refer to StratON tutorials and on-line help.

8.1.3 Z-PASS2-S-IO profiles

Two Straton I/O profiles are available for Z-PASS2-S-IO CPU.

The first profile, named "ZPASS_DIO", provides variables corresponding to the available Digital I/Os, as shown in the following figure.

🝸 Name	🛆 Туре	Dim. Attrib.	Syb. Init valu	e User Tag
🖽 📄 Main				
🗉 🚮 Global v	/ariables			
DI1	BOOL			
DI2	BOOL			
DI3	BOOL			
DI4	BOOL			
DO1	BOOL			
DO2	BOOL			
DO3	BOOL			
DO4	BOOL			
🚽 RETAIN	variables			

It should be noted that four "DIx" variables and four "DOx" variables are declared, corresponding to the maximum number of inputs and outputs possibly available; the Digital I/O configuration (see paragraph

16.1.10) determines which of these variables are actually handled by the PLC; for example, if DIDO1 is set as an input and DIDO2 as an output, DI3 and DO4 will be handled while DI4 and DO3 will not be used.

Moreover, while the variables corresponding to the inputs are updated by the PLC regardless of their function modes, only the variables corresponding to the outputs set as "General Output" will actually affect the digital outputs.

The second profile, named "ZPASS_GPS", provides variables corresponding to the information given by the GPS module, as shown in the following figure.

🝸 Name	Туре	Dim.	Attrib.	Syb.	Init value	User	Tag
🗆 🗋 Main							
GPS_LAT	LREAL						
GPS_LONG	LREAL						
GPS_HDOP	LREAL						
GPS_ALT	LREAL						
GPS_FIX	BYTE						
GPS_COG	LREAL						
GPS_SPKM	LREAL						
GPS_SPKN	LREAL						
GPS_DATE	STRING(6)						
GPS_NSAT	BYTE						
GPS_ERROR	INT						
GPS_UTC	STRING(10)						
🗄 🚮 Global variables							
RETAIN variables							

In particular, the *GPS_ERROR* variable tells if the other variables contain valid and updated values or not, in the following way:

- GPS_ERROR = 0	GPS fixed; variables contain updated values
- GPS_ERROR = -1	GPS not fixed; variables contain not updated, possibly invalid, values

- GPS ERROR = -2 some error has occurred; variables contain invalid values

8.2 Energy Management Protocols

The StratON soft-PLC installed on Z-TWS4/Z-PASS2-S/S6001-RTU supports the following "Energy Management" protocols:

- IEC 60870-5-101 (Master/Slave)
- IEC 60870-5-104 (Master/Slave)
- IEC 61850 (Master/Slave)

The activation of these protocols is license-based.

Please contact Seneca to get more information about getting the license for Energy Management protocols.

8.3 StratON Redundancy

WARNING!

At the date of this manual, the "StratON Redundancy" functionality is still in a "Beta version"; this means that the proper operation of this functionality is not guaranteed for every kind of application; please contact Seneca for further information.

The StratON PLC provides a "Redundancy" functionality:

when this feature is enabled, two CPUs (Z-TWS4 or Z-PASS2-S or S6001-RTU) run the same StratON application; the two CPUs connect each other via the Ethernet, in order to keep variables, state-machines etc. synchronized between them; in each moment, only one of the two CPUs actually runs the application and drives the fieldbus; if, for any reason, that CPU stops running, the application execution is handed over to the second CPU.

When the redundancy is used, some care must be taken when connecting the devices, in order to avoid Ethernet loops; the Ethernet connections shall be set up as shown in the following figures.





Please see paragraph 16.1.2 for a description of the configuration parameters related to StratON Redundancy.

9 Ethernet Mode (Z-PASS2-S-R01/Z-PASS2-S-IO)

In Z-PASS2-S-R01/Z-PASS2-S-IO 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 16.1.2).

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 Device 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 Device be used as an Ethernet switch, as shown in the following figure.



10 VPN



Z-TWS4/Z-PASS2-S/S6001-RTU support 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 Device shall be installed in an already existing VPN. In this case, an OpenVPN server shall be available and the certificate and key files for the Device client shall be provided by the VPN administrator; the files can be uploaded to the Device using the "VPN configuration" page of Device 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 and to other machines which lie in the Device 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 subnets.

In the "Point-to-Point" VPN, a client PC, in a given moment, can perform a single connection, on demand, to only one Device (and to machines which lie in the Device LAN) at time. Furthermore, devices can't communicate each other. 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".

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
- > lower 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 VPN⁴ mode on the VPN Box and manage the devices⁵
- 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-TWS4/Z-PASS2-S/S6001-RTU VPN configuration parameters is given in 16.1.4 paragraph.

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



10.1 "Single LAN" VPN

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-S by using its 192.168.10.154 IP address and to the PLC in the Z-PASS2-S 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.

⁴ Only one of the two kinds of VPN can be configured on a given VPN Box.

⁵ "VPN Box" functionality is available also on Seneca Z-PASS1 and Z-PASS2 products.

To let this scenario work correctly, an essential rule must always be followed: <u>the Device LANs and the PC</u> <u>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 16.1.5 paragraph).



10.2 "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 Device and its subnet, using local IP addresses. Since the client "sees" just one Z-TWS4/Z-PASS2-S/S6001-RTU (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.

11 Network Redundancy



"Network Redundancy" is a functionality than can be enabled on the Device when a 3G modem is available (true for Z-PASS2-S and S6001-RTU).

This functionality switches 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 16.1.2 "Network and Services".



12 Router

As already told before, "Router" functionality routes packets between the WAN (Mobile Network) interface and the LAN (Ethernet) interface and vice versa; so, this functionality especially makes sense when a 3G connection is active, which needs the availability of a 3G modem (true for Z-PASS2-S and S6001-RTU).

More specifically, an important feature of the Router is what is known as "IP forwarding"; this means that when the Device 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, the Device also performs what is known as "IP masquerading", meaning that the original source IP address is replaced with the IP address of the WAN (Mobile Network) 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 Device 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 on a TCP or UDP port to another Device 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 paragraph 16.1.5.

13 Remote Connection Disable

Z-PASS2-S-IO product provides 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.

14 Auto-APN

The Auto-APN feature lets the Device 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 16.1.8.1).

15 Upgrading the firmware by USB pen

The Device firmware can be upgraded by means of a USB pen; a pen drive formatted with FAT32 filesystem is needed.

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.

The procedure is the following:

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

http://www.seneca.it/products/z-tws4 http://www.seneca.it/products/z-pass2-s http://www.seneca.it/products/s6001-rtu

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

SW002940_xxx.bin

- 2) copy the file into the root of the USB pen
- 3) switch off the Device
- 4) insert the USB pen into the USB#1 port
- 5) switch on the Device; the upgrade procedure will take some minutes to be completed; during this time, the Device MUST NOT be switched off; during the procedure, the Device will be rebooted several times; also, during the procedure, several LEDS will blink simultaneously⁸
- 6) the upgrade procedure is ended when only the LED "RUN" is blinking⁹
- 7) remove the USB pen

16 Web Configuration Pages

NOTE: in this chapter, the web pages screen-shots are shown for only one of the products (Z-TWS4, Z-PASS2-S, Z-PASS2-S-R01, Z-PASS2-S-IO, S6001-RTU); the pages for the other products are identical, except for the product name shown in the top of the pages and for some details explained in the following paragraphs.

Furthermore, for S6001-RTU one more page ("I/O View") is available.

16.1 Administrator pages

The Device can be fully configured by means of a set of web configuration pages.

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

http://192.168.90.101:8080¹⁰

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

Username: admin Password: admin

⁸ 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.

⁹ Also SERV and VPN LEDs might blink, depending on the Device configuration and status.

¹⁰ The default 80 HTTP port has been left available for customer pages.

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

16.1.1 Main View

		🤃 Ciovanti	_			×
C Z-PASS2-S	×					
$\boldsymbol{\leftarrow}$ \rightarrow \mathbf{C} $(\mathbf{\hat{o}})$ 1	92.168.85.104:8080/index.php		Q	☆	J.,	:
SFNFCA°	Z-PASS2-S					-
General Configuration	Main View [user: admin] [logout]					- 1
Main View	Firmware Version: SW002940_332 [Modem: UC20GQBB03A14F1G]					- 1
Network and Services	MAC Address: C8E9811B0000 [IME]: 861075026500075] [IM9]: 222101600237800]					- 1
Real Time Clock Setup	Internet Access Mehilo					- 1
VPN Configuration						- 1
Houter Configuration	Energy Protocols: none					- 1
EW Upprade	PLC Status: running (app: s203)					- 1
Conf. Management	Router: running					- 1
Mobile Configuration						
Mobile Network	NETWORK					- 1
DDNS Configuration	Ethernet Mode LAN/WAN DHCP on WAN OFF					- 1
Digital I/O Configuration	LAN IP Address 192.168.90.101					- 1
Diagnostics	LAN Network Mask 255.255.25.0					- 1
FW Versions	WAN IF Address 192.106.03.104 WAN Network Mask 255.255.252.0					- 1
Ethernet Interfaces	Default Gateway 10.64.64.64					- 1
Data Logger (SD found)	DNS Mode Static DNS Server 83 224 65 143 83 224 65 134					- 1
Logs	IP Configuration from Discovery ON					- 1
	WEB SERVER					- 1
	Protocol HTTP/HTTPS					- 1
	HTTP Conf Port 8080					- 1
	HTTPS Port 443					- 1
	FILE TRANSFER					- 11
	Protocol FTP/SFTP					- 1
	FTP Port 21					- 1
	SETP Port 22					- 1
	FLU Shahar TOD Bard 500					
	Straton Redundancy Enable OFF					- 1
	Straton Redundancy IP Address 192.168.90.102					- 1
	License Key 1122334455667788					
	NTP					- 1
	Enable ON Primary Server nto1 inrim it					- 1
	Secondary Server ntp2.inrim.it					- 1
	Time Zone Central Europe (CET/CEST)					- 1
	VPN					- 1
	Mode VPN Box					- 1
	Server 192.168.90.1					- 1
	Password seneca					- 1
	Tag Name zpass2s					- 8
	MOBILE NETWORK					
	Enable ON APN Mode Manual					
	APN m2mbia.vodafone.it					
	Authentication Type None					
	Password pass					
	PIN 8342					
	Ping Connection Testing IP Address www.google.com					
	NETWORK REDUNDANCY					
	Enable OFF Ping Address 8 8 8 4					-

In this page, main Device configuration parameters are shown, with their current values.

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

- General Configuration
- Mobile Configuration (not available on Z-TWS4 and Z-TWS4-IO)
- Digital I/O (only on Z-PASS2-S-IO)
- Diagnostics
- Data Logger

In S6001-RTU, a "S6001-RTU" section is also present.

On top of the page, like in all the other pages, the following information are shown:

- the page name
- the FW version, along with the modem FW revision, for Z-PASS2-S/S6001-RTU; for S6001-RTU, the FW version of the I/O board is also shown
- the MAC address; the modem IMEI, for Z-PASS2-S/S6001-RTU; the SIM IMSI, for Z-PASS2-S/S6001-RTU, when a SIM is present
- the network interface used for Internet Access (i.e.: "Ethernet" or "Mobile")
- which energy protocols are enabled (on a license base)
- the Soft PLC status (i.e.: "running" or "stopped"); if the PLC application execution is stopped or no application is loaded on the Device, the status "app not running" is also shown; if the PLC application is running, the name of the application is also shown
- 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, the following buttons are available:

- "RESTART", to perform the Device reboot
- "FACTORY DEFAULT", to reset the Device to its factory state
- "CLEAN INTERNAL DATA LOGS", to delete internal data log files (this does not affect the data log files stored on the SD card, see paragraph 16.1.16)

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

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

16.1.2 Network and Services

The parameters shown in this page slightly change, depending on the HW version of the product (Z-TWS4/Z-PASS2-S or Z-PASS2-S-R01 or Z-PASS2-S-IO) and, for new HW versions, on the selected "Ethernet Mode"; this is shown in the following figures.

				(!) Ciovanni	_		×
Z-PASS2-S	×						
$\epsilon \rightarrow C \bigcirc 1$	92.168.85.104:8080/setup.php				Q	☆ 🗡	:
Seneral Configuration Main View Network and Services Real Time Clock Setup VPN Configuration	Z-PASS2-S Network and Services [user: admin] [logout] Firmware Version: SW002940_331 [Modem: UC20GQBR03A14E1G] MAC Address: C8F9811B0000 [IMEI: 861075026500975] [IMSI: 222101600237893]						Â
Router Configuration	Energy Protocols: none						- 1
Users Configuration	PLC Status: running (app: zpass2s_io)						- 1
Conf. Management	Router: disabled						- 1
Mobile Configuration		CURRENT	UPDATED				
Digital I/O	NETWORK						
Digital I/O Configuration	Ethernet Mode (*)	Switch	Switch V				
Diagnostics EW Versions	DHCP	OFF	OFF V				
Ethernet Interfaces	IP Address	192.168.95.104	192.168.95.104				
Modbus Modules	Network Mask	255.255.255.0	255.255.255.0				
Data Logger (SD missing)	IP Address 2 Enable	192 168 85 104	192 168 85 104				
	Network Mask 2	255.255.252.0	255.255.252.0				
	Default Gateway	192.168.85.1	192.168.85.1				
	DNS Mode	Static	Static V				
	DNS Server	192.168.84.113	192.168.84.113				
	IP Configuration from Discovery	ON	ON V				
	WEB SERVER						
	Protocol (*)	нттр	HTTP V				
	HTTP Conf Port (*)	8080	8080				
	HTTP User Port (*)	8082	8082				
	HTTPS Port (*)	8043	8043				
	FILE TRANSFER						
	Protocol	FTP/SFTP	FTP/SFTP V				
	FTP Port	21	21				
	SFTP Port	22	22				
	LOG FOLDER SHARING						
	Enable	ON	ON V				
	PLC						
	Straton TCP Port	502	502				
	Straton Redundancy Enable	OFF	0FF V				
	License Key	1122334455687788	1122334455667788				
	NETWORK REDUNDANCS	OFF	055 .				
	Ping Address	8.8.4.4	8.8.4.4				
	WATCHDOG						
	Enable (7)	ON	ON V				
	Timeout (8)	60	60				
	DEBUG LOGS						
	Enable	ON	ON V				
	COM						
	Mode	RS232	RS232 ¥				
	NOTE: changing fields marked with * will cause a						-

The previous figure shows the "Network and Services" page for a Z-PASS2-S-IO, when the "Ethernet Mode" parameter is set to "Switch".

				(!) Giovanni	_		×
Z-PASS2-S	× \						
	92.168.85.104:8080/setup.php				Q	☆ 🔼	:
SENECA® General Configuration Main View	Z-PA882-8 Network and Services [user: admin] [logout Firmware Version: SW002940_331 [Modem:	[] UC20GQBR03A1	I4E1G]				Î
Network and Services Real Time Clock Setup	MAC Address: C8F9811B0000 [IMEI: 86107	5026500975] [IM8	l: 222101600237893]				
VPN Configuration	Internet Access: Mobile						
Router Configuration Users Configuration	PI C Status: running (app: zpass2s io)						
FW Upgrade	Router: disabled						
Conf. Management							-1
Mobile Network		CURRENT	UPDATED				
Digital VO	NETWORK						
Diagnostics	DHCP on WAN	OFF	OFF V				- 1
FW Versions	LAN IP Address	192.168.95.104	192.168.95.104				- 1
Ethernet Interfaces	LAN Network Mask	255.255.255.0	255.255.255.0				- 1
Modbus Modules Data Logger (SD missing)	WAN IP Address	192.168.85.104	192.168.85.104				- 1
	WAN Network Mask	255.255.252.0	255.255.252.0				- 1
	Default Gateway	192.168.85.1	192.168.85.1				
	DNS Mode	Static	Static V				- 1
	DNS Server	192.168.84.113	192.168.84.113				- 1
	IP Configuration from Discovery	ON	UN V				- 1
	WEB SERVER						- 1
	Protocol (*)	8080	8080				- 1
	HTTP User Port (*)	8082	8082				- 1
	HTTPS Port (*)	8043	8043				- 1
	FILE TRANSFER						
	Protocol	FTP/SFTP	FTP/SFTP V				- 1
	FTP Port	21	21				- 1
	SFTP Port	22	22				
	LOG FOLDER SHARING						- 1
	Enable	ON	ON V				
	PLC						
	Straton TCP Port	502	502				
	Straton Redundancy Enable	OFF	OFF V				
	Straton Redundancy IP Address	192.168.90.102	192.168.90.102				
	License Key	1122334455667788	1122334400007788				
	NETWORK REDUNDANCY						
	Enable Ding Address	0FF	0FF V				
	watch00		0.0.1.1				
	Enable (7)	ON	ON T				
	Timeout (8)	60	80				
	DEBUG LOGS						
	Enable	ON	ON V				
	COM						
	Mode	RS232	RS232 ¥				
	NOTE: changing fields marked with * will cause a						
	eyetem footait.						•

The previous figure shows the "Network and Services" page for a Z-PASS2-S-IO, when the "Ethernet Mode" parameter is set to "LAN/WAN".

	-			(!) Ciovanni	_		×
	*					•	
$\epsilon \rightarrow C$ (i) 19	2.168.85.106:8080/setup.php				Q	☆ 🗵	:
General Configuration Main View Network and Services	Z-PASS2-S Network and Services [user: admin] [logout] Firmware Version: SW002940_331 [Modem: 1	231B02SIM6360I	E]				-
Real Time Clock Setup	MAC Address: C8FA81160002 [IMEI: 8622640	20406716]					- 1
VPN Configuration	Internet Access: Ethernet						- 1
Houter Configuration	Energy Protocols: none						- 1
FW Upgrade	PLC Status: running (app: zpass2s_r01_8)						- 1
Conf. Management	Router: running						- 1
Mobile Configuration Mobile Network		CURRENT	UPDATED				- 1
Diagnostics	NETWORK						- 1
FW Versions	Ethernet Mode (*)	Switch	Switch V				- 1
Ethernet Interfaces	DHCP	OFF	OFF V				- 1
Data Logger (SD missing)	IP Address	192.168.95.106	192.168.95.106				- 1
	Network Mask	255.255.255.0	255.255.255.0				
	IP Address 2 Enable	ON	ON V				
	IP Address 2	192.108.85.100	192.168.85.106				
	Default Gateway	102 189 25 1	200.200.202.0				
	DNS Mode	Static	Static T				
	DNS Server	192.168.84.113	192.168.84.113				
	IP Configuration from Discovery	ON	ON V				
	WEB SERVER						- 1
	Protocol (*)	нттр	HTTP V				- 1
	HTTP Conf Port (*)	8080	8080				- 1
	HTTP User Port (*)	80	80				- 1
	HTTPS Port (*)	443	443				- 1
	FILE TRANSFER						- 1
	Protocol	FTP/SFTP	FTP/SFTP V				- 1
	FTP Port	21	21				
	SFTP Port	22	22				- 1
	LOG FOLDER SHARING						- 1
	Enable	ON	ON V				- 1
	PLC						
	Straton TCP Port	502	502				
	Straton Redundancy Enable	OFF	OFF V				
	Straton Redundancy IP Address	192.168.90.102	192.168.90.102				
	License Key	1122334455667788	1122334455667788				
	NETWORK REDUNDANCY						
	Enable	OFF					
	Ping Address	0.0.4.4	0.0.4.4				
	WATCHDOG	01					
	Enable (*)	0N 80					
	Timeout (8)	00	00				
	DEBUG LOGS	01	01				
	Enable NOTE: changing fields marked with * will cause a	ON					-
	Ping Address WATCHDOG Enable (*) Timeout (s) DEBUG LOGS Enable NOTE: changing fields marked with * will cause a	8.8.4.4 ON 60 ON	8.8.4.4 ON ▼ 60 ON ▼				·

The previous figure shows the "Network and Services" page for a Z-PASS2-S-R01, when the "Ethernet Mode" parameter is set to "Switch".

P 7-PASS2-S	×			(!) Ciovanni	-		×
$\epsilon \rightarrow C$ (1) 19	2.168.85.106:8080/setup.php				Q	☆ J.	:
	-				-		-
🥥 JEINEPA	Z-PA552-5						
General Configuration	Network and Services [user: admin] [logout]						
Main View	Firmware Version: SW002940_331 [Modem: 1	231B02SIM5350	E]				
Real Time Clock Satur	MAC Address: C8FA81160002 [IMEI: 8622640	20406715]					
VPN Configuration	Internet Access: Ethernet						
Router Configuration	Energy Protocols: none						
Users Configuration	PLC Status: running (app: zpass2s_r01_8)						
FW Upgrade	Pouton supplies						
Conf. Management	Router: running						
Mobile Configuration		CURRENT	UPDATED				
Diagnostics	NETWORK						
FW Versions	Ethernet Mode (7)						
Ethernet Interfaces	DHCP on WAN	OFF	OFF V				
Modbus Modules	LAN IP Address	192.168.95.106	192,168,95,106				
Data Logger (SD missing)	I AN Network Meak	255 255 255 0	255 255 255 0				
	WAN IP Address	102 168 85 108	102 168 85 106				
	WAN Network Maak	255 255 252 0	192.100.05.100				
	WAN NEWORK MEEK	200.200.202.0	200.200.202.0				
	Default Gateway	192.108.85.1	192.168.85.1				
	DNS MODE	100 180 04 110	Static *				
	IP Configuration from Discovery	ON	192.100.04.113				
	in conliguration non biacovery		ON T				
	WEB SERVEN						
	Protocol (*)	HIIP	HIIP V				
	HTTP Conf Port (*)	8080	8080				
	HTTP User Port (*)	80	80				
	HTTPS Port (*)	443	443				
	FILE TRANSFER						
	Protocol	FTP/SFTP	FTP/SFTP V				
	FTP Port	21	21				
	SFTP Port	22	22				
	LOG FOLDER SHARING						
	Enable	ON	ON V				
	PLC						
	Straton TOP Part	502	502				
	Straton Bedundency Enable	OFF	OFF V				
	Straton Redundancy IP Address	192 168 90 102	192 168 90 102				
		1122234455887788	1122334455667788				
		1122337133007700	1122334433007700				
	NETWORK REDUNDANCY						
	Enable	OFF	OFF V				
	Ping Address	8.8.4.4	8.8.4.4				
	WATCHDOG						
	Enable (*)	ON	ON V				
	Timeout (a)	60	60				
	DEBUG LOGS						
	Enable	ON	ON V				
	NOTE: changing fields marked with * will cause a						
	system restart.						•

The previous figure shows the "Network and Services" page for a Z-PASS2-S-R01, when the "Ethernet Mode" parameter is set to "LAN/WAN".

