## **USER MANUAL**

# SERIES R I/O WITH PROTOCOL MODBUS TCP-IP and MODBUS RTU



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### **Document revisions**

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#### 1. INTRODUCTION



This user manual extends the information from the installation manual to the configuration of the device. Use the installation manual for more information.



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#### 2. R SERIES DEVICES

The R Series I/O modules are devices designed for flexible cabling needs, reduced installation spaces, high I/O density applications with ModBUS communication (serial and Ethernet). Configuration can be done via dedicated software and/or DIP switches.

The devices can be connected in daisy chain mode (without the use of an external switch) and support fault-bypass mode to ensure the Ethernet connection even in the event of failure of a module in the chain.

For more information on these protocols, see the website: http://www.modbus.org/specs.php.

#### 2.1. **R-32DIDO**

The devices allow the use of 32 digital channels that can be individually configured for input or output. When a digital channel is configured as an input, a 32-bit counter is also associated with a value saved in non-volatile memory.

CODE	ETHERNET PORT
R-32DIDO-2	2 PORTS 10/100 Mbit
	(Switch mode)



#### 2.1.1. PROTECTION OF DIGITAL OUTPUTS

The outputs are protected against overload and against overtemperature, they open cyclically until the fault is repaired or the output opens.

The limit current is between 0.6 and 1.2 A.

#### 2.1.2. DIGITAL COUNTERS ACQUISITION TIME

The faster digital counters acquisition time is 1ms

#### 2.2. R-16DI-8DO

The devices allow the use of 16 digital input channels and 8 digital relay output channels.

CODE	ETHERNET PORT
R-16DI8DO	2 PORTS 10/100 Mbit
	(Switch mode)

#### 2.3. **R-8AI-8DIDO**

The devices allow the use of 8 analog input channels and 8 digital channels that can be individually configured for input or output.

CODE	ETHERNET PORT
R-8AI-8DIDO-2	2 PORTS 10/100 Mbit
	(Switch mode)

#### 2.3.1. ANALOG INPUT UPDATE TIME

Sampling time can be configured from 25ms to 400ms per each channel, in particular:

CHANNEL SAMPLING TIME
25 ms
50 ms
100 ms
200 ms
400 ms

To calculate the update time of a channel, consider the following example:

By activating 8 channels and setting a sampling time of 25 ms, you get an input update every: 25\*8 = 200 ms.



#### Note (only if thermocouple channels are enabled):

In the case of a thermocouple input, the Burnout check is carried out every 10 seconds.

The duration of this check takes 25ms on each enabled thermocouple channel.

For example, with 3 active thermocouples, every 10 seconds the following are used:

25ms x 3 channels = 75 ms for Burnout evaluation.

#### 2.3.2. UPDATE TIME OF DIGITAL INPUTS/OUTPUTS

The update time of the 8 digital inputs/outputs is 25ms.

#### 2.3.3. PROTECTION OF DIGITAL OUTPUTS

The outputs are protected against overload and against overtemperature, they open cyclically until the fault is repaired or the output opens.

The limit current is between 0.6 and 1.2 A.

#### 2.4. **R-SG3**

R- SG3 is a load cell converter (strain gauge). The measurement, carried out with the 4 or 6-wire technique, is available via the server TCP-IP Modbus or via RTU slave Modbus protocols

The device is equipped with a new noise filter specifically developed to obtain a rapid response time. The device is also fully configurable via the webserver.

CODE	ETHERNET PORT
R-SG3	1 PORT 10/100 Mbit



#### 2.4.1. LOAD CELL CONNECTION

It is possible to connect the converter to the load cell in 4- or 6-wire mode. 6-wire measurement is preferable for measurement accuracy.

The load cell power supply is provided directly by the device.

#### 2.4.2. 4- OR 6-WIRE LOAD CELL CONNECTION

A load cell can have a four-wire or six-wire cable. In addition to having the +/- excitation and +/- signal lines a six-wire cable also has the +/- sense lines. It is a common misconception to think that the only difference between 4- or 6-wire load cells is the possibility of the latter to measure the actual voltage at the load cell. A load cell is compensated to work within specifications in a certain temperature range (usually -10 - +40°C). Since the cable resistance depends on the temperature, the response of the cable to temperature changes must be eliminated. The 4-wire cable is part of the load cell temperature compensation system. The 4-wire load cell is calibrated and compensated with a certain amount of cable connected. For this reason, never cut the cable of a 4-wire load cell. The cable of a 6-wire cell, on the other hand, is not part of the load cell temperature compensation system. The sense lines are connected to the R-SG3 sense terminals, to measure and adjust the actual voltage of the load cell. The advantage of using this "active" system is the possibility of cutting (or extending) the 6-wire load cell cable to any length. It must be considered that a 6-wire load cell will not reach the performance declared in the specifications if the sense lines are not used.

#### 2.4.3. CHECKING THE LOAD CELL OPERATION

Before starting the configuration of the device it is necessary to verify the correctness of the wiring and the integrity of the load cell.

#### 2.4.3.1. CHECKING CABLES WITH A DIGITAL MULTIMETER

First you need to check with the load cell manual that there are about 5V DC between the +Excitation and – Excitation cables. If the cell has 6 wires check that the same voltage is also measured between +Sense and – Sense.

Now leave the cell at rest (without the tare) and check that the voltage between the +Signal and -Signal cables is around 0 V.

Now unbalance the cell by applying a compression force, checking that the voltage between the +Signal and – Signal cables increases until it reaches the full scale (if possible) where the measurement will be approximately:

5\* (cell sensitivity) mV.

For example, if the declared cell sensitivity is 2 mV/V, 5 \* 2 = 10 mV must be obtained.



In the case of bipolar measurement only (compression/traction) it is necessary to completely unbalance the cell even in traction, in this case the same value must be measured between the +Signal and -Signal cables but with the negative sign:

-5\* (cell sensitivity) mV.