[] S6001-RTU	×			(!) Ciovanni	-			×
← → C () 19	2.168.85.106:8080/setup.php				Q	☆	<i>J.</i> ,	0 0 0
Seneral Configuration Main View Network and Services Real Time Clock Setup VPN Configuration Router Configuration Users Configuration FW Upgrade Configuration	S6001-RTU Network and Services [user: admin] [logout] Firmware Version: SW002940_331 [I/O: SW00 MAC Address: C8F981000198 [IMEI: 8622640 Internet Access: Ethernet Energy Protocols: none PLC Status: running (app: znet_s6001_2) Router: running	11981] [Modem: 1 20332283]	231B02\$IM5360E]					
Mobile Configuration		OUDDENT	UDDATED					
Mobile Network		CURRENT	UPDATED					
S6001-RTU	NETWORK							
Diagnostics	DHCP	OFF	OFF V					
FW Versions	IP Address	192.168.85.106	192.168.85.106					
Ethernet Interfaces	Network Mask	255.255.255.0	255.255.255.0					
Modbus Modules	IP Address 2 Enable	OFF	OFF V					- 11
Data Logger (SD missing)	IP Address 2	192.168.100.101	192.168.100.101					
	Network Mask 2	255.255.255.0	255.255.255.0					
	Default Gateway	192.168.85.1	192.168.85.1					
	DNS Mode	Static	Static V					
	DNS Server	192.168.84.113	192.168.84.113					
	IP Configuration from Discovery	ON	ON V					
	WEB SERVER							
	Protocol (*)	HTTP/HTTPS	HTTP/HTTPS V					
	HTTP Conf Port (*)	8080	8080					- 11
	HTTP Liser Port (*)	80	80					- 1
		442	442					- 11
	HITSPOR()	443	443					- 1
	FILE TRANSFER							- 1
	Protocol	FTP/SFTP	FTP/SFTP V					- 1
	FTP Port	21	21					- 11
	SFTP Port	22	22					- 1
	LOG FOLDER SHARING							- 1
	Enable	ON	ON V					- 1
	PLC							- 11
	Chroton TOP Port	500	502					- 11
	Straton Bedundancy Enable	OFF	OFF V					- 11
	Straton Redundancy IP Address	102 168 00 102	192 168 90 102					- 1
		1100004455887700	192.100.90.102					- 1
	License Key	1122334403007700	1122334455007700					- 11
	NETWORK REDUNDANCY							- 11
	Enable	OFF	OFF V					- 11
	Ping Address	8.8.4.4	8.8.4.4					
	WATCHDOG							
	Enable (*)	ON	ON V					
	Timeout (8)	60	60					
	DEBUG LOGS							
	Enable	ON	ON V					
	NOTE: changing fields marked with * will cause a system restart.							-

The previous figure shows the "Network and Services" page for a S6001-RTU; it also applies to a Z-TWS4 and Z-PASS2-S (old version).

There is an important difference between the parameter values shown in this page and those shown in the "Main View" 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 "Main View" page shows the actual IP Address, assigned by the DHCP server.

In the following table, all configuration parameters available in the 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	LAN/WAN
	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.	
	This parameter is available only for	
	Z-PASS2-S-R01 and Z-PASS2-S-IO	
	products. For all other products,	
	only "Switch" mode is available,	
	hence the parameter is not shown.	
Ethernet Mode = "Switch"		
NETWORK/DHCP	Flag to enable/disable the DHCP	OFF
	functionality on the Ethernet	
	interface.	
NETWORK/IP Address	IP address of the Ethernet interface	192.168.90.101
	(disabled when "DHCP" is set to	
	"ON")	
NETWORK/Network Mask	Network mask of the Ethernet	255.255.255.0
	interface (disabled when "DHCP" is	
	set to "ON")	
NETWORK/IP Address 2 Enable	Flag to enable/disable the second	OFF
	IP address on the Ethernet	
	interface.	
	Note that the second IP address	
	can be enabled also when the	
	DHCP functionality is active.	
NETWORK/IP Address 2	Second IP address of the Ethernet	192.168.100.101
	interface	
NETWORK/Network Mask 2	Second network mask of the	255.255.255.0
	Ethernet interface	
Ethernet Mode = "LAN/WAN"		
NETWORK/DHCP on WAN	Flag to enable/disable the DHCP	ON
	functionality on the WAN Ethernet	

	interface	
NETWORK/LAN IP Address	IP address of the LAN Ethernet	192.168.90.101
	interface	
NETWORK/LAN Network Mask	Network mask of the LAN Ethernet	255.255.255.0
	interface	
NETWORK/WAN IP Address	IP address of the WAN Ethernet	192.168.100.101
	interface (disabled when "DHCP on	
	WAN" is set to "ON")	
NETWORK/WAN Network Mask	Network mask of the WAN	255.255.255.0
	Ethernet interface (disabled when	
	"DHCP on WAN" is set to "ON")	
NETWORK/Default Gateway	Default Gateway IP address	192.168.100.1 , for Z-TWS4-R0x
	(disabled when DHCP functionality	and Z-PASS2-S-R0x (x=1,2)
	is enabled on any interface).	192.168.90.1, for all other
	When "Ethernet Mode" is set to	products
	"LAN/WAN", the Default Gateway	
	shall be in the WAN subnet.	
NETWORK/DNS Mode	Tells if the DNS Server shall be set	DHCP, for Z-TWS4-R0x and Z-
	statically (value: "Static") or	PASS2-S-R0x (x=1,2)
	dinamically assigned by the DHCP	Static, for all other products
	Server (value: "DHCP")	
NETWORK/DNS Server	DNS server IP address (disabled	192.168.100.1 , for Z-TWS4-R0x
	when DHCP functionality is enabled	and Z-PASS2-S-R0x (x=1,2)
	on any interface and DNS Mode =	192.168.90.1, for all other
	DHCP)	products
NETWORK/IP Configuration from	Flag to enable/disable the	ON
Discovery	possibility of changing some of the	
	network configuration parameters	
	by means of the SDD application	
	(see chapter 6)	
WEB SERVER/Protocol	Protocol used to access the web	HTTP/HTTPS
	pages:	
	HTTP/HTTPS, HTTPS, HTTP	
WEB SERVER/HTTP Conf Port	TCP port to access the	8080
	configuration pages, using HTTP	Default URL for conf pages:
	protocol.	http:// <ip address="">:8080</ip>
	Please note that if this parameter is	
	set to 80 (standard HTTP port), the	
	web user site won't be available	
	anymore.	
WEB SERVER/HTTP User Port	TCP port to access the user pages,	80
	using HTTP protocol.	Default URL for user pages:
		http:// <ip_address></ip_address>

WEB SERVER/HTTPS Port	TCP port to access the	443
	configuration and user pages, using	Default URL for conf pages:
	HTTPS protocol.	https:// <ip_address>/maintenance</ip_address>
		Default URL for user pages:
		https:// <ip address=""></ip>
FILE TRANSFER/Protocol	Protocol used for File Transfer:	FTP/SFTP
	FTP/SFTP, SFTP, FTP	
FTP Port	TCP Port for FTP protocol	21
SFTP Port	TCP Port for SFTP protocol	22
LOG FOLDER SHARING/Enable	Flag to enable/disable the sharing	ON
	of the "/log" directory (by means	
	of "Samba" service)	
PLC/Straton TCP Port	TCP port to connect to the Straton	502
	server	
PLC/Straton Redundancy Enable	Flag to enable/disable the Straton	OFF
	Redundancy functionality	
PLC/Straton Redundancy IP	IP address of the second Device	192.168.90.102
Address	used for Straton Redundancy	
PLC/License Key	Key to enable/disable Energy	1122334455667788 (dummy
	Protocol functionalities in Straton	value) ¹¹
	(see paragraph 8.1.3)	
NETWORK REDUNDANCY/Enable	Flag to enable/disable the	OFF
	"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	
NETWORK REDUNDANCY/Ping	IP Address used as ping destination	8.8.4.4
Address	to check if access to the Internet	
	through the primary interface	
	(Ethernet) is available	
	This address shall be different from	
	the one set for "DNS Server"	
	narameter etherwise an error is	
	shown	
WATCHDOC (Enchic	SHOWII.	
	riag to enable/disable the	
		<u> </u>
waichdog/limeout (s)	watchdog timeout, in seconds;	bU
	when watchdog is enabled, if it's	

¹¹ The correct License Key string is provided by Seneca.

	not refreshed for this amount of	
	seconds, the system will be	
	rebooted.	
	Possible values are in the range	
	[303600].	
DEBUG LOGS/Enable	Flag to enable/disable the debug	OFF
	logs	
COM1/Mode	Operating mode of the COM1 serial	RS485
	port; possible values: RS485, RS232	
	This parameter is available only for	
	Z-PASS2-S-IO product.	

Some notes 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 16.1.5);
- only the "DHCP on WAN" parameter can be set to "ON".

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 Device; these parameters are:

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

If the "LOG FOLDER SHARING/Enable" parameter is ON, on a Windows PC, you can directly access the "/log" directory, as shown in the following pictures (the sharing name is equal to the product name, without '-' character, that is "ZPASS2S", "ZTWS4" or "S6001RTU"):



🏨 l 🔂 🕼 🗢 l		log		- 🗆 🗙
File Home Condividi Visu	alizza			^ ()
Copia Incolla Copia Locolia Copia Incolla collegamento	Sposta Copia in * Ornanizza	Nuova Nuova Cartella	Proprietà	Seleziona tutto
		Nuovo		Scieziona
€ → T I Frete > Z-PAS	S2-S ▶ log ▶		V C Cerca in lo	م و
🔺 🔆 Preferiti	Nome	Ultima modifica	Тіро	Dimensione
Desktop	퉬 conf	26/10/2015 13.56	Cartella di file	
🐌 Download	퉬 disk	27/10/2015 09.22	Cartella di file	
💱 Dropbox	퉬 tmp	27/10/2015 07.40	Cartella di file	
🖳 Risorse recenti	🥂 .lmnt.log	27/10/2015 07.41	File LOG	5 KB
퉬 Work	.upgrade_firmware.log	27/10/2015 07.40	File LOG	2 KB
퉬 TWS	📇 at_exec.log	27/10/2015 08.32	File LOG	115 KB
	at_exec.log.1	26/10/2015 17.12	File 1	293 KB
4 🖳 Questo PC	at_exec.log.2	26/10/2015 16.45	File 2	1.731 KB
🖻 ॊ Desktop	at_exec.log.3	26/10/2015 16.30	File 3	1.690 KB
🖻 📗 Documenti	at_exec.log.4	26/10/2015 16.15	File 4	1.511 KB
Þ 🐌 Download	at_exec.log.5	26/10/2015 16.00	File 5	1.689 KB
Þ 崖 Immagini	🔄 cron.log	27/10/2015 09.48	File LOG	121 KB
Þ 🌗 Musica	🔠 fb_exec_handler.log	27/10/2015 09.21	File LOG	2 KB
D 🧾 Video	fb_exec_handler.log.1	27/10/2015 08.44	File 1	316 KB
Þ 🃥 OS (C:)	fb_exec_handler.log.2	26/10/2015 16.45	File 2	1.362 KB
🖻 👝 Disco rimovibile (J:)	fb_exec_handler.log.3	26/10/2015 16.30	File 3	1.158 KB
🖻 🚽 Archivio_Tecnico (\\WIN-KTTN7I	fb_exec_handler.log.4	26/10/2015 16.15	File 4	1.188 KB
	fb_exec_handler.log.5	26/10/2015 16.00	File 5	1.329 KB
🖻 🛀 Rete	📇 mb_conf_handler.log	27/10/2015 09.21	File LOG	60 KB
	messages	27/10/2015 09.48	File	5 KB
	messages.0	27/10/2015 09.45	File 0	1.025 KB
	messages.1	26/10/2015 13.22	File 1	1.025 KB
	messages.2	26/10/2015 09.52	File 2	1.025 KB
	messages.3	26/10/2015 08.32	File 3	1.025 KB
	messages.4	23/10/2015 14.19	File 4	1.025 KB
	messages.5	22/10/2015 16.36	File 5	1.025 KB
	messages.b	21/10/2015 17.00	File b	1.025 KB
	messages.7	20/10/2015 17.09	File /	1.025 KB
	openvpn-status.log	27/10/2015 09.47	File LOG	1 KB
	Estering 1	27/10/2015 09.47	File LOG	122 KB
	toenergy.log.1	20/10/2015 16:45	File 2	400 ND
	tSenergy.log.2	20/10/2015 10:30	File 2	255 KR
	tSenergy.log.4	20/10/2013 10.13	File J	205 KB
	t5energy.log.5	26/10/2015 15 /5	File 5	394 KB
		20/10/2013 13:43	THE 5	33 4 ND
35 elementi				III 🖬

Depending on the LAN configuration, a login may be needed to access the shared folder; if so, use the credentials shown in the following figure (username: "\guest", password: "" [empty]).

Sicurezza di Windows
Password di rete Immettere la password per la connessione a: ZTWS4
\guest Password Dominio: Memorizza credenziali
Il sistema ha rilevato un possibile tentativo di compromissione della sicurezza. Accertarsi di poter contattare il server di autenticazione.
OK Annulla

16.1.3 Real Time Clock Setup

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

P1 Z-PASS2-S	×		(!) Ciovana	đ —		×
← → C (1) 192.168.85	5.106:8080/rtc.php			Đ, T	<u>لا</u>	:
SENELA	Z-PASS2-S					
General Configuration	Real Time Clock Setup [user: admin] [logout]					
Main View	Firmware Version: SW002940_331	[Modem: 1231B	02SIM5350E]			
Network and Services	MAC Address: C8FA81160002 [IME	I: 86226402040	6715]			
Real Time Clock Setup	Internet Access: Ethernet		-			
VPN Configuration						
Router Configuration	Energy Protocols: none					
Users Configuration	PLC Status: running (app: zpass2s	_r01_bis)				
FW Upgrade	Router: running					
Mobile Configuration						
Mobile Network		CURRENT	UP	DATED		
Diagnostics	NTP					
FW Versions	Enable	ON	ON 🔻			
Ethernet Interfaces	Primary Server	ntp1.inrim.it	ntp1.inrim.it			
Modbus Modules	Secondary Server	ntp2.inrim.it	ntp2.inrim.it			_
Data Logger (SD missing)		Central Europe	Control Europo		T) -	
	Time Zone	(CET/CEST)	Central Europe		1) •	
			A	PPLY		
		RTC				
		YEAR 2017	20)17		
		MONTH Octo	ber	ctober	٣	
		DAY 05	05	5		
		HOUR 08	08	3		
		MINUTE 59	59)		
		SECOND 05	05	5		
				SET CL	OCK	
•						•

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
--	-------	---------	---------------

NTP/Enable	Flag to enable/disable time	ON
	synchronization by means of NTP	
	protocol	
NTP/Primary Server	IP address or FQDN ¹² of the Primary	ntp1.inrim.it
	NTP 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:

¹² FQDN: Fully Qualified Domain Name, e.g.: "pool.ntp.org".

			(!) Ciovanni -	- 🗆 X	<	
J C Z-PASS2-S	×					
← → C ① 192.168.8	5.106:8080/rtc.php			⊕ ☆ 🗵	:	
SENECA®	Z-PASS2-S					
General Configuration	Real Time Clock Setup [user: admin] [logout]					
Main View	Firmware Version: SW002940_331	[Modem: 1231B	02SIM5350E]			
Network and Services	MAC Address: C8EA81160002 [IME	- 1- 862264020404	3715]			
Real Time Clock Setup						
VPN Configuration	Internet Access: Ethernet					
Router Configuration	Energy Protocols: none					
Users Configuration	PLC Status: running (app: zpass2s	_r01_bis)				
FW Upgrade	Router: running					
Conf. Management						
Mobile Configuration		CURRENT	UPDATE	D		
Mobile Network	NTP					
FW Versions						
Ethernet Interfaces	Enable	ON	ON V		_	
Modbus Modules	Primary Server	ntp1.inrim.it	ntp1.inrim.it			
Data Logger (SD missing)	Secondary Server	ntp2.inrim.it	ntp2.inrim.it			
	Time Zone	Central Europe	UTC-10:00 Huawai	•		
		RTCYEAR2017MONTHOctorDAY05HOUR08MINUTE55SECOND15	UTC-10:00 Huawai UTC-10:00 Aleutian UTC-09:30 Marquesa UTC-09:00 Alaska UTC-08:00 Pacific Co UTC-07:00 Arizona UTC-07:00 Chihuahu UTC-06:00 Central Zo UTC-06:00 Mexico Ci UTC-05:00 Bogota UTC-05:00 Eastern Z UTC-05:00 Indiana UTC-05:00 Havana UTC-04:00 Asuncion	a one ity		
4			UTC-04:00 Caracas UTC-04:00 Cuiaba UTC-04:00 La Paz UTC-04:00 Atlantic C UTC-04:00 Santiago	oast T	Þ	

The "RTC" section of the page lets you manually change the Device 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.

16.1.4 VPN Configuration

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

The page has a different layout depending on the value of the "VPN Mode" parameter, which can be "OpenVPN" or "VPN Box" (for an explanation of these values, see chapter 10).

16.1.4.1 **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; these files are described in the following.

16.1.4.1.1 Configuration File

This file shall contain all the information needed to configure the Open VPN behaviour; the main configuration options are¹³:

• if the Device shall act as a client or a server (typically, it will be a client)

¹³ For more information about Open VPN configuration options, please refer to the OpenVPN web page ("openvpn.net").
- 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 Device.

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

As reminded in the web page, in options requiring a file argument, only the file name shall be given, with <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 16.1.4.1.7.

16.1.4.1.2 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.

16.1.4.1.3 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.

16.1.4.1.4 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.

16.1.4.1.5 Additional file

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

More than one additional file can be loaded.

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

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

🗋 Z-PASS2-S	× Giovenni	
$\boldsymbol{\leftarrow}$ \rightarrow C 🛈 192.16	58.85.103:8080/vpn_upload_files_cust.php	☆
SFNFCA [®]	Z-PASS2-S	
General Configuration	VPN Configuration [user: admin] [logout]	
1ain View	Firmware Version: SW002940_310 [Modem: 1231B02SIM5350E]	
letwork and Services	MAC Address: C8FA81160002	
leal Time Clock Setup	Internet Access: Mobile	
PN Configuration		
outer Configuration		
W Upgrade	PLC Status: running (app not running)	
Nobile Configuration	Router: disabled	
lobile Network	Upload: CLIENT1a.ovpn	
thernet Interfaces	Size: 193 bytes	
lodbus Modules	Stored in: /home/config/vpn/ovpn.conf	
ata Logger (SD found)	Upload: ca.crt	
ogs	Size: 1139 hytes	
	Size: 3600 bytes	
	Stored in: /home/config/vpn/CLIENT1.crt	
	Upload: CLIENT1.key	
	Size: 912 bytes	
	Stored in: /home/config/vpn/CLIENT1.key	

You can check which VPN files are stored on the Device 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	- 0	×
Z-PASS2-S	×			
$\epsilon \rightarrow C$ (1) 192	2.168.85.103:8080/vpn_files.php?showinfo=1		Q \$\$:
Seneral Configuration Main View Network and Services Real Time Clock Setup VPN Configuration Router Configuration Users Configuration FW Upgrade Mobile Configuration	Z-PASS2-S VPN Configuration [user: admin] [logout] Firmware Version: SW002940_310 [Modem: 1231B02SIM5350E] MAC Address: C8FA81160002 Internet Access: Mobile Energy Protocols: none PLC Status: running (app not running) Router: disabled			
Mobile Network Diagnostics	CUBBENT UPDATED	•		
Ethernet Interfaces				
Modbus Modules Data Logger (SD found)	VPN Mode OpenVPN OpenVPN			
Logs	VPN Files			
	(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) Client certificate (.crt) Client certificate (.crt) Scegli file Nessun file selezionato Client certificate (.crt) Scegli file Nessun file selezionato Client certificate (.crt) Scegli file Nessun file selezionato Client certificate (.crt) Scegli file Nessun file selezionato Client certificate (.crt) Scegli file Nessun file selezionato UPLOAD RESET VPN Configuration			
	Enable OFF			
	APPLY HIDE VPN STATUS VPN Status Disconnected OpenVPN Status Stopped OPONVPN Status Stopped RX Packets / Bytes 0 / 0 TX Packets / Bytes 0 / 0 VPN Files (size in bytes) 0 / 0 NOTE: these files can be downloaded via FTP from 'home/config/vpn' directory. CLIENT1.ctr (3600) CLIENT1.rts (912) ca.ctr (1139) ovpn.conf (193) REFRESH Ovpn.conf (193)			

As reminded by the web page, the VPN files can be downloaded from the Device, 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 - Wi	nSCP									-		×
Locale Seleziona File Comandi Sessione O	pzioni Remo	oto Aiuto										
🛞 🎒 Coda 👻 🖶 🚝 📚 Sincronizza 🚦	🔳 🦑 💽		Impostazioni trasferim	ento Prede	finito	- 💋 -						
📮 user@192.168.85.117 🛒 Nuova sessione												
💶 Desktop 🔹 🚰 🔽 🖛 🗸 🚽	-	1 🔂 🗶 😘				- 🚰 😨 🛛 🖛 - 🔿	- 12 7	🏫 🥭 🚊 Trova file	9. <mark></mark>			
📳 Upload 👻 📝 Modifica 👻 🔏 🕞 Pr	oprietà 📑					🛛 🔛 Download 👻 📝 Modifica 👻 🚮 🕞 P	roprietà 🛛 🚰	🚡 🕂 🖃 🛛				
C:\Users\Spagiari\Desktop\OpenVPN_Client						/home/config/vpn						
Nome	Dimensi	Тіро	Modificato	Attr		Nome	Dimensi	Modificato	Diritti	Proprietario		
• .		Cartella superi	16/09/2016 15.56.06			t		20/09/2016 09.26.52	rwxr-xr-x	root		
🔄 ca.crt	2 KB	Certificato di s	04/05/2015 09.30.28	a		🔄 ca.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		📓 ovpn.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	а								
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	a								
CLIENT53.key	1 KB	File KEY	04/05/2015 09.33.52	а								
CLIENT54.ovpn	1 KB	File OVPN	06/05/2015 15.23.11	а								
						C						>
0 B di 15.504 B in 0 di 11						0 B di 5.844 B in 0 di 4				- 57		
									🕞 SF	TP-3 🔍	0.0	0.52

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 ?	
1		
9	OK Annu	ılla

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

×
ОК

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, the	

Device wi	ll run	the Op	en VPN
process	with	the	loaded
configurati	on		

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



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")
- 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 Device (see above)

as shown in the following couple of figures:

		😲 Giovanni	– 🗆 X
🗋 Z-PASS2-S	×		
$\boldsymbol{\leftarrow}$ \rightarrow C (i) 19	2.168.85.103:8080/vpn_files.php?showinfo=1		ର ☆ :
SENECA® General Configuration Main View Network and Services Real Time Clock Setup VPN Configuration Router Configuration Users Configuration FW Upgrade Mobile Configuration	Z-PASS2-S VPN Configuration [user: admin] [logout] Firmware Version: SW002940_310 [Modem: 1231B02SIM5350E] MAC Address: C8FA81160002 Internet Access: Mobile Energy Protocols: none PLC Status: running (app not running) Router: disabled		
Mobile Network Diagnostics Ethernet Interfaces	CURRENT UPDATED		
Modbus Modules Data Logger (SD found)	VPN Mode OpenVPN OpenVPN		
Logs	VPN Files		
	Colliguration 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) Scegli file Nessun file selezionato CA certificate (.crt) Scegli file Nessun file selezionato Client certificate (.crt) Scegli file Nessun file selezionato Client key (.key) Scegli file Nessun file selezionato Additional File (.crt, .key, .auth,) Scegli file Nessun file selezionato		
	VPN Configuration		
	Enable OFF APPLY HIDE VPN STATUS VPN Status Disconnected Connection Status Disconnected IP Address 0.0.0 OpenVPN Status Stopped RX Packets / Bytes 0 / 0 VPN Files (size in bytes) 0 / 0 NOTE: these files can be downloaded via FIP from '/home/config/vpn' directory. no file no file REFRESH		



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>Open VPN process could not be correctly started</u>: <u>probably</u>, <u>the configuration file</u> <u>contains some errors or</u>, <u>maybe</u>, <u>some options not supported by the Device 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.