#### 2.4.4. CONNECTION OF MORE LOAD CELLS IN PARALLEL

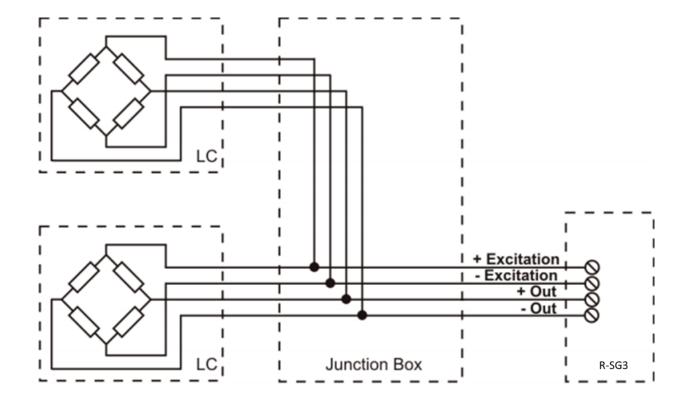
It is possible to connect up to a maximum of 8 load cells (and in any case without ever falling below the minimum 87 Ohms).

It is therefore possible to connect:

NUMBER OF LOAD CELLS IN PARALLEL	
IMPEDANCE OF THE STATED LOAD CELL [Ohm]	MAXIMUM NUMBER OF CONNECTABLE CELLS IN PARALLEL
350	4
1000	8

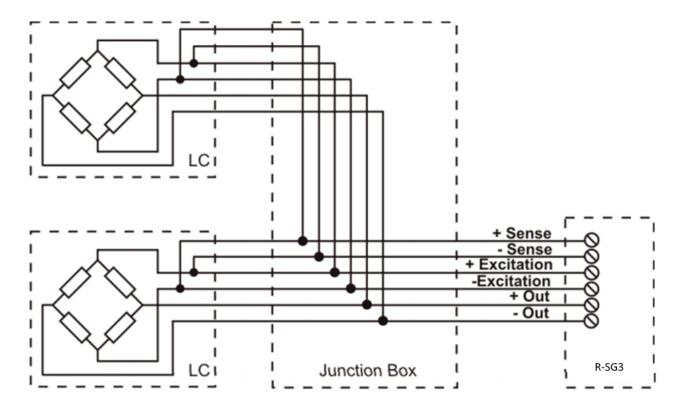
For the connection of 4 load cells Seneca recommends using the SG-EQ4 product.

To connect 2 or more 4-wire cells in parallel with the SG-EQ4 junction box, use the following diagram:





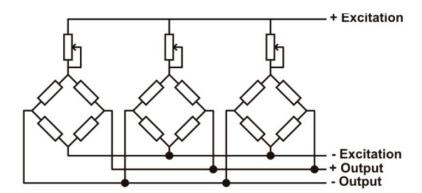
To connect 2 or more 6-wire cells in parallel with the SG-EQ4 junction box use the following diagram:



For more details, refer to the SG-EQ4 Junction Box accessory manual.

#### 2.4.5. TRIMMING 4-WIRE LOAD CELLS

The figure below shows a diagram of three trimmed load cells.



A variable resistor, independent of the temperature, or a typically 20  $\Omega$  potentiometer is inserted in the +Excitation cable of each load cell. There are two ways to trim the load cells. The first method is to adjust the potentiometers by trial, shifting the calibration weights from one corner to another. All the potentiometers must be adjusted so as to set the maximum sensitivity for each cell, turning them all completely clockwise. Then, once

the angle with the lowest output is located, act on the trimmers of the other cells until obtaining the same minimum output value. This method can be very long, especially for large scales where the use of test weights on the corners is not very practical. In these cases the second, more suitable method is to "pre-trim" the potentiometers using a precision voltmeter (at least 4 1/2 digits). You can use the following procedure:

- 1) Determine the exact mV/V ratio of each load cell, shown in the calibration certificate of the cell itself.
- 2) Determine the exact excitation voltage provided by the indicator/meter (for example Z-SG), measuring this voltage with the voltmeter (for example 10.05 V).
- 3) Multiply the lowest mV/V value found (point 1) by the excitation voltage (point 2).
- 4) Divide the trimming factor calculated in point 3 by the mV/V value of the other load cells.
- 5) Measure and adjust the excitation voltage of the other three load cells using the respective potentiometer. Check the results and make a final adjustment by moving a test load from corner to corner.

#### 2.5. **R-4AO-8DIDO**

The devices allow the use of 4 analog output analog channels (that can be individually configured in Voltage or Current) and 8 digital channels that can be individually configured for input or output.

CODE	ETHERNET PORT	
R-4AO-8DIDO	2 PORTS 10/100 Mbit	
	(Switch mode)	

#### 2.5.1. ANALOG OUTPUT RESPONSE TIME

The analog output response time to go from 10% to 90% is 5ms.

#### 2.5.2. UPDATE TIME OF DIGITAL INPUTS/OUTPUTS

The update time of the 8 digital inputs/outputs is 1ms.

#### 2.5.3. DIGITAL COUNTERS ACQUISITION TIME

The faster digital counters acquisition time is 1ms

#### 2.5.4. PROTECTION OF DIGITAL OUTPUTS

The outputs are protected against overload and against overtemperature, they open cyclically until the fault is repaired or the output opens.

The limit current is between 0.6 and 1.2 A.



#### 2.6. **R-4RTD-8DIDO**

The devices allow the use of 4 thermoresistance measurement channels and 8 digital channels that can be individually configured for input or output.

CODE	ETHERNET PORT	
R-4RTD-8DIDO	2 PORTS 10/100 Mbit	
	(Switch mode)	

#### 2.6.1. ANALOG INPUT UPDATE TIME

Sampling time is configurable from 25ms to 400ms, in particular:

CHANNEL UPDATE TIME
25 ms
50 ms
100 ms
200 ms
400 ms

Since each channel has an independent analog/digital converter, this set time coincides with the refresh time of each channel.