16.1.4.1.6 OpenVPN Server configuration file

This paragraph gives an example of OpenVPN server configuration; this is the server configuration typically used with Z-TWS4/Z-PASS2-S/S6001-RTU 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
```

16.1.4.1.7 OpenVPN Client configuration file

This paragraph gives an example of OpenVPN client configuration; this is the client configuration typically loaded on Z-TWS4/Z-PASS2-S/S6001-RTU 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
```

16.1.4.1.8 LED signalling (Z-PASS2-S-R01/Z-PASS2-S-IO)

In Z-TWS4-R0x/Z-PASS2-S-R0x (x=1,2) products, when VPN functionality is enabled in "OpenVPN" mode, the "SERV" and "VPN" LEDs give the following status information (see paragraphs 5.2 and 5.3):

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

16.1.4.2 VPN Box

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

	~			🤃 Ciovanti —		×
Z-PA552-5						
← → C ① 192.168	8.85.106:8080/vpn_files.php				☆ 🗡	:
S SENECA [®]	Z-PASS2-S					
General Configuration	VPN Configuration [user: admir	n] [logout]				
Main View	Firmware Version: SW002940 3	31 [Modem: 1	231B02SIM5350E	1		
Network and Services	MAC Addrose: C8EA81160002 [IMEI: 8622640	204067151			
Real Time Clock Setup	MAC Address. CorActrocov2 [IWIEI. 00220402	20400713]			
VPN Configuration	Internet Access: Ethernet					
Router Configuration	Energy Protocols: none					
Users Configuration	PLC Status: running (app: zpas	s2s_r01_qua)				
FW Upgrade	Router: running					
Conf. Management						
Mobile Configuration			CURRENT	UPDATED		
Diagnostics						
FW Versions		VPN Mode	VPN Box	VPN Box 🔻		
Ethernet Interfaces						
Modbus Modules	VPN Box					
Data Logger (SD missing)	Enable	OFF	OFF •			
	Server	194.184.235.246	194.184.235.246	3		
	Password	seneca	seneca			
	Tag Name	7088828	zpass2s			
	APPLY SHOW VPN STATUS	Lpubblo	200020			
L						

The "VPN Box" section contains the following parameters:

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

	Device 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	zpass2s
	identify the Device; if the default	
	("zpass2s") value is left, the Device	
	will register as	
	"zpass2s_ <macaddress>" or</macaddress>	
	"ztws4_ <macaddress>" on the VPN</macaddress>	
	Box	
	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 IP address assigned to the VPN interface 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 by the VPN interface, when connected; "0/0" when disconnected
- the number of packets/bytes sent by 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:

	🥴 Giovanoi	- 🗆 ×
Z-PASS2-S	× \	
$\boldsymbol{\leftarrow}$ \rightarrow \mathbf{C} (i) 192.16	8.85.103:8080/vpn_files.php?showinfo=1	☆ :
SENECA ®	Z-PASS2-S	
General Configuration	VPN Configuration [user: admin] [logout]	
Main View	Firmware Version: SW002940_310 [Modem: 1231B02SIM5350E]	
Network and Services	MAC Address: C8FA81160002	
VPN Configuration	Internet Access: Ethernet	
Router Configuration	Energy Protocols: none	
Users Configuration	PLC Status: running (ann not running)	
FW Upgrade Mobile Configuration	Router: disabled	
Mobile Network Diagnostics	CURRENT UPDATED	
Ethernet Interfaces		
Modbus Modules	VPN Mode VPN Box VPN Box VPN Box	
Logs	VPN Box	
	Server 192.168.90.1 192.166.90.1	
	Password seneca Seneca	
	Tag Name zpass2s zpass2s	
	APPLY HIDE VPN STATUS	
	VPN Status	
	Connection Status Disconnected	
	IP Address 0.0.0.0	
	OpenVPN Status Stopped	
	TX Packets / Bytes 0 / 0	
	REFRESH	

Image: Property in the property in		(!) Giov	anni		×
	🗋 Z-PASS2-S	× \			
SERVECAN General Configuration Man View Z-PASS2-S With Configuration Main View With Configuration Listers Configuration Kith Configuration Main View State Configuration Mobile Network Diagnostics Main Configuration Mobile Network Hernet Access: Ethernet State Configuration Adols Network Energy Protocols: none PLC Status: running (app not running) Wulgrade Mobile Network PLC Status: running (app not running) Not er: running Mobile Network Ternet Access: Ethernet Energy Protocols: none PLC Status: running (app not running) Not er: running Not er: running Mobile Network Ternet Network VPN Mode VPN Box Signers (SD Found) Immer zpassZer01 194 184 235 246 Main zergassZer01 Tag Namer zpassZer01 zpassZer01 APPLY HIDE VPN STATUS VPN Box Type Onnected VPN Box Type OpenVPN Status Running OpenVPN Status Running 29 / 3.8.1 VPN Box Type Opint-to-Point VPN Box Type VPN Box Type Opint-to-Point VPN Box Type VPN Box Type Orieto-Point VPN Box Type VPN Box Type Oriet	$\leftarrow \rightarrow \mathbf{C}$ (i) 192.16	i8.85.103:8080/vpn_files.php?showinfo=1		☆]
Webus Modules Data Logger (8D found) .cgs VPN Box Enable ON Server 194.184.235.246 194.184.235.246 194.184.235.246 194.184.235.246 194.184.235.246 Password laboratorio Iaboratorio IP Address IP Address II P Address	SENECCA® General Configuration Main View Network and Services Real Time Clock Setup VPN Configuration Router Configuration Users Configuration W Upgrade Mobile Configuration Mobile Network Diagnostics Ethernet Interfaces	Z-PASS2-S VPN Configuration [user: admin] [logout] Firmware Version: SW002940_310 [Modem: 1231B02SIM5350E] MAC Address: C8FA81160002 Internet Access: Ethernet Energy Protocols: none PLC Status: running (app not running) Router: running CURRENT UPDATED	-		
Jata Logger (SD found) Logs Image: Server 194.184.235.246 Password laboratorio laboratorio Tag Name zpass2sr01 Zpass2sr01 APPLY HIDE VPN STATUS VPN Status Connection Status Connected IP Address 10.9.0.1 OpenVPN Status RX Packets / Bytes 26 / 3.3K TX Packets / Bytes 31 / 26.1K VPN Box Type Point-to-Point VPN Box Status OK (Configured)	Modbus Modules	VPN Mode VPN Box VPN Box V			
Enable ON ON ON Image: Server 194.184.235.246 Password laboratorio laboratorio laboratorio Tag Name zpass2sr01 zpass2sr01 APPLY HIDE VPN STATUS Formation 100,000,000 OpenVPN Status Connected OpenVPN Status Running OpenVPN Status Running RX Packets / Bytes 26 / 3.3K TX Packets / Bytes 31 / 26.1K VPN Box Status OK (Configured) REFRESH Kernet	Data Logger (SD found) Loos	VPN Box			
		EnableONONServer194.184.235.246PasswordlaboratoriolaboratoriolaboratorioTag Namezpass2sr01Zpass2sr01zpass2sr01APPLYHIDE VPN STATUSVPN StatusConnection StatusConnectedIP Address10.9.0.1OpenVPN StatusRunningRX Packets / Bytes26 / 3.3KTX Packets / Bytes31 / 26.1KVPN Box TypePoint-to-PointVPN Box StatusOK (Configured)REFRESH			

		🥵 Giovanni 🔤	×	
🗋 Z-PASS2-S	×			
$\epsilon \rightarrow c$ A Non side	curo bttps://192.168.85.104/maintenance/vpn_files	s.php?showinfo=1 🖈 🗵	:	
Image: Service Configuration Z-PASS2-S General Configuration VPN Configuration [user: admin] [logout] Firmware Version: SW002940_330 [Modem: UC20GQBR03A14E1G] MAC Address: C8F9811B0000 [IMEI: 861075026500975] [IMSI: 222101600237893] Internet Access: Mobile Provide Configuration Users Configuration FW Upgrade FW Upgrade				
Mobile Configuration		CURRENT UPDATED		
Digital I/O Digital I/O Configuration Diagnostics	VPN Mode	VPN Box VPN Box V		
Ethernet Interfaces	VPN Box			
Modbus Modules	Enable ON	ON V		
Data Logger (SD found)	Server 194 184 235 246	194 184 235 246		
	PasswordsenecaTag Namezpass2sAPPLYHIDE VPN STATUSVPN StatusConnectionStatusOpenVPNStatusRX Packets / BytesTX Packets / BytesTX Packets / BytesVPN Box TypeVPN Box StatusConnected UserREFRESH	seneca zpass2s Connected Running 349 / 73.8K 0 / 0 Point-to-Point (L2) OK (Configured) gspagiari		

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 Device (it should never occur)	
Error (No response from VPN		No response has been received from the VPN Box	
Box)		(response timeout); this is normally due to	
		connectivity problems	
Error (Invalid response from		A response has been received whose content is	
VPN Box)		not valid for the Device (it should never occur)	
Error (Wrong password)		The password set on the Device 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 Device has just been registered on the VPN	
		Box	
ОК	New	The Device is registered on the VPN Box, but it is	
		not configured yet ("Single LAN" only)	
ОК	Configuration updated	The Device configuration has just been updated	
ОК	Configured	The Device is properly configured and availa	
		for VPN connection	
ОК	Ban	The Device has been banned	
ОК	Not found	The Device is unknown for the VPN Box; this	
		happens when Device registration is deleted on	
		the VPN Box	
ОК	Unknown	The Device has an "unknown" status in the VPN	
		Box (it should never occur)	
ОК	Not bound	The "tunnel" between the Device 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 Device (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.

16.1.4.2.1 LED signalling (Z-PASS2-S-R01/Z-PASS2-S-IO)

In Z-TWS4-R0x/Z-PASS2-S-R0x (x=1,2) products, when VPN functionality is enabled in "VPN Box/Single LAN" mode, the "SERV" and "VPN" LEDs give the following status information (see paragraph 5.2 and 5.3):

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 (see paragraph 5.2 and 5.3):

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

16.1.5 Router Configuration

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

			(!) Ciovanni	_			Х
Z-PASS2-S	×						
$\boldsymbol{\leftarrow}$ \rightarrow \boldsymbol{C} (i) 192	.168.85.104:8080/mobile_router.php			Q	☆	J.	:
S SENECA General Configuration Main View Network and Services Real Time Clock Setup VPN Configuration Router Configuration Users Configuration FW Upgrade	Z-PASS2-S Router Configuration [user: admin] [logout] Firmware Version: SW002940_332 [Modem: MAC Address: C8F9811B0000 [IMEI: 861075 Internet Access: Ethernet Energy Protocols: none PLC Status: running (app: s203) Router: disabled	UC20GQBR03A ⁻ 026500975]	I4E1G]				Â
Conf. Management Mobile Configuration				_			
Mobile Network		CURRENT	UPDATED				
DDNS Configuration	Router Enable	OFF	OFF V				
Digital I/O	DNS-DHCP						
Digital I/O Configuration	DNS Enable	ON	ON 🔻				
Diagnostics	DHCP Server Enable	OFF	OFF V				
Five versions	DHCP First Address	192.168.90.201	192.168.90.201				
Ethemet Intenaces	DHCP Last Address	192.168.90.210	192.168.90.210				
Data Logger (SD found)	DHCP Lease Time (min)	15	15				
Logs	Use Local Addresses through VPN						
	Enable	OFF	OFF V				
	Mahila Maharala Circural						
	Mobile Network Firewall						
	Enable	ON	ON V				
	Port Mapping / Virtual Server 1						
	Protocol	TCP/UDP	TCP/UDP V				
	External Port						
	Server IP Address						
	Internal Port						
	Port Mapping / Virtual Server 2						
	Protocol						
	External Port	TOPIODE					
	Parties ID Address						
	Berver IP Address						
	Port Mapping / Virtual Server 3						
	Protocol	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 ID Address						
	lotered Ded						
	internal Port						-
	Port Mapping / Virtual Server 5						+

In this page, you can change the parameters related to the 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	
DNS Enable	Flag to enable/disable the DNS	ON
	forwarding service	
DHCP Server Enable	Flag to enable/disable the DHCP	OFF
	service (DHCP server)	
	NOTE: this parameter can be set to	
	"ON" only if the "DHCP" parameter	
	of the "Network and Services" page	
	<u>is set to "OFF"</u> .	
DHCP First Address	These parameters define the range	192.168.90.201
DHCP Last Address	of IP addresses assigned by the	192.168.90.210
	DHCP server to requesting clients	
DHCP Lease Time (min)	Validity period 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 VPN	Flag to enable/disable the access to	OFF
	the Device and other devices which	
	are in the Device 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	ON
	Network Firewall", that is	
	disable/enable access to the Device	
	and other devices which are in the	
	Device 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 Device 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 16.1.4 paragraph), the parameter is automatically set to ON, as warned by the message shown in the following figure.



Finally, there are 5 sections which let you define up to 5 "Port Mapping" rules (also known as "Virtual Servers"); in 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	
TCP or UDP port which a packet was	Empty
originally sent to	
IP address which the received packet	Empty
is forwarded to	
TCP or UDP port which the received	Empty
packet is forwarded to	
	affected by the rule: TCP, UDP or both TCP or UDP port which a packet was originally sent to IP address which the received packet is forwarded to TCP or UDP port which the received 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:

다 Z-PASS2-S	× Giovenni – – ×
← → C (i) 192.16	8.85.104:8080/mobile_router_save.php?do=1
	7.DA862-6
INEUA 🥯	
General Configuration	Router Configuration [user: admin] [logout]
Main View	Firmware Version: SW002940_331 [Modem: UC20GQBR03A14E1G]
Network and Services	MAC Address: C8F9811B0000 [IMEI: 861075026500975] [IMSI: 222101600237893]
Real Time Clock Setup	Internet Access: Mobile
VPN Contiguration	
Router Configuration	Energy Protocols: none
Users Configuration	PLC Status: running (app: zpass2s_io)
FW Upgrade	Router: disabled
Cont. Management	
Mobile Network	Router Configuration changed (router not active)
Digital I/O	
Digital I/O Configuration	
Diagnostics	
FW Versions	
Ethernet Interfaces	
Modbus Modules	
Data Logger (SD missing)	

If you try to enable the DHCP server functionality (DHCP Server 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:

B 7-DASS2-S	(1) (diovanni — L		×
$\leftarrow \rightarrow C$ (i) 192.168	8.85.104:8080/mobile_router_save.php?do=1	J.,	:
SENECA [®]	Z-PASS2-S		
General Configuration	Router Configuration [user: admin] [logout]		
Main View	Firmware Version: SW002940 331 [Modem: UC20GQBR03A14E1G]		
Network and Services	MAC Addresses OPE0011D0000 [IME], 9610750965000751 [IM6], 9991016009979091		
Real Time Clock Setup	MAG Address: G6F3611B0000 [IMEI: 861075026500375] [IM5I: 222101600237693]		
VPN Configuration	Internet Access: Mobile		
Router Configuration	Energy Protocols: none		
Users Configuration	PLC Status: running (app: zpass2s_io)		
FW Upgrade	Bouter: running		
Conf. Management	nouton running		
Mobile Configuration			
Mobile Network	Invalid DHCP parameters ! Configuration not changed.		
Digital I/O			
Digital I/O Configuration			
Diagnostics			
FW Versions			
Ethernet Interfaces			
Modbus Modules			

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:

□ 7-PASS2-S	*		(!) Ciovanni	-			×
$\leftarrow \rightarrow C \bigcirc 192$	168.85.104:8080/mobile_router.php			Q	☆	L	:
					^	1.4	•
SENECA"	Z-PASS2-S						Î
General Configuration	Router Configuration [user: admin] [logout]						
Main View	Firmware Version: SW002940_332 [Modem: UC20Ge	QBR03A14E10	3]				
Network and Services	MAC Address: C8F9811B0000 [IMEI: 8610750265009	751					
Real Time Clock Setup	Internet Access: Ethernet						
VPN Configuration	Ellemet						
Router Configuration	Energy Protocols: none						
Users Configuration	PLC Status: running (app: s203)						
Pvv Opgrade	Router: running						
Mobile Configuration							
Mobile Network	CUF	RENT	UPDATED				
DDNS Configuration	Router Enable ON	ON	T				
Digital I/O	DNS-DHCP						
Digital I/O Configuration	DNS Enable ON	ON	T				
Diagnostics	DHCP Server Enable OFF	OFF	- v				
Ethernet Interfaces	DHCP First Address 192.168.	90.201 192.	168.90.201				
Modbus Modules	DHCP Last Address 192.168.	90.210 192.	168.90.210				
Data Logger (SD found)	DHCP Lease Time (min) 15	15					
Logs	Use Local Addresses through VPN						
	Enable OFF	OFF	¥				
	Mobile Network Firewall						
	Enable ON	ON	•				
	Port Menning / Virtuel Server 1	0.1					
	Port mapping / Virtual Oct Vol 1	TO	-				
	External Port 80	101	•				
	Perver ID Address	80					
	Jet ver IP Address	0.000					
	Internal Port 6060	808)				
	Port Mapping / Virtual Server 2						
	Protocol TCP/UDI	TCF	P/UDP V				
	External Port 502	502					
	Server IP Address 192.168.	35.103 192.	168.85.103				
	Internal Port 502	502					
	Port Mapping / Virtual Server 3						
	Protocol TCP/UD	TCF	P/UDP ▼				
	External Port						
	Server IP Address						
	Internal Port						
	Port Mapping / Virtual Server 4	L					
	Protocol TCP/ID	TCF	VUDP ▼				
	External Port						
	Server IP Address						
	Internal Port						
	Dert Menning / Kelust Occurs 5						-

In this example, 2 rules have been set:

• the first rule tells the Device 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 Device configuration web site on the standard HTTP port; <u>however</u>, by doing this, <u>the access to the custom user's pages won't be possible anymore !</u>

• the second rule tells the Device 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-S	×			(!) Govenni	-			×
← → C 🛈 192.	168.85.103:8080/mobile router.php				Q	☆	ょ	:
	Internet Access: Ethernet							-
VPN Configuration								
Router Configuration	Energy Protocols: none							
Users Configuration	PLC Status: running (app not running)							
Fw Upgrade	Router: running							
Cont. Management Mobile Configuration								-
Mobile Network		CURRENT	UPDATED					
DDNS Configuration	Router Enable	ON	ON V					
Digital I/O	DNS-DHCF	,						
Digital I/O Configuration	DNS Enable	ON	ON V					
Diagnostics	DHCP Server Enable	OFF	OFF V					
Ethernet Interferen	DHCP First Address	192.168.90.201	192.168.90.201					
Einemet menaces	DHCP Last Address	192.168.90.210	192.168.90.210					
Data Logger (SD missing)	DHCP Lease Time (min)	15	15					
	Use Local Addresses through VPN	1						
	Enable	ON	ON V					
	Mobile Network Firewal	1						
	Enable	ON	ON T					
	Port Mapping / Virtual Server 1							
	Protoco	тср	TCP V					
	External Port	8080	8080					
	Server IP Address							
	Internal Port	8080	8080					
	Port Manning / Virtual Server (
	Fort mapping / virtual Server 2	TOD	TOD					
	Protocol External Dari	100						
	External Pon	22	22					
	Server IP Address							
	Internal Port	22	22					
	Port Mapping / Virtual Server 3							
	Protocol	TCP/UDP	TCP/UDP V					
	External Port	t						
	Server IP Address							
	Internal Port	t						
	Port Mapping / Virtual Server 4							
	Protocol	TCP/UDP	TCP/UDP V					
	External Port	t						
	Server IP Address							
	Internal Port	t						
	Port Mapping / Virtual Server &							
	Protoco	TCP/UDP	TCP/UDP V					
	External Port							
	Server IP Address							
	Internal Port							
			APPLY					-

16.1.6 Users Configuration

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

□ Z-PASS2-S	×		(15 Ciovanni —			×
← → C (i) 192.168	3.85.106:8080/users.php			☆	J.	:
					A.COM	•
SENECA"	Z-PASS2-S					
General Configuration	Users Configuration [user: admin] [logout]				
Main View	Firmware Version: SW002940_33	1 [Modem: 123	31B02SIM5350E]			
Network and Services	MAC Address: C8FA81160002 [IN	IEI: 862264020	4067151			
Real Time Clock Setup	Internet Assess: Ethernet					
VPN Configuration	Internet Access. Ethemet					
Router Configuration	Energy Protocols: none					
Users Configuration	PLC Status: running (app: zpass2	2e_r01_qua)				
FW Upgrade	Router: running					
Conf. Management				_		
Mobile Configuration		CURRENT	UPDATED			
Diagnostics	WEB ADMINISTRATOR					
FW Versions			- desta	1		
Ethernet Interfaces	Username	admin	admin	1		
Modbus Modules	Password	admin	admin			
Data Logger (SD missing)	WEB USER					
	Username	user	user			
	Password	user	user			
	WEB GUEST					
	Username	guest	guest			
	Password	guest	guest			
	FTP USER					
	Username	user	user			
	Password	123456	123456			
			APPLY			

In this page, you can change the "Web Administrator", "Web User", "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
	configuration site (full access)	
WEB ADMINISTRATOR/Password	Password to access the web	admin
	configuration site (full access)	
WEB USER/Username	Username to access the web	user
	configuration site (limited access)	
	(see paragraph 16.2)	
WEB USER/Password	Password to access the web	user
	configuration site (limited access)	
	(see paragraph 16.2)	
WEB GUEST/Username	Username to access the web	guest
	configuration site, in "view-only	
	mode" (see paragraph 16.3)	
WEB GUEST/Password	Password to access the web	guest
	configuration site, in "view-only	
	mode" (see paragraph 16.3)	
FTP USER/Username	Username to access the Device	user
	FTP/SFTP site (see chapter 7)	
FTP USER/Password	Password to access the Device	123456
	FTP/SFTP site (see chapter 7)	

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.

16.1.7 FW Upgrade

When clicking on the "FW Upgrade" link, in the "General Configuration" menu, the following pop-up is shown:



If you click on the "OK" button, TWS Services (i.e. Soft-PLC) are stopped and you come to the "FW Upgrade" page, shown in the following figure.

	(!) Ciovanai — 🗆 🗙
Z-PASS2-S	×
$\boldsymbol{\leftarrow}$ \rightarrow \boldsymbol{C} (i) 192.16	8.85.104:8080/fw_files_bin.php?stop=1 ☆ 🗵 :
SENECA®	Z-PASS2-S
General Configuration	FW Upgrade [user: admin] [logout]
Main View	Firmware Version: SW002940, 331 [Modem: IIC20GQBR03A14E1G]
Network and Services	
Real Time Clock Setup	MAC Address: C8F9811B0000 [IMEI: 8610/50265009/5] [IMSI: 222101600237893]
VPN Configuration	Internet Access: Mobile
Router Configuration	Energy Protocols: none
Users Configuration	PLC Status: stopped
FW Upgrade	Poutor: running
Conf. Management	
Mobile Configuration	
Mobile Network	FW Upgrade
Digital I/O	
Digital I/O Configuration	FW file (SW002940_*.bin) Scegli file Nessun file selezionato
Diagnostics	UPLOAD RESTART TWS SERVICES
FW Versions	
Ethernet Interfaces	
Modbus Modules	
Data Logger (SD missing)	

Now, if you want to leave this page without performing the FW upgrade, the "RESTART TWS SERVICES" button lets you restart the TWS services which, otherwise, would remain in the "stopped" state.

Otherwise, if you click on the "Cancel" button of the pop-up, TWS Services are not stopped and you come to the same page where the "RESTART TWS SERVICES" button is disabled.

	(!) Ciovanni —		×
Z-PASS2-S	×		
$\boldsymbol{\leftarrow}$ \rightarrow \mathbf{C} (i) 192.16	8.85.104:8080/fw_files_bin.php?stop=0	1	:
SENECA [®] General Configuration	Z-PASS2-S FW Upgrade [user: admin] [logout]		
Main View	Firmware Version: SW002940 331 [Modem: UC20GQBR03A14E1G]		
Network and Services			
Real Time Clock Setup	MAC Address: C8F9811B0000 [IMEI: 861075026500975] [IMSI: 222101600237893]		
VPN Configuration	Internet Access: Mobile		
Router Configuration	Energy Protocols: none		
Users Configuration	PLC Status: running (app: zpass2s, jo)		
FW Upgrade			
Conf. Management	Router: running		
Mobile Configuration			
Mobile Network	FW Upgrade		
Digital I/O			
Digital I/O Configuration	FW file (SW002940 *.bin) Sceoli file Nessun file selezionato		
Diagnostics			
FW Versions	UPLOAD RESTART TWS SERVICES		
Ethernet Interfaces			
Modbus Modules			

So, it is up to the user to choose if Soft PLC shall be stopped or not, during FW Upload; on one side, stopping it is more safe and let the upload be completed in a shorter time; on the other side, there are situations in which PLC stop time shall be as short as possible.

Since an erroneous use of the FW Upgrade functionality might compromise the proper Device 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:

*SW002940_xxx.bin*¹⁴

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.

¹⁴ The FW file can be downloaded from Seneca website (see chapter 15).

	(!) (fiovanni —			Х
🗋 Z-PASS2-S	×			
← → C 🛈 192.16	8.85.104:8080/fw_upgrade_bin.php	☆	J.	1
SENECA °	Z-PASS2-S			
General Configuration	FW Upgrade [user: admin] [logout]			
lain View	Firmware Version: SW002940, 331 [Modem: UC20GOBB03A14F1G]			
letwork and Services				
leal Time Clock Setup	MAC Address: C8F9811B0000 [IMEI: 8610/50265009/5] [IMSI: 22210160023/893]			
PN Configuration	Internet Access: Mobile			
outer Configuration	Energy Protocols: none			
Isers Configuration	PLC Statue: stopped			
W Unorade				
onf Management	Router: running			
Iobile Configuration				
lobile Network	Invalid file 'disk.tar.gz' !			
)igital I/O				
igital I/O Configuration	A 'SW002940 *.bin' file is needed.			
)iagnostics				
W Versions				
thernet Interfaces				
odbus Modules				

Once a file is selected, you can start the upload, by pressing the "UPLOAD" button.

🗋 Z-PASS2-S	× Giovenni -			×
← → C ③ 192.16	8.85.104:8080/fw_files_bin.php	☆	1	:
 ← → C (192.16) (192.16)<td>885.104:8080/fw_files_bin.php Z-PASS2-8 FW Upgrade [user: admin] [logout] Firmware Version: SW002940_331 [Modem: UC20GQBR03A14E1G] MAC Addrese: C8F9811B0000 [IMEI: 861075026500975] [IMSI: 222101600237893] Internet Accesse: Mobile Energy Protocols: none PLC Status: stopped Router: running FW Upgrade FW Upgrade FW file (SW002940_1.bm) Scegli file SW002940_331.bin UPLOAD RESTART TWS SERVICES</td><td></td><td></td><td></td>	885.104:8080/fw_files_bin.php Z-PASS2-8 FW Upgrade [user: admin] [logout] Firmware Version: SW002940_331 [Modem: UC20GQBR03A14E1G] MAC Addrese: C8F9811B0000 [IMEI: 861075026500975] [IMSI: 222101600237893] Internet Accesse: Mobile Energy Protocols: none PLC Status: stopped Router: running FW Upgrade FW Upgrade FW file (SW002940_1.bm) Scegli file SW002940_331.bin UPLOAD RESTART TWS SERVICES			

Once the upload is successfully completed, the following page is shown:

□ Z-PASS2-S	×	💭 বৌতসহান্যা —]	×
← → C ① 192.16	8.85.104:8080/fw_upgrade_bin.php		☆	J.	:
SFNFCA [®]	Z-PASS2-S			Long	•
General Configuration	FW Upgrade [user: admin] [logout]				
Main View	Firmware Version: SW002940 331 [Modem: UC20GQBR03A14E1G]				
Network and Services	MAC Addresse: CRE0911D0000 [IME]; 9610750965000751 [IME]; 9991	016000079001			
Real Time Clock Setup	MAC Address. Corso 1160000 [IMEL. 0010/30203003/3] [IMSI. 22210	01000237093]			
VPN Configuration	Internet Access: Mobile				
Router Configuration	Energy Protocols: none				
Users Configuration	PLC Status: stopped				
FW Upgrade	Bouter: rupping				
Conf. Management					
Mobile Configuration					
Mobile Network	File 'SW002940_331.bin' successfully uploaded !				
Digital I/O					
Digital I/O Configuration	Upgrade and Reboot Cancel and Reboot				
EW Versions					
Ethernet Interfaces					
Ethemet Intenaces					
Modbus Modules					

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 Device MUST NOT be switched off; during the

procedure, the Device will be rebooted several times; also, during the procedure, several LEDS will blink simultaneously¹⁵; the upgrade procedure is ended when only the LED "RUN" is blinking¹⁶;

	(!) Cioxanni —		ן	×	
	8 85 104:8080/fw upgrada start php2da=3	~	2	:	
C 0 132.10	6.63.104.0000/1w_ubgrade_start.php:00=3	м	2.4	:	
SENECA [®]	Z-PASS2-S				
General Configuration	FW Upgrade [user: admin] [logout]				
Main View	Firmware Version: SW002940 331 [Modem: UC20GQBR03A14E1G]				
Network and Services	MAC Addresses (20001100000 [IME], 9610750965000751 [IM6], 9991016009979091				
Real Time Clock Setup	MAC Address. Corso 1160000 [IMEL 0010/30203003/3] [IMSI. 22210100023/033]				
VPN Configuration	Internet Access: Mobile				
Router Configuration	Energy Protocols: none				
Users Configuration	PLC Status: stopped				
FW Upgrade					
Conf. Management	nouter. running				
Mobile Configuration					
Mobile Network	Upgrading firmware, this will take some time				
Digital I/O					
Digital I/O Configuration					
EW Versions					
Ethernet Interfaces					
Modbus Modules					
Data Logger (SD missing)					
					-

¹⁵ 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. ¹⁶ Also SERV and VPN LEDs might blink, depending on the Device configuration and status.

• press the "Cancel and Reboot" button: this will delete the uploaded file on the Device and perform the reboot.



16.1.8 Configuration Management

By clicking on the "Conf. Management" link, in the "General Configuration" menu, you come to the following page:



This page lets you save and load the whole Device configuration; this is very useful, for example, when you have to apply the same configuration to many devices.
The configuration archive file is named *SW002940_conf.tar.gz*; its contents depend on the selected option, as shown in the following table:

Option	Files
All (Conf. + PLC App.)	- configuration parameters
	- OpenVPN configuration (if present)
	- PLC (Straton) application (if present)
	 web user pages (if present)
Configuration	- configuration parameters
	- OpenVPN configuration (if present)
PLC Application	- PLC (Straton) application (if present)
	 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 Device by means of a USB pen is the following:

- copy the SW002940_conf.tar.gz (or SW002940_conf.zip, see below) file into the root folder of the USB pen;
- switch off the Device;
- insert the USB pen into the USB#1 port of the Device;
- switch on the Device; the procedure will take some minutes to be completed; during this time, the Device MUST NOT be switched off; during the procedure, the Device 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 Device.

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-PASS2-S-R01 into a Z-PASS2-S.

This page lets you load also the configuration archive created by Z-NET4 SW (see chapter 18) as a zip file (*SW002940_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 *SW002940_logs.tar.gz* is downloaded, which contains the debug logs stored by the CPU during its operation.

	(1) (fioranti	– 🗆 X
Z-PASS2-S	×	
$\boldsymbol{\leftarrow}$ \rightarrow \mathbf{C} (i) 192.168	8.85.106:8080/conf_mgr.php	☆ ▶ :
SENECA General Configuration Main View Network and Services Real Time Clock Setup VPN Configuration Router Configuration Users Configuration FW Upgrade Conf. Management Mobile Configuration Mobile Network Diagnostics FW Versions Ethernet Interfaces Modbus Modules Data Logger (SD missing)	All location will be performed Save Configuration will be downloaded as site SW002940_Logs targz Save Debug Logs Save Debug Logs Save Configuration Configuration will be downloaded as the SW002940_conf.targe Save Debug Logs Save Debug	
SW002940_logs.tar.c	Jz ^	Mostra tutto 🗙

Please note that, to get detailed debug logs, the "DEBUG LOGS / Enable" parameter, in "Network and Services" page, shall be set to ON.

16.1.8.1 Factory reset by USB pen

A USB pen can be used also to reset the Device to its factory state; the procedure is the following:

- create an empty file named SW002940_reset_cmd into the root of the USB pen;
- switch off the Device;
- insert the USB pen into the USB#1 port of the Device;
- switch on the Device; the procedure will take some minutes to be completed; during this time, the Device MUST NOT be switched off; during the procedure, the Device will be rebooted;
- after the reboot, wait until you see the "RUN" LED blinking;
- remove the USB pen;
- the factory reset has been performed.

16.1.9 Mobile Network

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

[] 7-PΔ552-5	×		(!) Ciovanni	-		×
$\leftarrow \rightarrow C \bigcirc 192168$	85 104 8080/mobile_petwork.php			4		:
	ios.ro4.oooo/mosic_networkprp			~		•
SENECA [®]	Z-PASS2-S					
General Configuration	Mobile Network [user: admin] [logout]				
Main View	Firmware Version: SW002940	332 [Modem: UC	20GQBR03A14E1G1			
Network and Services		IMEL 061075096	5000751			
Real Time Clock Setup	MAC Address. Cor 3011B0000	[IWEI: 001075020	500975]			
VPN Configuration	Internet Access: Ethernet					
Router Configuration	Energy Protocols: none					
Users Configuration	PLC Status: running (app: s203	3)				
FW Upgrade	Bouter: running	-				
Conf. Management	nouter. running					
Mobile Configuration		CURRENT	UPDATED			
Mobile Network						
DDNS Configuration	SIM					
Digital I/O	PIN (if required by SIM)	8342	8342			
Diagnostics	Operator Selection					
FW Versions						
Ethernet Interfaces	Mode	Automatic	Automatic •			
Modbus Modules	Operator	[22201] I TIM (UMTS)	Operator list not available v			
Data Logger (SD found)	Data Connection					
	Enable	OFF	OFF V			
	APN Mode	Automatic	Automatic •			
	APN	ibox.tim.it	ibox.tim.it			
	Authentication Type	None	None •		_	
	Username	user	user			
	Password	pass	pass			
	Ping Connection Testing IP				_	
	(if empty testing is dischard)	www.google.com	www.google.com			
	APPLY SHOW MOBILE STATU		ORLIST			
	ATTEL SHOW MODILE STATE	OLT OF LIKE	OREIGT			

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

For Z-PASS2-S-R01, Z-PASS2-S and S6001-RTU, the "Operator Selection" section and the "GET OPERATOR LIST" button are not available, so the page is as shown in the following figure.

			(!) Clovenni -	- 🗆 >	×
Z-PASS2-S	×				
← → C (i) 192.168	8.85.105:8080/mobile_network.php			☆ 🗵	:
SENECA °	Z-PASS2-S				
General Configuration	Mobile Network [user: admin] [logout]			
Main View	Firmwere Version: SW002940	222 [Modem: 123	21 R028IM5250E1		
Network and Services					
Real Time Clock Setup	MAC Address: C8F981160017 [IMEI: 862264020	382288]		
VPN Configuration	Internet Access: Ethernet				
Router Configuration	Energy Protocols: none				
Users Configuration	PLC Status: running (app: sms	blocks)			
FW Upgrade	Poutor: disabled				
Conf. Management	Router: disabled				
Mobile Configuration		CURRENT			
Mobile Network		CONNENT	OPDATED		
DDNS Configuration	SIM				
Diagnostics	PIN (if required by SIM)	1234	1234		
FW Versions	i in (in required by enity	1201	1204		
Ethernet Interfaces	Data Connection				
Modbus Modules	Enable	OFF	OFF •		
Data Logger (SD missing)	APN Mode	Automatic	Automatic V		
	APN	ibox.tim.it	ibox.tim.it		
	Authentication Type	None	None 🔻		
	Username	user	user		
	Password	0855	pass		
	Ping Connection Testing ID	pace	pass		
	Address	www.google.com	www.google.com		
	(If empty, testing is disabled)	\$			
	AFFET SHOW MOBILE STATE	3			
L					

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,	1234
	if PIN locking functionality is enabled	

	on it ¹⁷	
Operator Selection/Mode	This parameter tells if the modem shall	Automatic
(only on Z-PASS2-S-IO)	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-S-IO)	Mobile Network Operators currently	
	available, that is detected by the	
	modem.	
	The list items are strings with the	
	following format:	
	- the MCC+MNC ¹⁰ code in square	
	brackets (e.g.: "[22201]")	
	(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.	
	when APN Mode = Automatic, APN,	
	Password parameters are disabled	
Data Connection/APN	Access Point Name as given by the	ibox tim it
	Mobile Network Operator	
Data Connection/Authentication	Type of authentication required;	None
Туре	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	

¹⁷ Please note that the procedure to enable/disable the PIN locking functionality on the SIM is not performed by the Device. ¹⁸ MCC = Mobile Country Code, MNC = Mobile Network Code

	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	www.google.com
Testing IP Address (if empty, testing	periodically check, by means of	
is disabled)	"ping" packets, if the 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 Device mobile	
	network, otherwise the Device 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-S-IO)
- 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:

□ 7-PASS2-S	×		(!) Ciovanni	— C		×
	168 85 104:8080/mobile_network n	hn?showinfo-1		Θ	171	:
< / U 132.		np:snowinio=1		× μ	2.4	:
General Configuration Main View Network and Services Real Time Clock Setup VPN Configuration Router Configuration Users Configuration FW Upgrade Conf. Management Mobile Configuration Disle Network DDNS Configuration Digital I/O Digital I/O Configuration Diagnostics FW Versions Ethernet Interfaces Modbus Modules Data Logger (SD found) Logs	Z-PASS2-S Mobile Network [user: admin] [log Firmware Version: SW002940_33; MAC Address: C8F9811B0000 [IM Internet Access: Ethernet Energy Protocols: none PLC Status: running (app: s203) Router: running	gout] 2 [Modem: UC20 IEI: 86107502650 IEI: 86107502650 Research and a second secon	GQBR03A14E1G] D0975] [IMSI: 222101600237890] 8342 Automatic • Operator list not available • OFF • Automatic • ibox.tim.it None • user pass www.google.com LIST PIN required 3 6 "vodafone IT" (UMT8) Registered (home network) Disconnected 0.0.0 0 / 0 0 / 0 0 / 0 45.37445,11.94516 [Map]			

Z-PASS2-S	×		(!) (Clovenni	_		×
\leftarrow \rightarrow C (1) 192.	168.85.104:8080/mobile_network.p	ohp?showinfo=1		Q	☆ ×	:
SERVECA® General Configuration Main View Network and Services Real Time Clock Setup VPN Configuration Router Configuration Users Configuration FW Upgrade Conf. Management	Z-PASS2-S Mobile Network [user: admin] [lo Firmware Version: SW002940_33 MAC Address: C8F9811B0000 [IM Internet Access: Mobile Energy Protocols: none PLC Status: running (app: s203) Router: running	gout] 2 [Modem: UC2(//EI: 8610750265)GQBR03A14E1G] 00975] [IMSI: 222101600237890]			
Mobile Configuration		CURRENT	UPDATED			
Mobile Network DDNS Configuration Digital I/O Digital I/O Configuration Diagnostics	SIN PIN (if required by SIM) Operator Selection	8342	8342			
FW Versions	Mode	Automatic	Automatic •			
Ethernet Interfaces	Operator	(UMTS)	Operator list not available 🔻			
Data Logger (SD found)	Data Connection					
Logs	Enable	ON	ON V			
	APN Authentication Type Username Password Ping Connection Testing IP Address (if empty, testing is disabled) APPLY HIDE MOBILE STATUS	ibox.tim.it None user pass www.google.com GET OPERATOR	ibox.tim.it None User pass www.google.com LIST			
	Mobile 3 SIM/PIN 6 PIN Remaining Atta Signal Level Selected Op Registration 9 Connection 9 IP Ad RX Packets / TX Packets / GPS Loc REFRESH	Status empts [07] erator Status Status dress Bytes Bytes cation	PIN required 3 6 "vodafone IT" (UMT8) Registered (home network) Connected 10.109.234.57 6 / 65 6 / 98 45.37433,11.94537 [Map]			

As shown in the above figures, only for Z-PASS2-S-IO, the last row of the "Mobile Status" gives the "GPS Location" as Latitude, Longitude values; clicking on the <u>Map</u> 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-S	×		(!) (Ciovenni)	_			×
← → C ① 192.	168.85.104:8080/mobile_network.p	hp?showinfo=1		Q	☆	j.	0 0 0
SERVECA® General Configuration Main View Network and Services Real Time Clock Setup VPN Configuration Router Configuration Users Configuration FW Upgrade Conf. Management	Z-PASS2-S Mobile Network [user: admin] [log Firmware Version: SW002940_33 MAC Address: C8F9811B0000 [IM Internet Access: Ethernet Energy Protocols: none PLC Status: running (app: s203) Router: running	gout] 2 [Modem: UC2(IEI: 8610750265))GQBR03A14E1G] 00975] [IMSI: 222101600237890]				
Mobile Configuration		CURRENT	UPDATED				
Mobile Network	0114						
DDNS Configuration		1001	1001				
Digital I/O Configuration	PIN (IT required by SIM)	1234	1234				
Diagnostics	Operator Selection						
FW Versions	Mode	Automatic	Automatic •				
Ethernet Interfaces	Operator	(UMTS)	Operator list not available <				
Modbus Modules	Data Connection						
Logs	Enable	OFF	OFF V				
-	APN Mode	Automatic	Automatic 🔻				
	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	www.google.com				
	APPLY HIDE MOBILE STATUS	GET OPERATOR	LIST				
	Mobile SIM/PIN PIN Remaining Atte	Status Status empts	PIN error 2				
	Signal Level Selected Op	erator	4 No operator				
	Registration	Status	Searching for network				
	Connection 9	Btatus	Disconnected 0.0.0.0				
	RX Packets /	Bytes	0/0				
	TX Packets /	Bytes	0 / 0 Not fixed				
	REFRESH		HULHAGU				

It should be noted that, when the PIN is set during procedures automatically performed by the Device 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-S-IO).