Therefore, by activating all 4 channels and setting a sampling time of 25 ms, you get an input update every 25 ms.

#### 2.6.2. UPDATE TIME OF DIGITAL INPUTS/OUTPUTS

The update time of the 8 digital inputs/outputs is 25ms.

#### 2.6.3. DIGITAL COUNTERS ACQUISITION TIME

The faster digital counters acquisition time is 25ms

#### 2.6.4. PROTECTION OF DIGITAL OUTPUTS

The outputs are protected against overload and against overtemperature, they open cyclically until the fault is repaired or the output opens.

The limit current is between 0.6 and 1.2 A.



#### 3. DIP SWITCH



THE DIP SWITCH SETTINGS ARE READ ONLY AT THE START. AT EACH CHANGE, IT IS NECESSARY TO RESTART.



DEPENDING ON THE MODEL IT MAY BE NECESSARY TO REMOVE THE REAR COVER OF THE DEVICE TO ACCESS THE DIP SWITCHES

#### 3.1. MEANING OF THE DIP SWITCHES SW1 FOR THE R-8AI-8DIDO MODEL

Below is the meaning of the SW1 dip switches:

DIP1	DIP2	MEANING		
OFF	OFF	Normal operation: The device loads the configuration from the flash.		
ON	ON	Resets the device to its factory configuration		
OFF	ON	Disables access to the Web server		
ON	OFF	Reserved		





ONCE COMMISSIONING HAS BEEN COMPLETED, IN ORDER TO INCREASE THE SECURITY OF THE DEVICE, DISABLE THE WEBSERVER THROUGH THE DIP SWITCHES

#### 3.2. MEANING OF SW1 DIP-SWITCHES FOR THE R-32DIDO MODEL

Below is the meaning of the SW1 dip switches for the various firmware revisions:

#### 3.2.1. DIP SWITCH SW1 FOR FIRMWARE REVISION <= 1014

DIP1	DIP2	MEANING	
OFF	OFF	Normal operation: The device loads the configuration from the flash.	
ON	ON	Resets the device to its factory configuration	
OFF	ON	Only forces the device IP address to the standard value of SENECA Ethernet	
		products:	
		192.168.90.101	
ON	OFF	Reserved	

#### 3.2.2. DIP SWITCH SW1 FOR FIRMWARE REVISION >= 1015

DIP1	DIP2	MEANING		
OFF	OFF	Normal operation: The device loads the configuration from the flash.		
ON	ON	Resets the device to its factory configuration		
OFF	ON	Disables access to the Web server		
ON	OFF	Reserved		



ONCE COMMISSIONING HAS BEEN COMPLETED, IN ORDER TO INCREASE THE SECURITY OF THE DEVICE, DISABLE THE WEBSERVER THROUGH THE DIP SWITCHES



#### 3.3. MEANING OF THE SW1 DIP SWITCHES FOR THE R-SG3 MODEL

Below is the meaning of the SW1 dip switches:

DIP1	DIP2	MEANING		
OFF	OFF	Normal operation: The device loads the configuration from the flash.		
ON	ON	Resets the device to its factory configuration		
OFF	ON	Disables access to the Web server		
ON	OFF	Reserved		



ONCE COMMISSIONING HAS BEEN COMPLETED, IN ORDER TO INCREASE THE SECURITY OF THE DEVICE, DISABLE THE WEBSERVER THROUGH THE DIP SWITCHES

#### 3.4. MEANING OF THE DIP SWITCHES SW1 FOR THE R-8AI-8DIDO MODEL

Below is the meaning of the SW1 dip switches:

DIP1	DIP2	MEANING	
OFF	OFF	Normal operation: The device loads the configuration from the flash.	
ON	ON	Resets the device to its factory configuration	
OFF	ON	Disables access to the Web server	
ON	OFF	Reserved	



ONCE COMMISSIONING HAS BEEN COMPLETED, IN ORDER TO INCREASE THE SECURITY OF THE DEVICE, DISABLE THE WEBSERVER THROUGH THE DIP SWITCHES



#### 3.5. MEANING OF THE DIP SWITCHES SW1 FOR THE R-4AO-8DIDO MODEL

Below is the meaning of the SW1 dip switches:

DIP1	DIP2	MEANING		
OFF	OFF	Normal operation: The device loads the configuration from the flash.		
ON	ON	Resets the device to its factory configuration		
OFF	ON	Disables access to the Web server		
ON	OFF	Reserved		



ONCE COMMISSIONING HAS BEEN COMPLETED, IN ORDER TO INCREASE THE SECURITY OF THE DEVICE, DISABLE THE WEBSERVER THROUGH THE DIP SWITCHES

#### 3.6. MEANING OF THE DIP SWITCHES SW1 FOR THE R-4RTD-8DIDO MODEL

Below is the meaning of the SW1 dip switches:

DIP1	DIP2	MEANING		
OFF	OFF	Normal operation: The device loads the configuration from the flash.		
ON	ON	Resets the device to its factory configuration		
OFF	ON	Disables access to the Web server		
ON	OFF	Reserved		



ONCE COMMISSIONING HAS BEEN COMPLETED, IN ORDER TO INCREASE THE SECURITY OF THE DEVICE, DISABLE THE WEBSERVER THROUGH THE DIP SWITCHES

## 4. I/O COPY USING THE PEER TO PEER FUNCTION WITHOUT A MASTER CONTROLLER

The "R" series devices can be used to copy and update in real time an input channel on a remote output channel without the aid of a master controller.

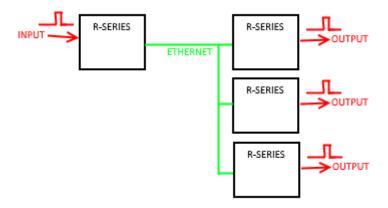


For example, a digital input can be copied to a remote digital output device:



Note that no controller is required because the communication is managed directly by the R series devices. It is possible to make a more sophisticated connection, for example it is possible to copy the inputs to different R-series remote devices (from Device 1 Input 1 to Device 2 Output1, Device 1 Input 2 to Device 3 Output 1 etc ...)

It is also possible to copy an input to an output of multiple remote devices:

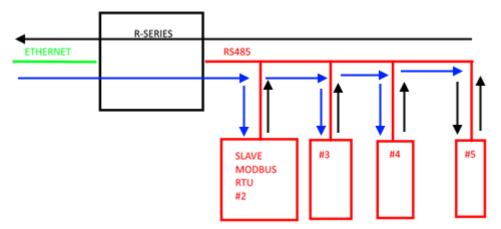


Each R-series device can send and receive a maximum of 32 inputs.



#### 5. MODBUS PASSTHROUGH

Thanks to the Modbus Passthrough function it is possible to extend the amount of I/O available in the device via the RS485 port and the Modbus RTU slave protocol, for example by using the Seneca Z-PC series products. In this mode the RS485 port stops working as Modbus RTU slave and the device becomes a gateway from Modbus TCP-IP (ethernet) to Modbus RTU (serial):



Each Modbus TCP-IP request with station address other than that of the R series device is converted into a serial packet on the RS485 and, in the case of a reply, it is turned over to TCP-IP.

Therefore, it is no longer necessary to purchase gateways to extend the I/O number or to connect already available Modbus RTU I/O.



#### 6. RESETTING THE DEVICE TO FACTORY CONFIGURATION

#### 6.1. PROCEDURE FOR RESTORING DEVICES TO THE FACTORY CONFIGURATION

It is possible to reset the device to the factory configuration using the dip-switches (see chapter 3).

#### 7. CONNECTION OF THE DEVICE TO A NETWORK

The factory configuration of the IP address is:

Static address: 192.168.90.101

Therefore, multiple devices must not be inserted on the same network with the same static IP.

If you want to connect multiple devices on the same network, you need to change the IP address configuration using Seneca Discovery Device software.



DO NOT CONNECT 2 OR MORE FACTORY-CONFIGURED DEVICES ON THE SAME NETWORK, OR THE
ETHERNET INTERFACE WILL NOT WORK
(CONFLICT OF IP ADDRESSES 192.168.90.101)

If the addressing mode with DHCP is activated and an IP address is not received within 1 minute, the device will set an IP address with a fixed error:

169.254.x.y

Where x.y are the last two values of the MAC ADDRESS.

This way it is possible to install more I/O of the R series and then configure the IP with the Seneca Discovery Device software even on networks without a DHCP server.



#### 8. WEB SERVER

#### 8.1. ACCESS TO THE WEB SERVER

Access to the web server takes place using a web browser and entering the IP address of the device. To know the IP address of the device you can use the Seneca Discovery Device software.

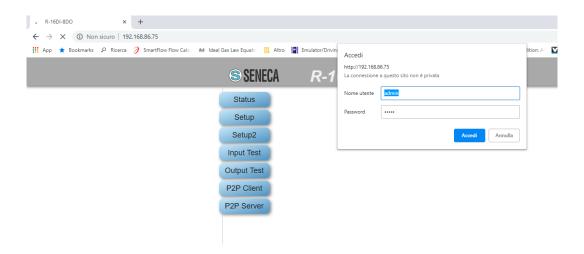
On first access the user name and password will be requested.

The default values are:

User Name: admin Password: admin



AFTER THE FIRST ACCESS CHANGE USER NAME AND PASSWORD IN ORDER TO PREVENT ACCESS TO THE DEVICE TO UNAUTHORIZED PEOPLE.



## **ATTENTION!**

IF THE PARAMETERS TO ACCESS THE WEB SERVER HAVE BEEN LOST, IT IS NECESSARY TO RESET THE FACTORY-SET CONFIGURATION



BEFORE ACCESSING THE WEBSERVER, CHECK THE STATE OF THE DIP-SWITCHES (SEE CHAPTER3)



#### 9. CONFIGURATION OF THE R-32DIDO DEVICE VIA WEB SERVER

#### 9.1. SETUP SECTION

#### DHCP (ETH) (default: Disabled)

Sets the DHCP client to get an IP address automatically.

#### IP ADDRESS STATIC (ETH) (default: 192.168.90.101)

Sets the device static address. Careful not to enter devices with the same IP address into the same network.

#### IP MASK STATIC (ETH) (default: 255.255.255.0)

Sets the mask for the IP network.

#### GATEWAY ADDRESS STATIC (ETH) (default: 192.168.90.1)

Sets the gateway address.

#### PROTECT CONFIGURATION (default: Disabled)

Allows you to enable or disable password protection for reading and writing the configuration (including the IP address) using the Seneca Discovery Device software. The password is the same one that allows accessing the web server.



## ATTENTION!

IF THE CONFIGURATION PROTECTION IS ENABLED IT WILL BE IMPOSSIBLE TO READ/WRITE THE CONFIGURATION OF THE DEVICE WITHOUT KNOWING THE PASSWORD.

IF THE PASSWORD IS LOST, IT WILL BE POSSIBLE TO RETURN THE DEVICE TO THE FACTORY-SET CONFIGURATION USING THE DIP SWITCHES

#### MODBUS SERVER PORT (ETH) (default: 502)

Sets the communication port for the Modbus TCP-IP server.

#### **MODBUS SERVER STATION ADDRESS (ETH) (default: 1)**

Active only if Modbus Passthrough is also active, it sets the station address of the modbus TCP-IP server.



## **ATTENTION!**

THE MODBUS SERVER WILL ANSWER ANY STATION ADDRESS ONLY IF THE MODBUS PASSTHROUGH MODE IS DISABLED.

#### MODBUS PASSTHROUGH (ETH) (default: disabled)

Sets the conversion mode from Modbus TCP-IP to Modbus RTU serial (see chapter 5).



#### MODBUS TCP-IP CONNECTION TIMEOUT [sec] (ETH) (default: 60)

Sets the TCP-IP connection timeout for the Modbus TCP-IP server and Passthrough modes.