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

다 z-pass2-s	× Eivanii —	×
← → C ③ 192.16	8.85.104:8080/mobile_network_scan.php	:
SFNFC.A [®]	Z-PASS2-S	
General Configuration	Mobile Network [user: admin] [logout]	
Main View		
Network and Services	Finitware version. Sw002340_332 [modelli: 00200QBN03A14E10]	
Real Time Clock Setup	MAC Address: C8F9811B0000 [IMEI: 861075026500975] [IMSI: 222101600237890]	
VPN Configuration	Internet Access: Ethernet	
Router Configuration	Energy Protocols: none	
Users Configuration	PLC Status: running (app: s203)	
FW Upgrade		
Conf. Management	nouter, running	
Mobile Configuration		
Mobile Network	Start retrieving operator list, please wait	
DDNS Configuration	(this will take some minutes)	
Digital I/O		
Digital I/O Configuration		
FW Versions		
Ethernet Interfaces		
Modbus Modules		
Data Logger (SD found)		
Logs		

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

. 7 DASS2 C	(!) (Etovanni —]	×
0 2-PASS2-S				
\leftrightarrow \rightarrow \times (i) 192.10	58.85.104:8080/mobile_network_scan.php	☆	J	:
SENECA [®]	Z-PASS2-S			
General Configuration	Mobile Network [user: admin] [logout]			
fain View	Firmware Version: SW002940 332 [Modem: UC20GQBR03A14E1G]			
letwork and Services	MAC Address: C8E0811D0000 [IME]: 8610750265009751 [IME]: 222101600227800			
leal Time Clock Setup				
PN Configuration	Internet Access: Ethernet			
outer Configuration	Energy Protocols: none			
sers Configuration	PLC Status: running (app: s203)			
W Upgrade	Bouter: rupping			
onf. Management	i odoli i dining			
lobile Configuration				
lobile Network	Operator list retrieval in progress, please wait			
DNS Configuration	(15 seconds elapsed)			
igital I/O Configuration				
)iagnostics				
W Versions				
thernet Interfaces				
lodbus Modules				
ata Logger (SD found)				
ogs				
attesa di risposta da 192.1	58.85.104			

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

Z-PASS2-S	× Giovanni —		×
	i8.85.104:8080/mobile_network_scan.php 💅	7	:
SENECA®	Z-PASS2-S		
General Configuration	Mobile Network [user: admin] [logout]		
Main View	Firmware Version: SW002940_332 [Modem: UC20GQBR03A14E1G]		
Network and Services	MAC Addrose: C8E0811D0000 [IME]: 861075026500075] [IME]: 222101600227800]		
Real Time Clock Setup	MAC Address. CorsoftBoood [IMEL. 001075020500375] [IMSL. 222101000237050]		
VPN Configuration	Internet Access: Ethernet		
Router Configuration	Energy Protocols: none		
Users Configuration	PLC Status: running (app: s203)		
FW Upgrade	Bouter: running		
Conf. Management	noter ranning		
Mobile Configuration			
Mobile Network	Operator list successfully retrieved !		
DDNS Configuration			
Digital I/O			
Digital I/O Configuration			
Diagnostics			
FW Versions			
Ethernet Interfaces			
Modbus Modules			
Data Logger (SD found)			

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

			(!) Glovenni —		\times
Z-PASS2-S	×				
$\boldsymbol{\leftarrow}$ \rightarrow \boldsymbol{C} (i) 192.168	8.85.104:8080/mobile_network.php			☆ 🗵	:
SENECA [®]	Z-PASS2-S				
General Configuration	Mobile Network [user: admin] [logout]			
Main View	Firmware Version: SW002940	332 [Modem: UC	20GQBR03A14E1G1		
Network and Services		IMEI: 861075026	5000751 [IMSI: 222101600227800]		
Real Time Clock Setup	MAC Address. Corson 160000	[IWEI: 001075020	500375J [IM31. 222101000237030]		
VPN Configuration	Internet Access: Ethernet				
Router Configuration	Energy Protocols: none				
Users Configuration	PLC Status: running (app: s203	3)			
FW Upgrade	Bouter: running				
Conf. Management					
Mobile Configuration		CURRENT	UPDATED		
Mobile Network					
DDNS Configuration	SIM				
Digital I/O Configuration	PIN (if required by SIM)	1234	1234		
Diagnostics	Operator Selection				
FW Versions	operator corection				
Ethernet Interfaces	Mode	Automatic	Automatic •		
Modbus Modules	Operator	[22201] I TIM (UMTS)	[22250] unknown (UMTS) •		
Data Logger (SD found) Logs	Data Connection		[22250] UNKNOWN (UM15) [22288] I WIND (GSM) [22288] I WIND (UMT5)		
	Enable	OFF	[22200] I VIND (UMTS)		
	APN Mode	Automatic	[22201] I TIM (GSM)		
	APN	ibox tim it	[22210] vodatone IT (GSM) [22210] vodatone IT (UMTS)		
	Authentiastics Turs	None	[22299] 3 ITA (UMTS)		
	Authentication Type	None	None	_	
	Username	user	user		
	Password	pass	pass		
	Ping Connection Testing IP	www.google.com	www.google.com		
	(if empty, testing is disabled)	www.google.com	www.google.com		
	APPLY SHOW MOBILE STATU	S GET OPERAT	OR LIST		

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

16.1.10 DDNS Configuration

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

 ← → C ① 192.168.85.104:8080/ddns_conf.php ☆ Z : SENECA[®] General Configuration Main View Z-PASS2-S DDNS Configuration [user: admin] [logout] Firmware Version: SW002940_332 [Modem: UC20GQBR03A14E1G]
SERVECA General Configuration Main View Server Server S
OLINLOA DDNS Configuration [user: admin] [logout] Main View Firmware Version: \$W002940_332 [Modem: UC20GQBR03A14E1G]
Main View Firmware Version: SW002940_332 [Modem: UC20GQBR03A14E1G]
Firmware Version: SW002940_332 [Modem: UC20GQBR03A14E1G]
Network and Services
MAC Address: C8F9811B0000 [IMEI: 861075026500975] [IMSI: 222101600237890]
VPN Configuration Internet Access: Ethernet
Bouter Configuration Energy Protocols: none
Users Configuration PL C Statue: rupping (epp: e202)
EW Upgrade
Conf Management
Mobile Configuration
Mobile Network OPDATED
DDNS Configuration DDNS Configuration
Digital I/O Type None Vone
Digital I/O Configuration Hostname
EW Versions
Ethernet Interfaces
Modules International Password
Data Logger (SD found)
Logs
DDNS Update Status
Status
IP Address

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	

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

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

□ 7-PASS2-S	(1) Giovanni	_		×
	192 158 85 104:8080/ddps_copf.php		~	:
	192.100.03.104.0000/ddns_com.php	,	4	:
SENECA [®]	Z-PASS2-S			
General Configuration	DDNS Configuration [user: admin] [logout]			
Main View	Firmware Version: SW002940 332 [Modem: UC20GQBR03A14E1G]			
Network and Services	MAC Address: C8E9811B0000 [IME]: 8610750265009751 [IMS]: 2221016002	278901		
Real Time Clock Setup		37030]		
VPN Configuration	Internet Access: Ethernet			
Router Configuration	Energy Protocols: none			
Users Configuration	PLC Status: running (app: s203)			
FW Upgrade	Bouter: running			
Conf. Management				
Mobile Configuration	CURRENT UPDATED			
Mobile Network				
DDNS Configuration	DDNS Configuration			
Digital I/O	Type dyndns.it dyndns.it 🔻			
Digital I/O Configuration	Hostname zpasstest1.ns0.it zpasstest1.ns0.it			
FW Versions			٦	
Ethernet Interfaces			_	
Modbus Modules	Password egdirba! 123456			
Data Logger (SD found)	APPLY			
Logs				
	DDNS Update Status			
	Status			
	IP Address			

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.

	~		(!) Ciovanni	- 0
Z-PA332-3	*			
$- \rightarrow \mathbf{C}$ (192.16)	8.85.104:8080/ddns_conf.php			☆ 🔎
eneral Configuration ain View etwork and Services eal Time Clock Setup PN Configuration outer Configuration	Z-PASS2-S DDNS Configuration [user: adm Firmware Version: SW002940_3 MAC Address: C8F9811B0000 [Internet Access: Mobile Energy Protocols: none	nin] [logout] 332 [Modem: UC IMEI: 861075026	20GQBR03A14E1G] 500975] [IMSI: 222101600	0237890]
ers Configuration	PLC Status: running (app: s203)		
V Upgrade onf. Management	Router: running	,		
obile Configuration		CURRENT	UPDATED	
DNS Configuration gital I/O gital I/O Configuration agnostics / Versions	DDNS Configuration Type Hostname Username	dyndns.it zpasstest1.ns0.it gsp-seneca	dyndns.it v zpasstest1.ns0.it gsp-seneca	
dbus Modules ta Logger (SD found) gs	APPLY	egdirba!	egdirba!	
	DDNS Update	Status Status ddress	good 2.45.73.76	

16.1.11 Digital I/O Configuration

By clicking on the "Digital I/O Configuration" link, in the "Digital I/O" menu, you come to the following page¹⁹:

¹⁹ This page is available only for Z-PASS2-S-IO product.

	~				(!) Ciovenni	- 0	×
Z-PA352-5	~						
← → Ĉ ① 192.168	3.85.104:8080/digic	_conf.php				☆ /	÷
SENECA® General Configuration Main View Network and Services Real Time Clock Setup VPN Configuration Router Configuration Users Configuration FW Upgrade Conf. Management Mobile Configuration Mobile Network DDNS Configuration Digital I/O Digital I/O Digital I/O	Z-PASS2-S Digital I/O Confi Firmware Versio MAC Address: (Internet Access Energy Protoco PLC Status: run Router: running	guration [use on: SW002940 28F9811B000 : Mobile Is: none ning (app: s2 <i>Digital I/O C</i>	r: admin] [)_332 [Mod 0 [IMEI: 86 ⁻¹ 03) Configuration	logout] em: UC20GQBR 1075026500975] CURRENT Remote connection	03A14E1G] [IMSI: 2221016002 UPDATEI Remote connection	237890] D	
Diagnostics				disable			
FW Versions		Ou	utput 1 Mode	connection active	Remote connection	n active 🔻	
Modbus Modules		1	nput 2 Mode	General input	General input *		
Data Logger (SD found)		Ou	utput 2 Mode	General output	General output *		
Logs		Input/O	utput 1 Mode	General input	General input <		
		Input/O	utput 2 Mode	General output	General output *		
		8	ecurity Level				
		Sei	rvice Disable	VPN Connection	VPN Connection	T	
	APPLY		Digital I/O	Status			
	DI 1	DO 1	DI 2	DO 2	DIDO 1	DIDO 2	
	LOW	LOW	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 13).

Field	Meaning			Default value		
Input 1 Mode	This	parameter	represents	the	Remote connection disable	

	operating mode of the Digital Input	
	1 (DI 1).	
	Since this is the digital input used for	
	"Remote Connection Disable"	
	feature its value ("Pemote	
	connection disable") cannot be	
	connection disable) cannot be	
Output 1 Mode	This parameter represents the	Remote connection active
	operating mode of the Digital	
	Output 1 (DO 1).	
	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	General input
	operating mode of the Digital Input	
	2 (DI 2).	
	Possible modes are: "General input"	
	"Local alarm".	
Output 2 Mode	This parameter represents the	General output
	operating mode of the Digital	·
	Output 2 (DO 2).	
	Possible modes are: "General	
	output" "Remote toggle" ²⁰ .	
Input/Output 1 Mode	This parameter represents the	General input
	operating 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	General output
	operating 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 13, for a detailed	

²⁰ "Remote toggle" function is still to be defined.

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.



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.

Lan, l	Utente Connesso SUPERVIS	OR						JEINE
s Di	SPOSITIVI SENECA Accessi	/PN						
Dispos	itivo∕i, 2 nuovi, 0 in aggiomar	nento, 5 configurati, 0 in allar	me					🕲 Aggioma
	TAG	MAC	IMEI	STATUS	ALARM	SIGNAL	UPTIME	
۲	zpass1_C8F981160066	C8:F9:81:16:00:66	MODEM NON INSTALLA	SERVICE OFF - VPN DO	\circ	-	-	Reset
۲	ELTECO	C8:F9:81:1B:00:06	861075026509463	SERVICE OFF - VPN DO		-	-	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 DO		-	-	Reset
•	zpass2s_C8F981160017	C8:F9:81:16:00:17	862264020382288	SERVICE OFF - VPN DO		-	-	Reset
۲	ZEUS001	C8:F9:81:15:00:94	MODEM NON INSTALLA	SERVICE OFF - VPN DO		-	-	Reset
•	TOPCO	C8:F9:81:11:00:6D	862264020400825	SERVICE OFF - VPN DO		-	-	Reset
Config	urazione CONFIGURED, u	timo refresh 27/09/2017 14.	17.08	- DI1 NA		OFF	DIDO1 CONNECTION DISAE	🌣 Configura
coning	nessione Network 192 168	96.0/255.255.255.0 (VPN 1	0.9.1.133)	ON DO1 VP	I STATUS	OFF	DIDO2 INPUT	_
Con	Network 132.100.							

16.1.12 I/O View (S6001-RTU)

In S6001-RTU CPU, one more page is available called "I/O View"; in this page, the current status of all the inputs/outputs is shown, along with some diagnostic information.

		Giovanni		×
🗅 \$6001-RTU	×			
← → C 🗋 192	2.168.85.105:8080/io_view.php		Q 🏠	≡
SENECA [®]	\$6001-RTU			
General Configuration	I/O View			
Main View	Firmware Version: SW002940_220 [Modem: 1231B02SIM5350F]			
Network and Services	MAC Address (SE09100010P			
Real Time Clock Setup	MAC Address. Corportion 13D			
VPN Configuration	Internet Access: Ethernet			
Router Configuration	Energy Protocols: none			
Users Configuration	PLC Status: running			
FW Upgrade Mobile Configuration	Router: disabled			
Mobile Network				
VO View	DIGITAL INPUTS			
	Input 1 LOW			
	Input 3 LOW			
	Input 4 LOW			
	Input 6 LOW			
	Input 7 LOW			
	Input 8 LOW			
	Input 10 LOW			
	Input 11 LOW			
	Input 12 LOW			
	Input 14 LOW			
	Input 15 LOW			
	DIGITAL OUTPUTS			
	Output 1 OPEN			
	Output 2 OPEN			
	Output 4 OPEN			
	Output 5 OPEN			
	Output of EN			
	Output 8 OPEN			
	ANALOG INPUTS			
	Current 1 (uA) 5			
	Current 2 (uA) 5			
	Current 3 (uA) 5			
	ANALOG OUTPUTS			
	Current (uA) 0			
	Voltage (mV) 0			
	ELECTRODES			
	Level 0 Sensitivity /k/Dimit 0			
	Error Statue 0			
	CRC Error Counter 0			

The following parameters are shown:

Field	Meaning	Values
DIGITAL INPUTS/Input 1Input 15	Status of Digital Input	LOW/HIGH
DIGITAL OUTPUTS/Output	Status of Digital Output (relay)	OPEN/CLOSED
1Output 8		
DIGITAL OUTPUTS/12 Volt Enable	Status of Digital Output enabling 12	LOW/HIGH
Output	Vdc voltage on screw terminals 37	
	and 38	
ANALOG INPUTS/Current 1	Value of analog current input (in uA)	020000

Current 4		
ANALOG OUTPUT/Current	Value of analog current output (in	020000
	uA)	
ANALOG OUTPUT/Voltage	Value of analog voltage output (in	010000
	mV)	
ELECTRODES/Level	Liquid level value	0,1,2
ELECTRODES/Sensitivity	Sensitivity value applied in liquid	0255
	level measurement (in k Ω)	
DIAGNOSTICS/Error Status	This parameter gives an information	0: no error
	about errors that might occur in the	Bit 9: flash memory error
	I/O board. The value is a bitmask, as	
	specified in the column "Values".	
DIAGNOSTICS/CRC Error Counter	This parameter counts the CRC	>= 0
	errors occurring in the	0 means "no CRC error"
	communication between the CPU	
	board and the I/O board; if the value	
	continuously increases, it means	
	that there is some HW problem	

If the Soft PLC application is not running, inputs/outputs values are not available, so the page appears like in the following figure:

D and and		Giovanni	>	<
9 S6001-RTU	×			5
← → C 🗋 192	2.168.85.105:8080/io_view.php		Q ☆	=
SEINE CA	50001-RT0			
Main View				
Network and Services	Firmware version: Swu02940_220 [Modem: 1231B02SIM03300E]			
Real Time Clock Setup	MAC Address: C8F98100019B			
VPN Configuration	Internet Access: Ethernet			
Router Configuration	Energy Protocols: none			
Users Configuration	PLC Status: stopped			
Mobile Configuration	Router: disabled			
Mobile Network				
I/O View	DIGITAL INPUTS			
	Input 2			
	Input 3			
	Input 4			
	Input 6			
	Input 7			
	Input 8			
	Input 10			
	Input 11			
	Input 12			
	Input 14			
	Input 15			
	DIGITAL OUTPUTS			
	Output 1			
	Output 3			
	Output 4			
	Output 6			
	Output 7			
	Output 8			
	ANALOG INPUTS			
	Current 1 (uA)			
	Current 2 (uA)			
	Current 3 (uA)			
	ANALOG OUTPOTS			
	Voltage (mV)			
	ELECTRODES			
	Level			
	DIAGNOSTICS			
	Error Status			
	CRC Error Counter			

16.1.13 FW Versions

By clicking on the "FW Versions" link, in the "Diagnostics" menu, you come to the following page:

다 Z-PASS2-S	×	(!) Ciovanni —		×
← → C (i) 192.168	3.85.104:8080/fwver_full.php		☆ 🏸	:
SENECA® General Configuration Main View Network and Services Real Time Clock Setup VPN Configuration Router Configuration Users Configuration FW Upgrade	Z-PASS2-S FW Versions [user: admin] [logout] Firmware Version: SW002940_332 [Modem: UC20GQ MAC Address: C8F9811B0000 [IMEI: 86107502650097 Internet Access: Mobile Energy Protocols: none PLC Status: running (app: s203) Pouter: running	BR03A14E1G] 75] [IMSI: 222101600237890]		
Conf. Management Mobile Configuration Mobile Network DDNS Configuration Digital I/O	HW Version HW Revision	Z-PASS2-S-IO		
Digital I/O Configuration Diagnostics <i>FW Versions</i> Ethernet Interfaces Modbus Modules	FW Components Versions Linux Kernel Initial RAM Disk Root File System Default Disk File System	2.6.28 #137 PREEMPT Tue Jun 20 10:46:10 CEST 2017 Jun 1 13:55:29 2017 226_20171103 \$W002940_332		
Logs				

In this page, the following information are shown:

- the product name along with its HW revision (in the above figure: "Z-PASS2-S-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*)

16.1.14 Ethernet Interfaces

By clicking on the "Ethernet Interfaces" link, in the "Diagnostics" menu, you come to the following page:

			(1) Giovanni	\Box ×
🗋 Z-PASS2-S	×			
\leftarrow \rightarrow C (i) 192.16	8.85.103:8080/eth_stats.php			☆ :
SENECA [®]	Z-PASS2- S			
General Configuration	Ethernet Status [user: admin] [logout]			
Main View	Firmware Version: SW002940_310 [Moden	n: 1231B02SIM5350E]		
Network and Services	MAC Address: C8FA81160002			
Real Time Clock Setup	Internet Access: Ethernet			
VPN Configuration				
Router Configuration	Energy Protocole: none			
Users Configuration	PLC Status: running (app not running)			
FW Upgrade Mobile Configuration	Router: running			
Mobile Network				
Diagnostics	LAN ETHERNET			
Ethernet Interfaces	Link Status	Down		
Data Logger (SD found)	KX Packets / Bytes	070		
Logs	TA Packets / Dytes	070		
	WAN ETHERNET			
	Link Status	Up		
	RX Packets / Bytes	11936 / 970.6K		
	TX Packets / Bytes	1533 / 492.0K		
	REFRESH			

The above figure applies to a Z-PASS2-S-R01/Z-PASS2-S-IO CPU, 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-TWS4, Z-PASS2-S, S6001-RTU and for Z-PASS2-S-R01/Z-PASS2-S-IO when the "Ethernet Mode" is "Switch", the "Ethernet Interfaces" page is similar to the one shown in the following figure.

		💭 Giovanni	– 🗆 X
🗋 Z-PASS2-S	×		
← → C (i) 192.16	58.85.103:8080/eth_stats.php		☆ :
 ← → C ① 192.16 ◆ → C ② 192.16 ◆ ● C ③ 192.16 ◆ ● C ④ 192.16 ◆ ● C ⊕ 192.16 ◆ ● E ⊕ 192.16<!--</td--><td>x 325.103.000/eth_stats.php Z-PASS2-S Ethernet Status [user: admin] [logout] Ermware Version: W002940_310 [Modern: 1231B02SIM5350E] AC A ddress: CBF A8116002 Internet Access: Ethernet Energy Protocols: none C10 Status: running (app not running) C10 Status: running (app not running) C10 Status: Tunning (app not running)</td><td></td><td></td>	x 325.103.000/eth_stats.php Z-PASS2-S Ethernet Status [user: admin] [logout] Ermware Version: W002940_310 [Modern: 1231B02SIM5350E] AC A ddress: CBF A8116002 Internet Access: Ethernet Energy Protocols: none C10 Status: running (app not running) C10 Status: running (app not running) C10 Status: Tunning (app not running)		
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.

16.1.15 Modbus Modules

By clicking on the "Modbus Modules" link, in the "Diagnostics" menu, you come to a page similar to the one in the following figure:

← → C 192.168.85.103:8080/modules_status_view.php 1 ✓ ✓ ✓ 192.168.85.103:8080/modules_status_view.php 1 ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓<			🕒 Z-PASS2-S	×				💭 Giovanni	- 🗆
SERVECAS General Configuration Main View Network and Services Real Time Clock Setup VPN Configuration Router Configuration Users Configuration Mobile Configuration Mobile Configuration PLC Status: running Funders threfaces Mobile Network Diagnostics Ethernet Interfaces Modules Mobile Configuration INDEX ADDRESS PORT TYPE Stat Logger (SD found) Logs 3 A 5 COM2 Z-DAQ-PID OK	SERVECAS General Configuration Main View Network and Services Real Time Clock Setup VPN Configuration Router Configuration Router Configuration Users Configuration Mobile Network Diagnostics Ethernet Interfaces Modules Modules 1 2 COM2 Z-10-DOUT OK 2 3 COM2 Z-4Al 1 OK 4 5 COM2 Z-DAQ-PID	SERVECAS General Configuration Z-PASS2-S Main View Firmware Version: SW002940_310 [Modem: 1231B02SIM5350E] Network and Services Firmware Version: SW002940_310 [Modem: 1231B02SIM5350E] Network and Services MAC Address: C8FA81160002 Real Time Clock Setup Harrnet Access: Mobile PR Configuration Energy Protocols: none Router Configuration PLC Status: running Router: disebled Moter: disebled Mobile Network Diagnostics Ethernet Interfaces 1 2 COM2 Z-10-DOUT OK Mobule Modules 1 2 COM2 Z-4A11 OK 3 4 COM2 Z-4A11 OK 4 5 COM2 Z-DAQ-PID OK 4 5 COM2 Z-DAQ-PID OK X <td< td=""><td>← → C ③ 192.16</td><td>58.85.103:808</td><td>)/modules_stat</td><td>us_view.php</td><td></td><td></td><td>7</td></td<>	← → C ③ 192.16	58.85.103:808)/modules_stat	us_view.php			7
Main ViewFirmware Version: SW002940_310 [Modem: 1231B02SIM5350E]Network and ServicesMAC Address: C8FA81160002Real Time Clock SetupInternet Access: MobileVPN ConfigurationEnergy Protocols: noneUsers ConfigurationPLC Status: runningRouter: disabledADDRESSMobile ConfigurationNOEXMobile ConfigurationNOEXMobile NetworkNOEXDiagnostics1Ethernet Interfaces1Moduus Modules1Data Logger (SD found)Logs345COM2Z-DAQ-PIDOK45COM2Z-DAQ-PIDOK	Main ViewFirmware Version: SW002940_310 [Modem: 1231B02SIM5350E]Network and ServicesMAC Address: C8FA81160002Real Time Clock SetupInternet Access: MobileVPN ConfigurationEnergy Protocols: noneRouter ConfigurationPLC Status: runningFW UpgradeRouter: disabledMobile ConfigurationNoble SetupMobile ConfigurationNoble SetupMobile ConfigurationNoble SetupMobile ConfigurationNoble SetupMobile ConfigurationStatus: runningRouter: disabledStatusIternet InterfacesNOEX12COM223COM2Z-10-DOUTOK23Add COM2Z-4Al 1OK34COM2Z-DAQ-PIDOK	Main ViewFirmware Version: SW002940_310 [Modem: 1231B02SIM5350E]Network and ServicesMAC Address: C8FA81160002Real Time Clock SetupInternet Access: MobilePVN ConfigurationEnergy Protocols: noneUsers ConfigurationPLC Status: runningFW UggradeAcuter: disabledMobile ConfigurationNote:: disabledMobile ConfigurationNote:: disabledMobile Configuration12COM2Z-10-DOUTModbus Modules12Ingorestic12COM2Z-4Al 1Off34COM2Z-4Al 1OK45COM2Z-DAQ-PIDOK	SENECA®	Z-PASS2-S Modules S	S itatus View [u	ser: admin] [logo	ut]		
VPN ConfigurationEnergy Protocols: noneRouter ConfigurationPLC Status: runningFW Upgrade Mobile ConfigurationRouter: disabledMobile ConfigurationNobile NetworkDiagnosticsInterst ADDRESSEthernet Interfaces12COM2Z-10-DOUTOkt2Jata Logger (SD found)3Logs34COM2Z-4Al 1OK45COM2Z-DAQ-PIDOK	VPN Configuration Energy Protocols: none Bouter Configuration PLC Status: running FW Upgrade Router: disabled Mobile Configuration Mobile Configuration Mobile Network Image: Status	VPN Configuration Energy Protocols: none Users Configuration PLC Status: running FW Upgrade Router: disabled Mobile Configuration PORT Mobile Network Ethemet Interfaces Index Modules 1 2 COM2 Z-10-DOUT OK Data Logger (SD found) 3 4 COM2 Z-4Al 1 OK Logs 4 5 COM2 Z-DAQ-PID OK	Main View Network and Services Real Time Clock Setup	Firmware MAC Addr Internet A	Version: SW0 ess: C8FA811 ccess: Mobile	02940_310 [Mode 160002	em: 1231B02SIM5350E]		
Users ConfigurationPLC Status: runningFW UpgradeRouter: disabledMobile ConfigurationRouter: disabledMobile NetworkPORTTYPEDiagnosticsINDEXADDRESSEthernet InterfacesINDEXADDRESSModbus Modules12COM2Data Logger (SD found)234Logs34COM2Z-4Al 1OK45COM2Z-DAQ-PIDOKCOM2Z-DAQ-PIDOK	Users ConfigurationPLC Status: runningFW UpgradeRouter: disabledMobile ConfigurationRouter: disabledMobile NetworkIndexADDRESSPORTTYPESTATUSDiagnosticsIndexADDRESSPORTTYPESTATUSModbus Modules12COM2Z-10-DOUTOKData Logger (SD found)234COM2Z-4Al 1OKLogs45COM2Z-DAQ-PIDOK	Users Configuration PLC Status: running FW Upgrade Router: disabled Mobile Configuration PORT TYPE STATUS Mobile Network INDEX ADDRESS PORT TYPE STATUS Modbus Modules 1 2 COM2 Z-10-DOUT OK Data Logger (SD found) 2 3 4 COM2 Z-4Al 1 OK Logs 4 5 COM2 Z-DAQ-PID OK	Router Configuration	Energy Pr	otocols: none	•			
Mobile NetworkDiagnosticsEthernet InterfacesINDEXADDRESSPORTTYPESTATUSModbus Modules12COM2Z-10-DOUTOKData Logger (SD found)23COM2Z-4Al 1OKLogs34COM2Z-4Al 1OK45COM2Z-DAQ-PIDOK	Mobile NetworkDiagnosticsEthernet InterfacesINDEXADDRESSPORTTYPESTATUSModbus Modules12COM2Z-10-DOUTOKData Logger (SD found)23COM2Z-4Al 1OKLogs34COM2Z-4Al 1OK45COM2Z-DAQ-PIDOK	Mobile NetworkDiagnosticsEthernet InterfacesINDEXADDRESSPORTTYPESTATUSModbus Modules12COM2Z-10-DOUTOKData Logger (SD found)23COM2Z-4AI 1OKLogs34COM2Z-4AI 1OK45COM2Z-DAQ-PIDOK	Users Configuration FW Upgrade Mobile Configuration	PLC Statu Router: di	s: running sabled				
Ethernet InterfacesINDEXADDRESSPORTTYPESTATUSModbus Modules12COM2Z-10-DOUTOKData Logger (SD found)23COM2Z-4Al 1OKLogs34COM2Z-4Al 1OK45COM2Z-DAQ-PIDOK	Ethernet InterfacesINDEXADDRESSPORTTYPESTATUSModbus Modules12COM2Z-10-DOUTOKData Logger (SD found)23COM2Z-4Al 1OKLogs34COM2Z-4Al 1OK45COM2Z-DAQ-PIDOK	Ethernet InterfacesINDEXADDRESSPORTTYPESTATUSModbus Modules12COM2Z-10-DOUTOKData Logger (SD found)23COM2Z-4Al 1OKLogs34COM2Z-4Al 1OK45COM2Z-DAQ-PIDOK	Mobile Network Diagnostics						
Modbus Modules12COM2Z-10-DOUTOKData Logger (SD found)23COM2Z-4Al 1OKLogs34COM2Z-4Al 1OK45COM2Z-DAQ-PIDOK	Modbus Modules12COM2Z-10-DOUTOKData Logger (SD found)23COM2Z-4AI 1OKLogs34COM2Z-4AI 1OK45COM2Z-DAQ-PIDOK	Modbus Modules12COM2Z-10-DOUTOKData Logger (SD found)234COM2Z-4Al 1OKLogs34COM2Z-DAQ-PIDOK	Ethernet Interfaces	INDEX	ADDRESS	PORT	ТҮРЕ	STATUS	
Image: Constant of the second secon	3 4 COM2 Z-4Al 1 OK Logs 4 5 COM2 Z-DAQ-PID OK	Isolate Logger (ob Hould) 3 4 COM2 Z-4Al 1 OK 4 5 COM2 Z-DAQ-PID OK	Modbus Modules Data Logger (SD found)	1 2	2 3	COM2 COM2	Z-10-DOUT Z-4AI 1	ОК	
4 5 COM2 Z-DAQ-PID OK	4 5 COM2 Z-DAQ-PID OK	4 5 COM2 Z-DAQ-PID OK	Loos	3	4	COM2	Z-4AI 1	ОК	
				4	5	COM2	Z-DAQ-PID	ОК	

This page shows a table containing a row for each Modbus RTU Slave modules configured in the Z-NET4²¹/Straton project; each row contains the following information:

- a progressive index
- the Modbus Slave Address
- the name of the serial port (i.e. COM1/COM2/COM4) which the module is connected to
- the type of module
- the module status, which can be:
 - "OK", if the module is correctly responding to Modbus requests
 - o "TIMEOUT", if the module is not responding to Modbus requests
 - "ERROR", if any other error occurs

The Modbus Modules page can't be shown in the following situations:

- if a Z-NET4 project is not loaded on the Device
- if TWS/PLC services are not running
- if a PLC application is not running, i.e. not present or stopped

As an example, for the third of the above cases, the following message is shown:

²¹ For information on Z-NET4 SW, please see chapter 18.



16.1.16 Data Logs

By clicking on the "Logs" link, in the "Data Logger" menu, you come to a page similar to those in the following figures:

					 Govanni	_		
☐ Z-PASS2-S	× \							
← → C 🛈	192.168.85.103:8080)/filemg	r.php#datalogs				ର 🕁	•
SENECA	Z-PASS2-S							
	Data Logs [user: ad	lmin] [loc	outl					
Main View	Einmusee Versions	eW00004	0. 940 [Madami 4094 D008]	MEREOF1				
Network and Services	Firmware version:	5000294		WOSOUEJ				
Real Time Clock Setup	MAC Address: C8F	A811600)2					
VPN Configuration	Internet Access: Mo	obile						
Router Configuration	Energy Protocols: r	none						
Jsers Configuration	PLC Status: running	g (app no	ot running)					
FW Upgrade	Router: disabled							
Mobile Configuration								
Diagnostics	Create New Folder							
thernet Interfaces		Crea	ate Clean SD					
Modbus Modules								
Data Logger (SD found)	Drag Files Here	To Upload	or Scegli file Nessun file sele	zionato				
	Home 🕨 datalogs							
	Name	Size	Modified	Actions				
	20161223		Dec 23, 2016 10:00 AM	💥 delete				
	20161224		Dec 24, 2016 10:01 PM	💥 delete				
	20161225		Dec 25, 2016 10:01 PM	💥 delete				
	20161226		Dec 26, 2016 10:01 PM	🔀 delete				
	20161226		Dec 26, 2016 10:01 PM Dec 27, 2016 10:02 PM	X delete				
	20161226 20161227 20161228	 	Dec 26, 2016 10:01 PM Dec 27, 2016 10:02 PM Dec 28, 2016 10:01 PM	32 delete 32 delete 32 delete				
	20161226 20161227 20161228 20161228	 	Dec 28, 2016 10:01 PM Dec 27, 2016 10:02 PM Dec 28, 2016 10:01 PM Dec 29, 2016 10:01 PM	32 delete 32 delete 32 delete 32 delete				
	20161226 20161227 20161228 20161229 20161229 20161230	 	Dec 26, 2016 10:01 PM Dec 27, 2016 10:02 PM Dec 28, 2016 10:01 PM Dec 29, 2016 10:01 PM Dec 30, 2016 10:02 PM	X delete X delete X delete X delete X delete				
	20161226 20161227 20161228 20161229 20161230 20161231	 	Dec 26, 2016 10:01 PM Dec 27, 2016 10:02 PM Dec 28, 2016 10:01 PM Dec 29, 2016 10:01 PM Dec 30, 2016 10:02 PM Dec 31, 2016 10:01 PM	2 delete 2 delete 2 delete 2 delete 2 delete 2 delete 2 delete				
	20161226 20161227 20161228 20161229 20161230 20161231 20161231		Dec 26, 2016 10:01 PM Dec 27, 2016 10:02 PM Dec 28, 2016 10:01 PM Dec 29, 2016 10:01 PM Dec 30, 2016 10:02 PM Dec 31, 2016 10:01 PM Jan 1, 2017 4:22 PM	X delete X delete X delete X delete X delete X delete X delete X delete				
	20161226 20161227 20161228 20161229 20161230 20161231 20161231 20170101		Dec 26, 2016 10:01 PM Dec 27, 2016 10:02 PM Dec 28, 2016 10:01 PM Dec 29, 2016 10:01 PM Dec 30, 2016 10:02 PM Dec 31, 2016 10:01 PM Jan 1, 2017 4:22 PM Jan 2, 2017 10:01 PM	2 delete 2 delete 2 delete 2 delete 2 delete 2 delete 2 delete 2 delete 2 delete 2 delete				
	20161226 20161227 20161228 20161229 20161230 20161231 20161231 20170101 20170102 20170102		Dec 26, 2016 10:01 PM Dec 27, 2016 10:02 PM Dec 28, 2016 10:01 PM Dec 29, 2016 10:01 PM Dec 30, 2016 10:02 PM Dec 31, 2016 10:01 PM Jan 1, 2017 4:22 PM Jan 2, 2017 10:01 PM					
	20161226 20161227 20161228 20161229 20161230 20161231 20170101 20170102 20170102 20170103		Dec 26, 2016 10:01 PM Dec 27, 2016 10:02 PM Dec 28, 2016 10:01 PM Dec 29, 2016 10:01 PM Dec 30, 2016 10:02 PM Dec 31, 2016 10:01 PM Jan 1, 2017 4:22 PM Jan 2, 2017 10:01 PM Jan 3, 2017 10:02 PM	delete delete				
	20161226 20161227 20161228 20161229 20161230 20161231 20170101 20170102 20170102 20170103 20170104 20170105		Dec 26, 2016 10:01 PM Dec 27, 2016 10:02 PM Dec 28, 2016 10:01 PM Dec 29, 2016 10:01 PM Dec 30, 2016 10:02 PM Dec 31, 2016 10:01 PM Jan 1, 2017 4:22 PM Jan 2, 2017 10:01 PM Jan 4, 2017 10:02 PM Jan 5, 2017 10:01 PM					
	20161226 20161227 20161228 20161229 20161230 20161231 20170101 20170102 20170103 20170104 20170105 20170106		Dec 26, 2016 10:01 PM Dec 27, 2016 10:02 PM Dec 28, 2016 10:01 PM Dec 29, 2016 10:01 PM Dec 30, 2016 10:02 PM Dec 31, 2016 10:01 PM Jan 1, 2017 4:22 PM Jan 3, 2017 10:02 PM Jan 4, 2017 10:02 PM Jan 5, 2017 10:01 PM					
	 20161226 20161227 20161228 20161229 20161230 20161231 20170101 20170102 20170103 20170104 20170105 20170106 20170107 		Dec 26, 2016 10:01 PM Dec 27, 2016 10:02 PM Dec 28, 2016 10:01 PM Dec 29, 2016 10:01 PM Dec 30, 2016 10:02 PM Dec 31, 2016 10:01 PM Jan 1, 2017 4:22 PM Jan 2, 2017 10:01 PM Jan 3, 2017 10:02 PM Jan 4, 2017 10:02 PM Jan 5, 2017 10:01 PM Jan 6, 2017 10:01 PM					
	 20161226 20161227 20161228 20161229 20161230 20161231 20170101 20170102 20170103 20170104 20170105 20170106 20170107 20170107 20170108 		Dec 26, 2016 10:01 PM Dec 27, 2016 10:02 PM Dec 28, 2016 10:01 PM Dec 29, 2016 10:01 PM Dec 30, 2016 10:02 PM Dec 31, 2016 10:01 PM Jan 1, 2017 4:22 PM Jan 3, 2017 10:01 PM Jan 4, 2017 10:02 PM Jan 5, 2017 10:01 PM Jan 6, 2017 10:01 PM Jan 7, 2017 10:01 PM					



This page shows the contents of the SD card which, typically, is used to store "Data Logs" files; these files are created by the "Data Logger" functionality available in Z-NET4 "Remote Control Functions" (see chapter 18).

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

If an SD card is not available on the Device, the "Logs" link is not shown, as in the following figure.

		😲 Ciovanni —]	×
Z-PASS2-S	× /			
← → C ① 192.168	.85.106:8080/index.php	☆	J.	:
SENECA®	Z-PASS2-S Main View [user: admin] [logout]			
Main View	Firmware Version: SW002940_331 [Modem: 1231B029	SIM5350E]		
Network and Services	MAC Address: C8FA81160002 [IMEI: 86226402040671	5]		
VPN Configuration	Internet Access: Ethernet			
Router Configuration	Energy Protocols: none			
Users Configuration	PLC Status: running (ann: znass2s r01 8)			
FW Upgrade				
Conf. Management	Router: running			- 11
Mobile Configuration				
Mobile Network	NETWORK			
Diagnostics	Ethernet Mode	LAN/WAN		
FW Versions	DHCP on WAN	OFF		
Ethernet Interfaces	LAN IP Address	192.168.95.106		
Modbus Modules	LAN Network Mask	266.266.266.0		
Data Logger (SD missing)	WAN IP Address	192.168.85.106		
	WAN Network Mask	266.265.262.0		
	Default Gateway	192.168.85.1		
	DNS Mode	Static		
	DNS Server	192.168.84.113		
	IP Configuration from Discovery	ON		
	WEB SERVER			
	Protocol	нттр		
	HTTP Conf Port	8080		
	HTTP User Port	80		- 11
	FILE TRANSFER			
	Protocol	FTP/SFTP		
	FTP Port	21		
	SFTP Port	22		
	PLC			
	Straton TCP Port	502		
	Straton Redundancy Enable	OFF		
	Straton Redundancy IP Address	192.168.90.102		
	License Key	1122334455667788		
	NTP			
	Enable	ON		
	Primary Server	ntp1.inrim.it		
	Secondary Server	ntp2.inrim.it		
	Time Zone	Central Europe (CET/CEST)		
	Vov	-		-

16.2 User pages

It is also possible to access the Device configuration site as a "non-administrator" user; this user is allowed to access only the "Main View" and "Network and Services" pages, viewing and setting only a limited number of configuration parameters; in S6001-RTU, the "I/O View" page is also available.

Also the "Ethernet Interfaces" and "Modbus Modules" pages of the "Diagnostics" section are available for this kind of user; they will not be shown again here, as they are identical to those for administrator user.

To login as "non-administrator" 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 "Main View" page, described in the following paragraph.

16.2.1 Main View

In this page, some Network parameters and the Web User credentials are shown, with their current values.

To change the parameter values, you have to go to the "Network and Services" page, described in the following paragraph.

16.2.2 Network and Services

The parameters shown in this page slightly change, depending on the HW version of the product (Z-TWS4/Z-PASS2-S or Z-PASS2-S-R01 or Z-PASS2-S-IO) and, for new HW versions, on the selected "Ethernet Mode"; this is shown in the following figures.



The previous figure shows the "Network and Services" page for a Z-PASS2-S-R01/Z-PASS2-S-IO, when the "Ethernet Mode" parameter is set to "Switch"; it also applies to a Z-TWS4 and Z-PASS2-S (old versions) and to a S6001-RTU.



The previous figure shows the "Network and Services" page for a Z-PASS2-S-R01/Z-PASS2-S-IO, when the "Ethernet Mode" parameter is set to "LAN/WAN".

There is an important difference between the parameter values shown in this page and those shown in the "Main View" 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 "Main View" 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.

Note that "Ethernet Mode" parameter is not shown in user pages.