#### P2P SERVER PORT (default: 50026)

Sets the communication port for the P2P server.

#### WEBSERVER USERNAME (default: admin)

Sets the username to access the webserver.

#### CONFIGURATION/WEBSERVER PASSWORD (default: admin)

Sets the password to access the webserver and to read/write the configuration (if enabled).

#### WEBSERVER PORT (default: 80)

Sets the communication port for the web server.

#### BAUDRATE MODBUS RTU (SER) (default: 38400 baud)

Sets the baud rate for the RS485 communication port.

#### DATA MODBUS RTU (SER) (default: 8 bit)

Sets the number of bits for the RS485 communication port.

#### PARITY MODBUS RTU (SER) (default: None)

Sets the parity for the RS485 communication port.

#### STOP BIT MODBUS RTU (SER) (default: 1 bit)

Sets the number of stop bits for the RS485 communication port.

#### MODBUS PASSTROUGH SERIAL TIMEOUT (default: 100ms)

Active only if passthrough mode is activated, sets the maximum waiting time before sending a new packet from TCP-IP to the serial port. It must be set according to the longest response time of all the devices present on the RS485 serial port.

**R SERIES** 

#### 9.2. DIGITAL I/O SETUP SECTION

This section allows the configuration of the digital I/Os present in the device.

#### DIGITAL I/O MODE (default Input)

Selects whether the selected input will work as an input or output.

#### DIGITAL INPUT NORMALLY HIGH/LOW (default Normally Low)

If selected as digital input, it configures whether the input is normally high or low.

#### DIGITAL OUTPUT NORMALLY STATE (default Normally Open)

If selected as digital output, it configures whether the output is normally open or closed.

#### **DIGITAL OUTPUT WATCHDOG (default Disabled)**

If selected as digital output, it sets the output watchdog mode.

If "Disabled", it disables the watchdog function for the selected output.

If "Enabled on Modbus Communication" the output goes into "Watchdog state" if there has been no generic Modbus communication within the set time.

**User Manual** 

If "Enabled on Modbus Digital Output Writing" the output goes into "Watchdog state" if there has been no writing of the output within the set time.

#### DIGITAL OUTPUT WATCHDOG STATE (default Open)

Sets the value that the digital output must adopt if the watchdog has been triggered.

#### DIGITAL OUTPUT WATCHDOG TIMEOUT [s] (default 100s)

Represents the watchdog time of the digital output in seconds.



#### 9.3. SETUP COUNTERS SECTION

#### COUNTERS FILTER [ms] (default 0)

Sets the value in [ms] for filtering all the counters connected to the inputs.

#### 9.4. **P2P CONFIGURATION**

In the P2P Client section it is possible to define which local events to send to one or more remote devices. This way it is possible to send the status of the inputs to the remote outputs and obtain the input-output replication without wiring. It is also possible to send the same input to several outputs simultaneously.

In the P2P Server section it is instead possible to define which inputs must be copied to the outputs.

The "Disable all rules" button places all the rules in a disabled status (default).

The "APPLY" button allows you to confirm and then save the set rules in the non-volatile memory.



#### 10. CONFIGURATION OF THE R-16DI-8DO DEVICE VIA WEB SERVER

#### 10.1. SETUP SECTION

SENECA R-16DI-8DO (web server)				
Status	Setup page(1/2):			
Setup		CURRENT	UPDATED	
Setup2	DHCP (ETH)	Enabled	Disabled ▼	
	IP ADDRESS STATIC (ETH)	192.168.90.101	192.168.90.101	
Input Test	IP MASK STATIC (ETH)	255.255.255.0	255.255.255.0	
Output Test	GATEWAY ADDRESS STATIC (ETH)	192.168.90.1	192.168.90.1	
3 4 44 1331	PROTECT CONFIGURATION	Disabled	Disabled ▼	
P2P Client	MODBUS SERVER PORT (ETH)	502	502	
P2P Server	MODBUS SERVER STATION ADDRESS (ETH)	1	1	
1 ZI OCIVCI	MODBUS PASSTHROUGH (ETH)		Enabled ▼	
	MODBUS TCP-IP CONNECTION TIMEOUT(sec) (ETH)	60	60	
	P2P SERVER PORT (ETH)	50026	50026	
	WEBSERVER USER NAME	admin	admin	
	CONFIGURATION/WEBSERVER PASSWORD	admin	admin	
	WEBSERVER PORT	80	80	
	BAUDRATE MODBUS RTU (SER)		38400 ▼	
	DATA MODBUS RTU (SER)		8 ▼	
	PARITY MODBUS RTU (SER)		None ▼	
	STOP BIT MODBUS RTU (SER)		1 🔻	
	MODBUS PASSTHROUGH SERIAL TIMEOUT [ms]	100	100	
	REBOOT	FACTORY DEFAULT	APPLY	

#### DHCP (ETH) (default: Disabled)

Sets the DHCP client to get an IP address automatically.

#### IP ADDRESS STATIC (ETH) (default: 192.168.90.101)

Sets the device static address. Careful not to enter devices with the same IP address into the same network.

#### IP MASK STATIC (ETH) (default: 255.255.255.0)

Sets the mask for the IP network.

#### GATEWAY ADDRESS STATIC (ETH) (default: 192.168.90.1)

Sets the gateway address.

#### PROTECT CONFIGURATION (default: Disabled)

Allows you to enable or disable password protection for reading and writing the configuration (including the IP address) using the Seneca Discovery Device software.





## **1** ATTENTION!

IF THE CONFIGURATION PROTECTION IS ENABLED IT WILL BE IMPOSSIBLE TO READ/WRITE THE CONFIGURATION OF THE DEVICE WITHOUT KNOWING THE PASSWORD. IF THE PASSWORD HAS BEEN LOST, THE DEVICE CAN BE RETURNED TO ITS DEFAULT SETTINGS BY CONNECTING IT VIA USB TO THE EASY SETUP 2 SOFTWARE

#### MODBUS SERVER PORT (ETH) (default: 502)

Sets the communication port for the Modbus TCP-IP server.