Field	Meaning	Default value		
Ethernet Mode = "Switch"				
NETWORK/DHCP	Flag to enable/disable the DHCP	OFF		
	functionality on the Ethernet			
	interface.			
NETWORK/IP Address	IP address of the Ethernet	192.168.90.101		
	interface (disabled when "DHCP"			
	is set to "ON")			
NETWORK/Network Mask	Network mask of the Ethernet	255.255.255.0		
	interface (disabled when "DHCP"			
	is set to "ON")			
NETWORK/IP Address 2 Enable	Flag to enable/disable the second	OFF		
	IP address on the Ethernet			
	interface.			
	Note that the second IP address			
	can be enabled also when the			
	DHCP functionality is active.			
NETWORK/IP Address 2	Second IP address of the Ethernet	192.168.100.101		
	interface			
NETWORK/Network Mask 2	Second network mask of the	255.255.255.0		
	Ethernet interface			
Ethernet Mode = "LAN/WAN"				
NETWORK/DHCP on WAN	Flag to enable/disable the DHCP	ON		
	functionality on the WAN			
	Ethernet interface			
NETWORK/LAN IP Address	IP address of the LAN Ethernet	192.168.90.101		
	interface			
NETWORK/LAN Network Mask	Network mask of the LAN	255.255.255.0		
	Ethernet interface			
NETWORK/WAN IP Address	IP address of the WAN Ethernet	192.168.100.101		

	interface (disabled when "DHCP	
	on WAN" is set to "UN")	
NETWORK/WAN Network Mask	Network mask of the WAN	255.255.255.0
	Ethernet interface (disabled when	
	"DHCP on WAN" is set to "ON")	
NETWORK/Default Gateway	Default Gateway IP address	192.168.100.1 , for Z-TWS4-
	(disabled when DHCP	R0x and Z-PASS2-S-R0x
	functionality is enabled on any	(x=1,2)
	interface).	192.168.90.1, for all other
	When "Ethernet Mode" is set to	products
	"LAN/WAN", the Default Gateway	
	shall be in the WAN subnet.	
NETWORK/DNS Mode	Tells if the DNS Server shall be set	DHCP, for Z-TWS4-R0x and
	statically (value: "Static") or	Z-PASS2-S-R0x (x=1,2)
	dinamically assigned by the DHCP	Static, for all other products
	Server (value: "DHCP")	
NETWORK/DNS Server	DNS server IP address (disabled	192.168.100.1 , for Z-TWS4-
	when DHCP functionality is	R0x and Z-PASS2-S-R0x
	enabled on any interface and DNS	(x=1,2)
	Mode = DHCP)	192.168.90.1, for all other
		products
WEB USER/Username	Username to access the web	User
	configuration site (limited access)	
WEB USER/Password	Password to access the web	user
	configuration site (limited access)	

Some notes 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";
- only the "DHCP on WAN" parameter can be set to "ON".

You can change any of the above parameters; to apply the changes, press the "APPLY" button.

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

16.2.3 I/O View (S6001-RTU)

This page is identical to that shown for "administrator user" (see 16.1.10).

P1 \$6001-BTU		Giovanni	- 🗆 🗙
← → C [] 192	2 168 85 105:8080/io_view.php		<u> </u>
			~ ~ ~
SENECA SENECA	\$6001-RTU		
General Configuration	I/O View		
Network and Services	Firmware Version: SW002940_220 [Modem: 1231B02SIM5350E]		
\$6001-RTU	MAC Address: C8F98100019B		
I/O View	Internet Access: Ethernet		
	Energy Protocols: none		
	PLC Status: running		
	Router: disabled		
	DIGITAL INPUTS		
	Input 1 LOW		
	Input 2 LOW Input 3 LOW		
	Input 4 LOW		
	Input 6 LOW		
	Input 7 LOW		
	Input 8 LOW		
	Input 10 LOW		
	Input 11 LOW Input 12 LOW		
	Input 13 LOW		
	Input 14 LOW Input 15 LOW		
	DIGITAL OUTPUTS		
	Output 1 OPEN		
	Output 2 OPEN Output 3 OPEN		
	Output 4 OPEN		
	Output 5 OPEN Output 6 OPEN		
	Output 7 OPEN		
	12 Volt Enable Output LOW		
	ANALOG INPUTS		
	Current 1 (uA) 5		
	Current 3 (uA) 2		
	Current 4 (uA) 5		
	Current (uA) 0		
	Voltage (mV) 0		
	ELECTRODES		
	Level 0 Sensitivity (kOhm) 0		
	DIAGNOSTICS		
	Error Status 0 CRC Error Counter 0		
I			

16.3 Guest pages

It is also possible to access the Device configuration site as a "guest" user; this user is allowed to access all the pages except for "FW Upgrade", "Configuration Management"" and "Data Logs" 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 "Main View" page, shown in the following figure.

P1 Z-PASS2-S	×	(!) Ciovanni	-	_]	×
$\epsilon \rightarrow C \bigcirc 1$	92.168.85.104:8080/index.php		Q	07	☆	J.	:
Mobile Network	Kouter: running		•				
DDNS Configuration							^
Digital I/O	NETWORK						
Digital I/O Configuration	Ethernet Mode LAN/WAN						
Diagnostics	DHCP on WAN OFF						
FW Versions	LAN IP Address 192.168.90.101						
Ethernet Interraces	WAN IP Address 192.168.85.104						
WOODUS WOODIES	WAN Network Mask 255.255.252.0						
	Default Gateway 10.64.64						
	DNS Mode Static DNS Server 83.224.65.143 83.224.65.134						
	IP Configuration from Discovery ON						- 11
	WEB SERVER						- 11
	Protocol HTTP/HTTPS						- 11
	HTTP Conf Port 8080						- 11
	HTTP User Port 80						- 11
	HTTPS Port 443						
	FILE TRANSFER						- 11
	Protocol FTP/SFTP						- 11
	FTP Port 21 SETP Port 22						- 11
	PLO						- 11
	Obstant TOP Part FOO						- 11
	Straton Fort 502 Straton Bedundency Enable OFF						- 11
	Straton Redundancy IP Address 192.168.90.102						- 11
	License Key 1122334455667788						- 11
	NTP						- 11
	Enable ON						- 11
	Primary Server ntp1.inrim.it						- 11
	Secondary Server ntp2.inrim.it						- 11
							- 11
							- 11
	Mode VPN Box Enable OFF						- 11
	Server 192.168.90.1						- 11
	Password seneca						- 11
	Tag Name zpass2s						- 11
	MOBILE NETWORK						- 11
	Enable ON						- 11
	APN Mode Manual						- 11
	Authentication Type None						- 11
	Username user						- 11
	Password pass						- 11
	Ping Connection Testing IP Address www.google.com						- 11
	NETWORK BEDUNDANGY						- 11
	Enable OEE						- 11
	Ping Address 8.8.4.4						- 11
	WATCHDOG						
	Englis ON						
	Timeout (a) 60						
	DEBUG LOGS						
	Enable ON						
	004						
	GLEAN INTERNAL DATA LUGS						*

Note that, as told above, the "FACTORY DEFAULT", "RESTART" and "CLEAN INTERNAL DATA LOGS" buttons are disabled.

Another example of a page accessed by the "guest" user is given in the following figure.

					(!) Giovanni	– 🗆 X
Z-PASS2-S	×					
← → C (i) 192.16	8.85.103:8080/mobile_network.php?	showinfo=1				☆ :
	Z-PASS2-S Mobile Network [user: guest] [k	ogout]				
Main View	Firmware Version: SW002940	310 [Modem: 123	1B02SIM5350E	1		
Network and Services	- MAC Address: C8EA81160002					
Real Time Clock Setup						
VPN Configuration	Internet Access: Mobile					
Router Configuration	Energy Protocols: none					
Users Configuration	PLC Status: running (app not ru	unning)				
Mobile Configuration	Router: disabled					
Diagnostics						
Ethernet Interfaces		CURRENT	U	IPDATED		
Modbus Modules	Modem Available	Yes	Yes V			
	Mobile Configuration					
	Enable	ON	ON T			
	APN	ibox.tim.it	ibox.tim.it			
	Authentication Type	None	None •			
	Username	user	user			
	Password	pass	pass			
	PIN (if required by SIM)	1234	1234			
	Ping Connection Testing IP Address (if empty, testing is disabled) APPLY HIDE MOBILE STATUS	www.google.com	www.google.com	1		
	Mobile Signal Lev Registration Connection IP / RX Packets TX Packets REFRESH	e Status rel [07] n Status Address s / Bytes s / Bytes	4 F C 2 3 2	4 Registered Connected 2.192.0.221 3389 / 264.4 2947 / 212.7	(home network) IK /K	

In the "Mobile Network" page, the "APPLY" button is disabled, whereas the "SHOW MOBILE STATUS"/"HIDE MOBILE STATUS" and "REFRESH" buttons are enabled, letting the "guest" user to view the Mobile Status.

17 Seneca StratON Library

To let the users exploit Z-TWS4/Z-PASS2-S/S6001-RTU features in their IEC 61131-3 programs, Seneca has developed a set of "Function Blocks" and Functions, supplied with the Seneca library for StratON.

In this chapter, all the FBs and functions available on Z-TWS4/Z-PASS2-S/S6001-RTU are listed, providing a description of input/output parameters and some notes for each of them.

17.1 Function Blocks

17.1.1 General FB behavior

The description given in this paragraph apply to all the FBs available on Z-TWS4/Z-PASS2-S/S6001-RTU, except for the LINUX_SHELL FB, which has a particular behavior (see related paragraph).

All the FBs require more than one PLC cycle to be completed (Asynchronous Function Block); so, the application shall run them for a number of cycles until it detects that the FB execution has ended.

Every FB has an "ENABLE" parameter, which is an input/output parameter: to let the FB actually run, the application shall put ENABLE=TRUE (input), not changing the parameter value during the FB execution; when the execution is completed, the FB code itself will put ENABLE=FALSE (output); when the FB is called with ENABLE=FALSE, it does nothing and returns the *NOT_DONE* (-2) result value.

All the FBs return the *FAILED* (-1) result value to signal that the FB execution has failed, for a generic reason; some FBs provide further failure result values, in particular the *TIMEOUT* (2) result value.

All the FBs return the *RUNNING* (0) result value to tell the application that the FB processing is still running and the *DONE* (1) result value when the FB processing has successfully ended.



17.1.2 FTP_GET

The FTP GET FB downloads a file, by means of the FTP protocol.

When first called, the FB runs a process which starts performing the download; on subsequent calls, it only checks if the process has finished its job.

The FB has the following input parameters: - HOST : IP address or host name of the FTP server - PORT : TCP port for the FTP protocol (normally: 21) - USERNAME : username for authentication

```
PASSWORD : password for authentication
REM_FILE : name of the file (with path) on the remote server
LOC_FILE : name of the file (with path) on the local device
@ENABLE : TRUE -> FB is executed
    FALSE -> FB is skipped

The FB has the following output parameter:

RESULT : -2, when called with ENABLE=FALSE
-1, in case of any failure
0, if the process is still running
1, if the process has successfully finished.
```

17.1.3 FTP_PUT



The FTP PUT FB uploads a file, by means of the FTP protocol.

When first called, the FB runs a process which starts performing the upload; on subsequent calls, it only checks if the process has finished its job.

```
The FB has the following input parameters:
- HOST
        : IP address or host name of the FTP server
- PORT
           : TCP port for the FTP protocol (normally: 21)
- USERNAME : username for authentication
- PASSWORD : password for authentication
- REM FILE : name of the file (with path) on the remote server
- LOC FILE : name of the file (with path) on the local device
- @ENABLE : TRUE -> FB is executed
            FALSE -> FB is skipped
The FB has the following output parameter:
- RESULT : -2, when called with ENABLE=FALSE
           -1, in case of any failure
            0, if the process is still running
            1, if the process has successfully finished.
```

17.1.4 GET_ALARMS

```
st_GET_AL.
                          GET_ALARMS
                          STA...
                              RE.
               222
                                           222
               ???
                           SEP... FIR.
                                           ???
               ???
                           AX... LAS.
                                           ???
               ???
                           ۹L...
                              RE.
                                           222
               ???
                                 GET_ALARMS (*Retrieve alarms with the specified status from the DB.*)
                                 IN
                                  STATUS: USINT
                                  SEP_CHAR:USINT
                                  MAX_REC:UDINT
                                  FILENAME:STRING
                                  @ENABLE:BOOL
                                 00
                                  RESULT:INT
                                  FIRST_ID:UDINT
LAST_ID:UDINT
                                  REC_NUM:UDINT
This FB retrieves all alarm records with the specified status from the DB;
the records are written as lines into the specified file.
INPUTS:
- STATUS : this parameter is handled as a "negative bitmask", meaning that this
FB will provide alarm records such that:
  (alarms.stat & STATUS) = 0, where:
  alarms.stat: DB field
  STATUS: this parameter
- SEP CHAR : the field separator to be used in the file lines; possible values:
" "|","|";"
- MAX REC : the maximum number of records (lines) to be retrieved
- FILENAME : the file name, with absolute path
- @ENABLE: TRUE -> FB is executed
            FALSE -> FB is skipped
            the parameter is set to FALSE by the FB at the end of execution
OUTPUTS:
- RESULT: the FB result; possible values are:
   0: FB still running
   1: FB successfully executed
  -1: FB execution failed
  -2: FB execution timeout
- FIRST ID : the id of the first record retrieved; this value shall be passed as
an argument to the SET ALARMS STAT FB
- LAST ID : the id of the last record retrieved; this value shall be passed as
an argument to the SET ALARMS_STAT FB
- REC NUM : the number of records retrieved
```

17.1.5 GET_SMS



The GET_SMS FB gets an SMS, previously received, by means of a GSM modem; once read, the SMS is deleted.

When first called, the FB runs a process which starts getting the SMS; on subsequent calls, it only checks if the process has finished its job.

The FB has the following input parameters:

 SERIAL PORT : this parameter is not used (it is still present only for compatibility reasons); it can be set to '' (empty string) TIMEOUT : timeout, in seconds @ENABLE : TRUE -> FB is executed FALSE -> FB is skipped
The FB has the following output parameters:
 RESULT : -2, when called with ENABLE=FALSE -1, in case of any failure 0, if the process is still running 1, if the process has successfully finished and an SMS has been
found
2, if timeout has expired 3, if the process has successfully finished but no SMS has been
found 4, if PPP is active, on Z-MINIRTU 5, if MODEM_RESET FB is running CENDER - ONG condem (only if DECUIE-1)
- SENDER : SMS sender (only if RESULT=1) - DATETIME : Date/time of SMS reception (only if RESULT=1) - TEXT : SMS text (only if RESULT=1)

Please note that the GET_SMS FB can't be successfully executed while the PPP connection is active, on Z-MINIRTU.

17.1.6 LINUX_SHELL



Seneca FB for access to the Linux Shell. Max 255 command line characters. For access to the output use "> output.txt"

Shell_cmd : string command @Enable : if true execute the shell command Result : the return value of the "system" C function

Usage Example:

"ls > output1.txt"

create the directory list into output1.txt

17.1.7 LINUX_SH_ASYNC



The LINUX SH ASYNC FB executes a command in a Linux shell, in asynchronous mode.

When first called, the FB runs a Linux shell process which starts performing the command; on subsequent calls, it only checks if the process has finished the command execution.

The FB has the following input parameters: - COMMAND : the command to be executed

- TIMEOUT : timeout, in seconds
- @ENABLE : TRUE -> FB is executed FALSE -> FB is skipped

The FB has the following output parameters:

RESULT : -2, when called with ENABLE=FALSE
-1, in case of any failure
0, if the process is still running
1, if the process has successfully finished
2, if timeout has expired
CMD RESULT: command exit code

17.1.8 MODEM_CTRL



The MODEM_CTRL FB sends a generic AT command to the GSM modem and receives the corresponding response.

When first called, the FB runs a process which starts sending the command; on subsequent calls, it only checks if the process has finished its job.

The FB has the following input parameters:

```
- SERIAL PORT : this parameter is not used (it is still present only for
compatibility reasons); it can be set to '' (empty string)
- COMMAND
           : AT command to be executed
- TIMEOUT
             : timeout, in seconds
- @ENABLE
             : TRUE -> FB is executed
               FALSE -> FB is skipped
The FB has the following output parameters:
         : -2, when called with ENABLE=FALSE
- RESULT
             -1, in case of any failure
              0, if the process is still running
              1, if the process has successfully finished
                 (NOTE: this only means that the command was successfully sent
and the response was successfully received;
                 it does not necessarily mean that the AT command was
successfully executed;
                 in other words, it is up to the application to tell if the
response means success or failure)
              2, if timeout has expired
              4, if PPP is active, on Z-MINIRTU
              5, if MODEM RESET FB is running
- RESPONSE : the response to the AT command, as sent by the modem; it can
contain more lines, separated by a '\' character;
if the whole response is longer than 255 characters, it will be truncated.
Please note that the MODEM CTRL FB can't be successfully executed while the PPP
```

connection is active, on Z-MINIRTU.

This FB cannot be used (i.e.: it won't work) in the following situations:

- if modem is set to send numeric result codes (see "ATV" command)

- for commands using a prompt (e.g.: "AT+CMGS" command)

- for call-handling commands (e.g.: "ATD", "ATA", "ATH").

17.1.9 MODEM_ONOFF

Inst_MOI MODEM	DEM	
???ON	RE ???	
??? — <mark>1</mark> @E		
	MODEM_ONOFF ("Power on/of IN ON_OFF:BOOL @ENABLE:BOOL OUT RESULT:INT	f the Modem (Z-TWS4, Z-PASS2-S, Z-MINIRTU)*)

This FB permits to control the power ON/OFF digital input of the MODEM.

The params are :

ON_OFF : if True power-up the modem @ENABLE : if True the FB is executed

RESULT : -2 FB executed with @ENABLE set to False -1 Error 0 operation not completed +1 OK +2 modem is already ON/OFF

17.1.10 MODEM_RESET



The MODEM_RESET FB sends an AT reset command to the GSM modem and waits for a specified time.

When first called, the FB runs a process which starts sending the command; on subsequent calls, it only checks if the process has finished its job.

The FB has the following input parameters:

- SERIAL_PORT	: this parameter is not used (it is still present only for
compatibility	reasons); it can be set to '' (empty string)
- COMMAND	: reset AT command to be sent;
	if left empty, the "AT+CFUN=1,1" command will be sent
- WAIT	: wait duration, in seconds, after sending the command;
	valid values are: [30300]
- @ENABLE	: TRUE -> FB is executed
	FALSE -> FB is skipped
The FB has the	e following output parameter:
- RESULT : -2 ,	when called with ENABLE=FALSE
-1,	in case of any failure
Ο,	if the process is still running

1, if the process has successfully finished

2, if timeout has expired (timeout = WAIT + 5 seconds)

- 4, if PPP is active, on Z-MINIRTU
- 5, if MODEM RESET FB is already running

Please note that the MODEM_RESET FB can't be successfully executed while the PPP connection is active, on Z-MINIRTU. Also note that, when MODEM_RESET FB is running, all other "modem related" FBs (PPP_CONNECT, SEND_SMS, GET_SMS, MODEM_CTRL and MODEM_RESET itself) are rejected.

P CONN. RE. 1111001 LO. SER. GP... RE. USE. AC. PPP_CONNECT (*PPP connection setup/release (Z-TWS4)*) ¢тім., $\cdots \square$ IN €/@E... CONNECT:BOOL SERIAL_PORT:STRING GPRS_APN:STRING USERNAME:STRING PASSWORD:STRING TIMEOUT:UINT @ENABLE:BOOL OUT RESULT:INT LOCAL_IP:STRING REMOTE_IP:STRING

17.1.11 PPP_CONNECT

The PPP_CONNECT FB performs PPP connection setup or release, by means of a $\ensuremath{\mathsf{GPRS}}\xspace/\mathsf{UMTS}\xspace$ modem.

When first called, it runs a process which starts the connection setup or release; on subsequent calls, it only checks if the process has finished its job.

The FB has the following input parameters:

- CONNECT	: TRUE -> connection setup
	FALSE -> connection release
- SERIAL PORT	: this parameter is not used (it is still present only for
compatibility	reasons); it can be set to '' (empty string)
- GPRS_APN	: GPRS Access Point Name (as given by the mobile operator);
—	if this parameter is left empty, "Automatic APN" functionality
is activated	
- USERNAME	: username required for authentication
	(it can be empty, if authentication is not required);
	not used with "Automatic APN" functionality
- PASSWORD	: password required for authentication
	(it can be empty, if authentication is not required)
	not used with "Automatic APN" functionality
- TIMEOUT	: timeout, in seconds
- @ENABLE	: TRUE -> FB is executed
	FALSE -> FB is skipped

When CONNECT=FALSE, GPRS APN, USERNAME and PASSWORD parameters can be empty.

The FB has the following output parameters: - RESULT : -2, when called with ENABLE=FALSE -1, in case of any failure 0, if the process is still running 1, if the process has successfully finished 2, if timeout has expired 5, if MODEM_RESET FB is running - LOCAL_IP : IP address assigned to the PPP network interface (only if RESULT=1, when CONNECT=TRUE) - REMOTE_IP : IP address of the remote host (set as default gateway) (only if RESULT=1, when CONNECT=TRUE)

17.1.12 PPP_CONNECT_R2



The PPP CONNECT R2 FB performs PPP connection setup or release, by means of a GPRS/UMTS modem. When first called, it runs a process which starts the connection setup or release; on subsequent calls, it only checks if the process has finished its job. The FB has the following input parameters: - CONNECT : TRUE -> connection setup FALSE -> connection release - SERIAL PORT : this parameter is not used (it is still present only for compatibility reasons); it can be set to '' (empty string) - GPRS APN : GPRS Access Point Name (as given by the mobile network operator); if this parameter is left empty, "Automatic APN" functionality is activated - USERNAME : username required for authentication (it can be empty, if authentication is not required); not used with "Automatic APN" functionality - PASSWORD : password required for authentication (it can be empty, if authentication is not required); not used with "Automatic APN" functionality - AUTH TYPE : authentication type: 0 : None 1 : CHAP/PAP 2 : CHAP only 3 : PAP only not used with "Automatic APN" functionality - PING HOST : IP address or Host Name used to check that PPP connectivity is available, running ping test; if this parameter is left empty, ping test is not performed - TIMEOUT : timeout, in seconds - @ENABLE : TRUE -> FB is executed FALSE -> FB is skipped

When CONNECT=FALSE, GPRS_APN, USERNAME, PASSWORD and PING_HOST parameters can be empty.

17.1.13 PPP_STATUS

	nst_PPP_ST.
???	<u>SER RE</u> ???
	PPP_STATUS (*PPP connection status (Z-TWS4, Z-PASS2-S, Z-MINIRTU
	IN
	SERIAL_PORT:STRING
	OUT
	RESULT:INT

The PPP STATUS FB returns PPP connection status.