#### MODBUS SERVER STATION ADDRESS (ETH) (default: 1)

Active only if Modbus Passthrough is also active, it sets the station address of the modbus TCP-IP server.



## **ATTENTION!**

THE MODBUS SERVER WILL ANSWER ANY STATION ADDRESS ONLY IF THE MODBUS PASSTHROUGH MODE IS DISABLED.

#### MODBUS PASSTHROUGH (ETH) (default: disabled)

Sets the conversion mode from Modbus TCP-IP to Modbus RTU serial (see chapter 5).

#### MODBUS TCP-IP CONNECTION TIMEOUT [sec] (ETH) (default: 60)

Sets the TCP-IP connection timeout for the Modbus TCP-IP server and Passthrough modes.

#### P2P SERVER PORT (default: 50026)

Sets the communication port for the P2P server.

#### WEBSERVER USER NAME (default: admin)

Sets the user name to access the web server.

#### CONFIGURATION/WEBSERVER PASSWORD (default: admin)

Sets the password to access the webserver and to read/write the configuration (if enabled).

#### WEBSERVER PORT (default: 80)

Sets the communication port for the web server.

#### BAUDRATE MODBUS RTU (SER) (default: 38400 baud)

Sets the baud rate for the RS485 communication port.

#### DATA MODBUS RTU (SER) (default: 8 bit)

Sets the number of bits for the RS485 communication port.



#### PARITY MODBUS RTU (SER) (default: None)

Sets the parity for the RS485 communication port.

#### STOP BIT MODBUS RTU (SER) (default: 1 bit)

Sets the number of stop bits for the RS485 communication port.

#### MODBUS PASSTHROUGH SERIAL TIMEOUT (default: 100ms)

Active only if passthrough mode is activated, sets the maximum waiting time before sending a new packet from TCP-IP to the serial port. It must be set according to the longest response time of all the devices present on the RS485 serial port.



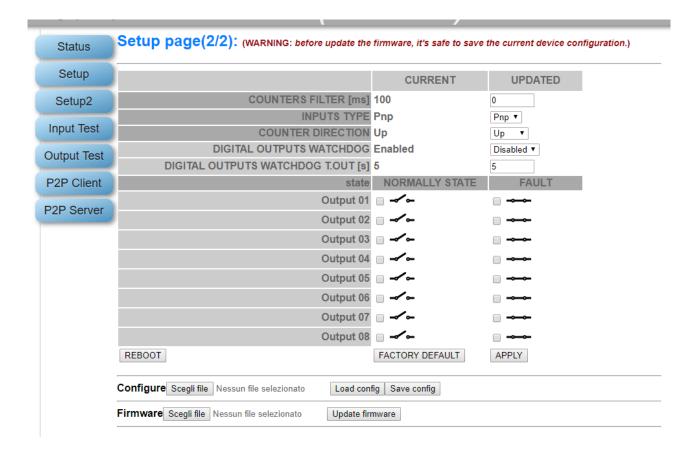
THE USB PORT CONFIGURATION PARAMETERS CANNOT BE MODIFIED AND ARE:

BAUDRATE: 115200 DATA: 8 BIT PARITY: NONE STOP BIT: 1

**MODBUS RTU PROTOCOL** 



#### 10.2. SETUP 2 SECTION



#### **COUNTERS FILTER (default: 100 ms)**

Sets the filtering of the counters, the value is expressed in [ms].

The filter cut-off frequency corresponds to:

$$f_{cut}[Hz] = \frac{1000}{2 * Counters Filter [ms]}$$

For example, if the filter counter is 100ms the cutting frequency will be:

$$f_{cut}[Hz] = \frac{1000}{2 * Counters Filter [ms]} = 5 Hz$$

So all input frequencies greater than 5 Hz will be cut.

#### INPUTS TYPE (default: Pnp "Source")

Sets the input/counter operating mode to between npn "Sink" and pnp "Source".

#### COUNTER DIRECTION (default: Up)

Sets the counting mode of the counters "forward", up or back "down".



In the "Up" mode when the counter reaches the value:

$$Max\ Value = 2^{32} - 1 = 4294967295$$

**User Manual** 

A subsequent increase will return the value to 0.

In the "Down" mode, if the counter value is 0, a subsequent input pulse will return the value to 4294967295.

#### **DIGITAL OUTPUT WATCHDOG (default: Disabled)**

Set whether the digital output watchdog is to activated. When enabled, if within the timeout time there has been no communication from the master to the device (Modbus serial communication, TCP-IP or USB or P2P communication) the outputs go into a Fail state. This mode makes it possible to obtain a secure system in the event of a master malfunction and its use is recommended in the case of radio type connections.

#### DIGITAL OUTPUTS WATCHDOG T.OUT [s] (default: 5 s)

Sets the watchdog time of the digital outputs (valid only if the DIGITAL OUTPUT WATCHDOG parameter is enabled)

## NORMALLY STATE/FAULT (default: normally Normally open (N.O.) and Normally closed (N.C.) state in case of fail

They set the states of each of the outputs in normal conditions and in the event of a failure.

In the case of normally open (not energized) — writing in the Modbus "Outputs" register with 0 will cause the relay not to energize, otherwise, in the case of normally closed (energized) — writing in the Modbus "Outputs" register with 1 will determine the relay not to be energized.

In the case of "fail" the output will go into the selected configuration between not energized or energized

The "Configure" section allows you to save or open a complete configuration of the device.

The "Firmware" section allows you to update the device firmware in order to obtain new functions.





#### 11. CONFIGURATION OF THE R-8AI-8DIDO DEVICE VIA WEB SERVER

#### 11.1. SETUP SECTION

#### DHCP (ETH) (default: Disabled)

Sets the DHCP client to get an IP address automatically.

#### *IP ADDRESS STATIC (ETH)* (default: 192.168.90.101)

Sets the device static address. Careful not to enter devices with the same IP address into the same network.

#### IP MASK STATIC (ETH) (default: 255.255.255.0)

Sets the mask for the IP network.

#### GATEWAY ADDRESS STATIC (ETH) (default: 192.168.90.1)

Sets the gateway address.

#### PROTECT CONFIGURATION (default: Disabled)

Allows you to enable or disable password protection for reading and writing the configuration (including the IP address) using the Seneca Discovery Device software. The password is the same one that allows accessing the web server.



## ATTENTION!

IF THE CONFIGURATION PROTECTION IS ENABLED IT WILL BE IMPOSSIBLE TO READ/WRITE THE CONFIGURATION OF THE DEVICE WITHOUT KNOWING THE PASSWORD.

IN THE EVENT OF LOSING THE PASSWORD IT WILL BE POSSIBLE TO RETURN THE DEVICE TO THE FACTORY CONFIGURATION (SEE CHAPTER6)

#### MODBUS SERVER PORT (ETH) (default: 502)

Sets the communication port for the Modbus TCP-IP server.

#### MODBUS SERVER STATION ADDRESS (ETH) (default: 1)

Active only if Modbus Passthrough is also active, it sets the station address of the modbus TCP-IP server.



## **ATTENTION!**

THE MODBUS SERVER WILL ANSWER ANY STATION ADDRESS ONLY IF THE MODBUS PASSTHROUGH MODE IS DISABLED.

#### MODBUS PASSTHROUGH (ETH) (default: disabled)

Sets the conversion mode from Modbus TCP-IP to Modbus RTU serial (see chapter 5).



#### MODBUS TCP-IP CONNECTION TIMEOUT [sec] (ETH) (default: 60)

Sets the TCP-IP connection timeout for the Modbus TCP-IP server and Passthrough modes.

#### P2P SERVER PORT (default: 50026)

Sets the communication port for the P2P server.

#### WEBSERVER USERNAME (default: admin)

Sets the username to access the webserver.

#### CONFIGURATION/WEBSERVER PASSWORD (default: admin)

Sets the password to access the webserver and to read/write the configuration (if enabled).

#### WEBSERVER PORT (default: 80)

Sets the communication port for the web server.

#### BAUDRATE MODBUS RTU (SER) (default: 38400 baud)

Sets the baud rate for the RS485 communication port.

#### DATA MODBUS RTU (SER) (default: 8 bit)

Sets the number of bits for the RS485 communication port.

#### PARITY MODBUS RTU (SER) (default: None)

Sets the parity for the RS485 communication port.

#### STOP BIT MODBUS RTU (SER) (default: 1 bit)

Sets the number of stop bits for the RS485 communication port.

#### MODBUS PASSTROUGH SERIAL TIMEOUT (default: 100ms)

Active only if Passthrough mode is activated, sets the maximum waiting time before sending a new packet from TCP-IP to the serial port. It must be set according to the longest response time of all the devices present on the RS485 serial port.

#### CHANNEL SAMPLE TIME [ms] (default: 100ms)

Sets the sampling time of each analog input.



#### 11.2. SETUP AIN 1. 8 SECTION

This section allows the configuration of the analog inputs present in the device.



THE DEVICE CAN DETECT THE COLD JOINT TEMPERATURE FROM THE INTERNAL SENSORS OR FROM ANALOG INPUT 1 (THROUGH EXTERNAL PT100-TYPE SENSOR).

IN THIS CASE ALL THE DETECTIONS OF THE INTERNAL SENSORS WILL BE REPLACED BY THE READING OF ANALOG INPUT 1.

#### ANALOG INPUT MODE (default +-30V)

Set the type of measurement for the selected input.

It is possible to choose between the following types of input:

- +-30V
- +-100mV
- +-24 mA

Thermocouple

PT100 3 wires only for input 1)

If the "IN2..8 CJ PT100" type of measurement is selected for input 1, this will automatically be used as a measurement of the cold junction for all inputs configured by thermocouple between IN2 and IN8 included.

#### ANALOG INPUT 1 PT100 WIRE RESISTANCE [Ohm] (default 0 Ohm)

(Only for analog input 1) allows to compensate the cable resistance in case of 2-wire connection to the PT100.

#### ANALOG INPUT TC TYPE (default J)

In the case of thermocouple measurement, it allows to select the type of thermocouple between: J, K, R, S, T, B, E, N, L

#### ANALOG INPUT TEMPERATURE OFFSET (default 0 °C)

Sets a temperature offset in °C for thermocouple measurements

#### ANALOG INPUT ONBOARD COLD JUNCTION (default ENABLED)

In the case of thermocouple measurement, it enables or disables the automatic cold junction offset of the device. If channel 1 has been configured as PT100 cold junction measurement, this sensor will be used for the offset and not the one inside the instrument.

#### ANALOG INPUT COLD JUCTION VALUE [°C] (default 0 °C)

In the case of thermocouple measurement, if the automatic measurement of the cold junction has been deactivated, it is possible to manually enter the cold junction temperature.

#### ANALOG INPUT BURNOUT MODE (default FAIL VALUE)

In the case of thermocouple measurement, it selects the behaviour in case of sensor failure:

In the case of "Last Value" the value is stopped at the last valid value, in the case of "Fail Value" the "Burnout" value is loaded in the registers.

#### ANALOG INPUT BURNOUT VALUE (default 10000 °C)

In the case of thermocouple measurement, if the ANALOG INPUT BURNOUT MODE = "FAIL VALUE" mode is activated and the sensor is in the "burn" state, it allows you to set a value in "C to be taken by the measurement register.

#### ANALOG INPUT UNIT MEASURE (default °C)

In the case of thermocouple measurement, it allows you to set the measurement unit of the measurement register between °C, K, °F and mV.

#### ANALOG INPUT FILTER [samples] (default 0)

Allows you to set the moving average filter with the selected number of samples. If the value is "0" the filter is disabled.