The FB has the following input parameters: - SERIAL_PORT : this parameter is not used (it is still present only for compatibility reasons); it can be set to '' (empty string)

The FB has the following output parameters:

- RESULT : 0, PPP DISCONNECTED
 - 1, PPP CONNECTED
 - 2, PPP CONNECTING
 - 3, PPP DISCONNECTING

17.1.14 PUT_ALARM



This FB stores an alarm record into the DB; the "index" and "timestamp" fields are set by the FB; the "status" field is set to 0 by the FB. The FB is also responsible for keeping the DB size (number of records) under a specified limit (e.g.: 1000). INPUTS:

```
- LEVEL: a string representing the alarm/event level (e.g.: "INFO") (max_len=10);
```

```
possible values are defined by the application
```

SOURCE: a string representing the alarm/event source (e.g.: "GRP1") (max_len=10); possible values are defined by the application
MSG: the text message of the alarm (max_len=255)
@ENABLE: TRUE -> FB is executed FALSE -> FB is skipped the parameter is set to FALSE by the FB at the end of execution

OUTPUTS:

- RESULT: the FB result; possible values are:
 - 0: FB still running
 - 1: FB successfully executed
 - -1: FB execution failed
 - -2: FB execution timeout

17.1.15 S7_DB_READ



This FB performs an S7 protocol Data Block read operation. It connects to the specified S7 server IP address, rack and slot, performs the operation and then disconnects. The data read are written to the Straton shared-memory specified in the SHM_NAME parameter.

INPUTS:

- SERVER ADDR: the S7 server IP address
- SERVER RACK: the S7 server rack number
- SERVER SLOT: the S7 server slot number
- SHM NAME: name of the Straton shared-memory which the data are written to
- SHM SIZE: size of the Straton shared-memory which the data are written to
- DB NUM: the number of the Data Block to be read
- OFFSET: start offset for the read operation in the Data Block
- LEN: number of bytes to be read
- TIMEOUT: timeout for the FB execution, in seconds

- @ENABLE: TRUE -> FB is executed
FALSE -> FB is skipped
the parameter is set to FALSE by the FB at the end of execution
OUTPUTS:
- RESULT: the FB result; possible values are:

0: FB still running
1: FB successfully executed
-1: FB execution failed
-2: FB execution timeout

- S7_CLI_RESULT: the S7 Client result; possible values are:

0: no failure
-1: invalid arguments failure
-2: initialization failure (e.g.: error opening the shared-memory)
-3: connection failure
-4: read operation failure

17.1.16 S7_DB_WRITE

		nst_S7_DB	ĺ.		
		S7_DB_WR			
???)—i	SER RE	<u>-</u> ???		
???	-	SER S7	<u> </u>		
???	i-i	SER			
???	i-i	SH			
???	i-l	SH			
???	i-i	DB			
???	i-i	OFF			
???	i-i	LEN			
???	i-i	тім			
???	-	@E	2 S7 DB WRITE (*Perform an	S7 protocol Data Block write operation (7-TWS4 7-PASS2-S	\$6001-RTUN*)
			IN SERVER_ADDR:STRING SERVER_RACK:UINT SERVER_SLOT:UINT SHM_NAME:STRING SHM_SIZE:UINT DB_NUM:UINT OFFSET:UINT LEN:UINT TIMEOUT:UINT @ENABLE:BOOL		
			OUT RESULT:INT		
			S7_CLI_RESULT:INT		

This FB performs an S7 protocol Data Block write operation. It connects to the specified S7 server IP address, rack and slot, performs the operation and then disconnects. The data to be written are read from the Straton shared-memory specified in the SHM_NAME parameter.

INPUTS:

- SERVER_ADDR: the S7 server IP address
- SERVER RACK: the S7 server rack number
- SERVER SLOT: the S7 server slot number
- SHM NAME: name of the Straton shared-memory which the data are read from
- SHM SIZE: size of the Straton shared-memory which the data are read from
- DB NUM: the number of the Data Block to be written
- OFFSET: start offset for the write operation in the Data Block
- LEN: number of bytes to be written
- TIMEOUT: timeout for the FB execution, in seconds
- @ENABLE: TRUE -> FB is executed

```
FALSE -> FB is skipped
the parameter is set to FALSE by the FB at the end of execution
OUTPUTS:
- RESULT: the FB result; possible values are:
    0: FB still running
    1: FB successfully executed
    -1: FB execution failed
    -2: FB execution timeout
- S7_CLI_RESULT: the S7 Client result; possible values are:
    0: no failure
    -1: invalid arguments failure
    -2: initialization failure (e.g.: error opening the shared-memory)
    -3: connection failure
    -4: write operation failure
```

17.1.17 SEND_MAIL



The SEND_MAIL FB sends an e-mail, by means of the SMTP/SMTPS protocol. When first called, the FB runs a process which starts sending the e-mail; on subsequent calls, it only checks if the process has finished its job. The FB has the following input parameters: - SMTP_HOST : IP address or host name of the SMTP/SMTPS server - SMTP_PORT : TCP port for the SMTP/SMTPS protocol (normally: 25, for SMTP; 465, for SMTPS) - CRYPTO_ON : if cryptography (SSL) shall be used (FALSE -> SMTP, TRUE -> SMTPS) (CRYPTO_ON=TRUE is available only for Z-TWS4/Z-PASS2-S)

```
- AUTH_ON : if authentication shall be executed
```

```
- AUTH_USERNAME : username for authentication
```

```
- AUTH PASSWORD : password for authentication
- FROM
                : e-mail sender
- то
                : e-mail recipient
                 more than one recipient can be specified, using the ','
character as separator
- SUBJECT
               : e-mail subject
- TEXT
                : e-mail text
                : name of the file (with path) to be attached to the e-mail (it
- ATTACH FILE
can be empty)
- @ENABLE
                : TRUE -> FB is executed
                  FALSE -> FB is skipped
The FB has the following output parameter:
- RESULT : -2, when called with ENABLE=FALSE
           -1, in case of any failure
            0, if the process is still running
            1, if the process has successfully finished.
```

17.1.18 SEND_SMS



The SEND SMS FB sends an SMS, by means of a GSM modem.

When first called, it runs a process which starts sending the SMS; on subsequent calls, it only checks if the process has finished its job.

The FB has the following input parameters:

- SERIAL_PORT	: this parameter is not used (it is still present only for
compatibility	reasons); it can be set to '' (empty string)
- SC_NUM	: SMS Service Center (as given by the mobile operator) (it can be
empty, if the	SC number is already set on the modem/SIM)
- TO_NUM	: recipient number
- SMS_BODY	: SMS text
- TIMEOUT	: timeout, in seconds
- @ENABLE	: TRUE -> FB is executed
	FALSE -> FB is skipped
The FR has th	e following output parameter.
	e lottowing output parameter.
- RESULT : -2	, when called with ENABLE=FALSE
-1	, in case of any failure
0	, if the process is still running
1	, if the process has successfully finished

2, if timeout has expired

4, if PPP is active, on Z-MINIRTU
5, if MODEM RESET FB is running

Please note that the SEND SMS FB can't be successfully executed while the PPP connection is active, on $\overline{\rm Z}\mbox{-MINIRTU}.$

17.1.19 SERVICE_CTRL

	Inst_SERVI	
???	SER RE	
???	SER ER	???
???	TIM	
???	@E	
		SERVICE_CTRL (*FB to enable/disable remote connection services (Z-TWS4, Z-PASS2-S, S6001-RTU)*) IN SERVICE_ENABLE:BOOL SERVICE_LEVEL:INT TIMEOUT:UINT @ENABLE:BOOL OUT RESULT:INT ERROR:INT

The SERVICE_CTRL FB enables or disables connection services, based on the required service level.

When first called, it runs a process which starts the procedure; on subsequent calls, it only checks if the process has finished its job.

The FB has the following input parameters:

```
- SERVICE ENABLE : TRUE -> enable connection services
                  FALSE -> disable connection services
- SERVICE LEVEL : this parameter defines the "Security Level", that is it tells
which connection services shall be enabled/disabled;
possible values are:
 0: None
 1: VPN Connection
 2: VPN Service
 3: Internet Connection
 4: SMS Service
-1: the value of the "Security Level / Service Disable" configuration parameter
will be used
- TIMEOUT : timeout, in seconds
- @ENABLE : TRUE -> FB is executed
            FALSE -> FB is skipped
The FB has the following output parameters:
- RESULT : -2, when called with ENABLE=FALSE
           -1, in case of any failure
            0, if the process is still running
            1, if the process has successfully finished
            2, if timeout has expired
- ERROR : this parameter is meaningful only when RESULT=-1; in all other cases,
it is set to 0;
possible values are:
1: the FB has been called with SERVICE LEVEL=0
2: the procedure to enable/disable the connection services is already running
3: the CPU configuration procedure is running -> FB execution has been aborted
```

4: connection services are disabled since Remote Connection Disable (RCD) digital input is HIGH -> FB execution has been aborted

17.1.20 SET_ALARMS_STAT

	nst_SET_AL SET_ALAR		
???	STA RE	???	
???	FIR		
???	LAS		
???			
	SET_F IN STA FIR: LAS	ALARMS_STAT (*Set the : ITUS:USINT ST_ID:UDINT T_ID:UDINT NABLE:BOOL	status of the specified alarms in the DB.*)
	OUT RES	SULT:INT	

This FB sets the value of the "status" field for the alarm records specified by the passed arguments.

```
INPUTS:
- STATUS : this parameter is handled as a bitmask, meaning that the status of
the relevant alarm records will be set as:
 alarms.stat = (alarms.stat | STATUS), where:
 alarms.stat: DB field
 STATUS: this parameter
- FIRST ID : the id of the first record retrieved by the GET ALARMS FB
- LAST ID : the id of the last record retrieved by the GET ALARMS FB
- @ENABLE: TRUE -> FB is executed
          FALSE -> FB is skipped
          the parameter is set to FALSE by the FB at the end of execution
OUTPUTS:
- RESULT: the FB result; possible values are:
  0: FB still running
  1: FB successfully executed
  -1: FB execution failed
```

-2: FB execution timeout

17.1.21 TIME_SYNC

OTIME_SYNC	
	TIME_SYNC ("Time synchronization by means of NTP protocol (Z-TWS4, Z-TWS11)")
	IN
	@ENABLE:BOOL
	OUT
	RESULT:INT

The TIME SYNC FB performs time synchronization, by means of the NTP protocol.

When first called, the FB runs a process which starts performing the synchronization; on subsequent calls, it only checks if the process has finished its job. The FB has the following input parameter: - @ENABLE : TRUE -> FB is executed FALSE -> FB is skipped The FB has the following output parameter: - RESULT : -2, when called with ENABLE=FALSE -1, in case of any failure 0, if the process is still running 1, if the process has successfully finished.

17.1.22 VPNBOX_STATUS



This FB provides information about the VPN Box functionality.

INPUTS: none

OUTPUTS: - TRANS_RES : the result of the last VPN Box transaction performed by the CPU;

possible values: -2: No response from VPN Box -1: Invalid response from VPN Box 0: OK 3: Wrong password 7: License limit reached 201: Generic error 202: VPN Box not configured 1000: No transaction has been performed (e.g.: VPN Box functionality is disabled) other: Unexpected response - TRANS TYPE : the type of the last VPN Box transaction performed by the CPU; possible values: 0: None (no transaction performed) 1: Register 2: Poll - CLIENT CONN : flag telling if a VPN Client is connected (meaningful only for "Point-to-Point" VPN Box) 0: no VPN client is connected 1: a VPN client is connected - USER CONN : if a VPN Client is connected, this parameter provides the authenticated username; otherwise, it is an empty string ('') (meaningful only for "Point-to-Point" VPN Box)

17.2 Functions

17.2.1 FM_WRITE_NCRLF



Same behaviour as FM_WRITE but without inserting final CR-LF $\,$

Input parameters:
- ID: id of the file (already open)
IV

- IN: string to write into the file

Output parameters:
- OK: boolean result value: (TRUE:success, FALSE:failure)

17.2.2 TXBAPPENDFILE



Append a Text Buffer to a file (without reloading the file).

Input parameters
- HTXB: Text Buffer handle
- SZPATH: file absolute path

Output parameters
- BOK: boolean result value: (TRUE:success, FALSE:failure)

17.2.3 GET_MIN_SINCE2K



This function returns the current number of minutes since January 1, 2000 0:00:00, if DATETIME is empty or DATETIME is not a valid date/time; otherwise, it returns the number of minutes since January 1, 2000 0:00:00, corresponding to DATETIME. DATETIME shall have the following format: "dd/mt/yyyy hh:mm:ss"

17.2.4 WDOG_KEEP_ALIVE

WDOG_KE... RE... ??? WDOG_KEEP_ALIVE ("Function to refresh the HW Watchdog (Z-TWS4, Z-PASS2-S, S6001-RTU)") OUT RESULT:INT

This function restarts the HW Watchdog timer.

NOTICE: once enabled, the HW Watchdog cannot be disabled; the WDOG_KEEP_ALIVE function shall be called to restart the timer; if timeout elapses, an HW reboot is triggered.

To let this function actually work, the "WATCHDOG/Enable" parameter in the CPU configuration shall be set to "OFF"; otherwise, the function will return the -2 value (see below).

INPUTS: none

OUTPUTS:

- RESULT: the function result; possible values are:

0: OK

-1: watchdog setting failed (WDOG_SET_TMO function has not been called or failed)

-2: watchdog controlled by system ("WATCHDOG/Enable" parameter set to "ON") -3: watchdog keep-alive failed

17.2.5 WDOG_SET_TMO



This function enables the HW Watchdog.

NOTICE: once enabled, the HW Watchdog cannot be disabled; the WDOG_KEEP_ALIVE function shall be called to restart the timer; if timeout elapses, an HW reboot is triggered.

The function can be called many times; if the timeout value is the same already set, it will do nothing; otherwise, the new timeout value will be set.

To let this function actually work, the "WATCHDOG/Enable" parameter in the CPU configuration shall be set to "OFF"; otherwise, the function will return the -2 value (see below).

INPUTS:

TIMEOUT: Watchdog timeout, in seconds; possibile values: [30..3600]; if an out-of-range value is given, the default value 60 will be set
@TIMEOUT_SET: at the end of the execution, this parameter will contain the timeout value actually set (in seconds)

OUTPUTS:

RESULT: the function result; possible values are:
0: OK
-1: watchdog setting failed
-2: watchdog controlled by system ("WATCHDOG/Enable" parameter set to "ON")

18 Z-NET4

When using Z-TWS4/Z-PASS2-S/S6001-RTU with Modbus RTU I/O Modules, a very useful and powerful tool is provided by the Z-NET4 program suite, running on Windows PCs.

Among other things, these programs let you:

- automatically discover the I/O modules available on the bus;
- configure the CPU (Z-TWS4/Z-PASS2-S/S6001-RTU) and the I/O modules;
- automatically create a StratON project containing the I/O variables, with the Modbus tasks needed to acquire/control them; for S6001-RTU, variables corresponding to the CPU I/Os are also inserted into the project
- automatically generate code for the StratON project, performing "Remote Control Functions", such as:
 - Data Logging
 - Command and Status SMS
 - Alarm generation
- easily create custom web pages, with graphic widgets, and upload them to the CPU (these pages can be accessed on the standard HTTP [80] TCP port).

The Z-NET4 SW is available at the following link:

http://www.seneca.it/products/z-net4

Please contact Seneca to get more information about the Z-NET4 suite.

19 Access to Straton variables

The aim of this chapter is to explain how an application (typically, web-based) can access the variables of the Straton Soft-PLC running on Z-TWS4/Z-PASS2-S/S6001-RTU.

Currently, there are two ways to access Straton variables:

- direct access to Straton shared-memory
- access by means of CGI

The main differences between the two methods is that the first requires developing a C program, running on the Device, typically invoked by the *lighttpd* web server, while the second does not require any changes in the Device FW, provided that the currently supported CGIs are used.

19.1 Shared Memory

Straton Workbench lets you define a shared-memory area and tell which PLC variables shall be put in it.

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For each variable in the shared-memory, the Workbench lets you define the following properties:

- Symbol: the name of a Straton variable defined elsewhere (Global Variables, Retain Variables etc.)
- *Offset*: the offset in the shared-memory
- *Size*: the variable size, in bytes
- Format: the kind of variable, i.e. "signed integer"
- *Mode*: if the variable is an *Input*, an *Output* or an *In/Out* (from the Straton point of view)

	Variable	×
Identification Symbol: VarINT Offset: 0		OK Cancel
Format in shared memory Format: Signed integer Select a predefined data type	✓ Size: 2	
Exchange mode Input (from shared memory to S Output (from STRATON to share In/Out (Bidirectional)	STRATON) ed memory)	

The list of variables in the shared-memory, along with their properties, can be saved to / loaded from a *csv* file; the format of this file is as in the following example:

```
"NAME";"OFFSET";"SIZE";"FORMAT";"MODE";"ERROR_REPORT"
"VarINT";"0";"2";"0";"2";"CPU_ErrorReport_dummy"
"VarUINT";"2";"2";"1";"2";"CPU_ErrorReport_dummy"
"VarDINT";"4";"4";"0";"2";"CPU_ErrorReport_dummy"
"VarUDINT";"8";"4";"1";"2";"CPU_ErrorReport_dummy"
```

19.2 C program example

In this paragraph, an example is given of a simple C program which can be used to access a shared-memory.

The program arguments lets you specify:

- the shared-memory name
- the shared-memory size
- the offset, used to tell the program from which address in the shared-memory it shall start printing byte values

```
int main(int argc, char* argv[])
{
    long shmid;
    char *pMap;
    sem_t *sem;
    int i, iCpt ;
    for (i=1; i<argc; i++)
    {
        if (strcmp (argv[i], "?") == 0 || strcmp (argv[i], "/?") == 0)
        {
            printf ("Syntax: shmtest [options]\n");
            printf ("Options:\n");
            printf (" /name= Named memory\n");
            printf (" /size= Memory size\n");
        }
    }
}
</pre>
```
```
printf (" /offset=
                                Memory offset\n");
        return 0;
    }
    if (strncmp (argv[i], "/name=", 6) == 0)
    {
        strcpy (szName, (argv[i] + 6)) ;
    }
    else if (strncmp (argv[i], "/size=", 6) == 0)
    {
        wSize = atoi (argv[i] + 6);
    }
    else if (strncmp (argv[i], "/offset=", 8) == 0)
    {
        wOffset = atoi (argv[i] + 8);
    }
}
shmid = shm_open(szName, O_RDWR, S_IRWXO|S_IRWXG|S_IRWXU) ;
if (shmid < OL)
{
   printf("Error shm open : <%s>\n", szName) ;
   return 0;
}
ftruncate(shmid, wSize) ;
pMap = mmap(NULL, wSize, PROT READ | PROT WRITE, MAP SHARED, shmid, 0);
if (pMap == MAP FAILED)
{
   printf("Error mmap : <%s> size <%d>\n", szName, wSize) ;
   return 0;
}
sem = sem open(szName, O RDWR, S IRUSR | S IWUSR, 0);
if (sem == SEM FAILED)
{
   printf("Error sem_open : <%s>\n", szName) ;
   return 0;
}
init_keyboard() ;
iCpt = 0;
while( ShouldTerminate()==0)
{
    sem wait(sem) ;
    printf("Iteration %d\n", iCpt++) ;
   for (i=0+wOffset ; i<wSize ; i++)</pre>
     printf ("%02X ", (unsigned char)pMap[i]);
     if ((i+1)%16 == 0)
       printf("\n") ;
    }
    sem_post(sem);
   usleep(100*1000) ;
   system("clear") ;
}
close_keyboard() ;
munmap(pMap, wSize);
sem close(sem);
close (shmid) ;
return 0;
```

}

Note that the above code will print shared-memory byte values, without any knowledge of the variables properties.

Indeed, it is important to understand that <u>the shared-memory contains only the variables values</u>; the variables properties shall be retrieved, for example, by loading them from the *csv* file, shown above.

Below, some lines of code are given providing some definitions useful for variables properties handling.

```
#define VAR NAME MAX LEN 50
#define VAR MAX NUM 100
typedef enum
{
    VAR FORMAT INT,
   VAR FORMAT UINT,
   VAR_FORMAT_FLOAT,
   VAR_FORMAT_STRING,
   VAR FORMAT NUM
} VAR FORMAT T;
const char *var_format_str[] =
{
    "integer",
    "unsigned integer",
    "float",
    "string"
};
typedef enum
{
    VAR MODE_IN,
    VAR MODE OUT,
    VAR MODE INOUT,
    VAR MODE NUM
} VAR MODE T;
const char *var_mode_str[] =
{
    "input",
    "output",
    "input/output"
};
typedef struct VarDescrS
{
    char name[VAR NAME MAX LEN+1];
    unsigned int offset;
   unsigned int size;
   VAR FORMAT T format;
   VAR MODE T mode;
} VarDescrT;
static VarDescrT *vars[VAR MAX NUM];
```

19.3 CGI

Another way to gain access to the Straton variables is by means of CGIs.

The variables that can be read/written by means of CGIs are those which are placed in the Straton sharedmemory. In the Device FW, a daemon is running which:

- parses the CGI requests
- reads/writes the requested variables from/to the shared-memory
- gives back the values/results in the CGI responses

Two CGIs are defined, one to read and one to write variables, as described in the following.

Both CGIs shall be inserted into HTTP POST requests.

It is important to note that, as far as the variables properties are concerned, normally the application sending the CGIs doesn't need to know the offset, size and format of a variable, while it needs to know the variables names and, possibly, the variables modes, to tell which variables can be read/written and which can only be read.

19.3.1 CGI "readVariable"

To read one variable:

```
request:
goform/readVariable?nVars=1&var1=<var name1>
response:
#<var name1>
                                <var code1> <var add info1>
<var value1>
Example:
request:
goform/readVariable?nVars=1&var1=M1 Output 1
response (successful case):
# M1 Output 1
                               0
1
response (failure case):
# M1 Output 1
                               5 Operation timeout
```

The CGI can be extended to read N variables (N>1), for example to read 2 variables:

goform/readVariable?nVars=2&var1=<var name1>&var2=<var name2>

The response contains N sections with the format described above.

19.3.2 CGI "writeVariable"

To write one variable:

Example:

request goform/writeVariable?nVars=1&var1=M1_Output_1&value1=1 response (successful case): # M1_Output_1 0 response (failure case): # M1_Output_1 5 Operation timeout

The CGI can be extended to write N variables (N>1), for example to write 2 variables:

```
goform/writeVariable?nVars=2&var1=<var_name1>&var2=<var_name2>&value1=<va
r_value1>&value2=<var_value2>
```

The response contains N sections with the format described above.

20 Glossary

<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.