#### ANALOG INPUT START SCALE

Represents the start of the electrical scale of the analog measurement used for the register of the engineering measurement.

#### ANALOG INPUT STOP SCALE

Represents the electrical full scale of the analog measurement used for the engineering measurement register.

#### ANALOG INPUT ENG START SCALE

It represents the value of the engineering measurement register when the input reaches the value shown in the ANALOG INPUT START SCALE parameter.

For example if:

ANALOG INPUT START SCALE = 4mA

ANALOG INPUT STOP SCALE = 20mA

ANALOG INPUT ENG STOP SCALE = -200 metres

ANALOG INPUT ENG START SCALE = 200 metres

With a 12 mA input the engineering value will be 0 metres.

#### ANALOG INPUT ENG STOP SCALE

It represents the value of the engineering measurement register when the input reaches the value shown in the ANALOG INPUT STOP SCALE parameter.



For example if:

ANALOG INPUT START SCALE = 4mA
ANALOG INPUT STOP SCALE = 20mA
ANALOG INPUT ENG STOP SCALE = -200 metres
ANALOG INPUT ENG START SCALE = 200 metres

With a 12 mA input the engineering value will be 0 metres.

#### 11.3. DIGITAL I/O SETUP SECTION

This section allows the configuration of the digital I/Os present in the device.

#### DIGITAL I/O MODE (default Input)

Selects whether the chosen terminal will work as an input, output or output commanded by an event related to the selected analog input.

# DIGITAL INPUT NORMALLY HIGH/LOW (default Normally Low)

If selected as digital input, it configures whether the input is normally high or low.

# DIGITAL OUTPUT NORMALLY STATE (default Normally Open)

If selected as digital output, it configures whether the output is normally open or closed.

#### DIGITAL OUTPUT WATCHDOG (default Disabled)

If selected as digital output, it sets the output watchdog mode.

If "Disabled", it disables the watchdog function for the selected output.

If "Enabled on Modbus Communication" the output goes into "Watchdog state" if there has been no generic Modbus communication within the set time.

If "Enabled on Modbus Digital Output Writing" the output goes into "Watchdog state" if there has been no writing of the output within the set time.

# DIGITAL OUTPUT WATCHDOG STATE (default Open)

Sets the value that the digital output must adopt if the watchdog has been triggered.

#### DIGITAL OUTPUT WATCHDOG TIMEOUT [s] (default 100s)

Represents the watchdog time of the digital output in seconds.



#### 11.4. EVENT SETUP SECTION

This section allows the configuration of events to send analog values with the P2P protocol.

# **EVENT AIN MODE (Default: DISABLED)**

Represents the event condition for sending packets linked to the analog inputs in the P2P protocol. It may be:

"Disabled" the sending event of the analog packet is disabled.

"Event when AIN > HIGH THRESHOLD" the packet sending event occurs when the analog input exceeds the "High" threshold set.

"Event when AIN < LOW THRESHOLD" the packet sending event occurs when the analog input is lower than the "Low" threshold set.

# **EVENT AIN HIGH THRESHOLD (Default: 0)**

Threshold value linked to the "High" event.

# **EVENT AIN LOW THRESHOLD (Default: 0)**

Threshold value linked to the "Low" event.

#### **EVENT AIN HISTERESYS**

Hysteresis value for the reset of the "event" condition.

For example, if the event is configured in "Event when AIN > HIGH THRESHOLD" mode, when the analog input exceeds the threshold value, the packet will be sent, to send the next packet it will be necessary for the analog value to fall below the value (EVENT AIN HIGH THRESHOLD + EVENT AIN HYSTERESIS) and then to rise above the HIGH value again.



# 12. CONFIGURATION OF THE R- SG3 DEVICE VIA WEB SERVER

#### 12.1. SETUP SECTION

# DHCP (ETH) (default: Disabled)

Sets the DHCP client to get an IP address automatically.

# IP ADDRESS STATIC (ETH) (default: 192.168.90.101)

Sets the device static address. Careful not to enter devices with the same IP address into the same network.

# IP MASK STATIC (ETH) (default: 255.255.255.0)

Sets the mask for the IP network.

# GATEWAY ADDRESS STATIC (ETH) (default: 192.168.90.1)

Sets the gateway address.

# MODBUS SERVER PORT (ETH) (default: 502)

Sets the communication port for the Modbus TCP-IP server.

# MODBUS SERVER STATION ADDRESS (ETH) (default: 1)

Active only if Modbus Passthrough is also active, it sets the station address of the modbus TCP-IP server.



# THE MODBUS SERVER WILL ANSWER ANY STATION ADDRESS ONLY IF THE MODBUS PASSTHROUGH MODE IS DISABLED.

## MODBUS PASSTHROUGH (ETH) (default: disabled)

Sets the conversion mode from Modbus TCP-IP to Modbus RTU serial (see chapter 5).

# MODBUS TCP-IP CONNECTION TIMEOUT [sec] (ETH) (default: 60)

Sets the TCP-IP connection timeout for the Modbus TCP-IP server and Passthrough modes.

#### P2P SERVER PORT (default: 50026)

Sets the communication port for the P2P server.

#### WEBSERVER USERNAME (default: admin)

Sets the username to access the webserver.

#### CONFIGURATION/WEBSERVER PASSWORD (default: admin)

Sets the password to access the webserver and to read/write the configuration (if enabled).



# WEBSERVER PORT (default: 80)

Sets the communication port for the web server.

# BAUDRATE MODBUS RTU (SER) (default: 38400 baud)

Sets the baud rate for the RS485 communication port.

# DATA MODBUS RTU (SER) (default: 8 bit)

Sets the number of bits for the RS485 communication port.

# PARITY MODBUS RTU (SER) (default: None)

Sets the parity for the RS485 communication port.

# STOP BIT MODBUS RTU (SER) (default: 1 bit)

Sets the number of stop bits for the RS485 communication port.

## MODBUS PASSTROUGH SERIAL TIMEOUT (default: 100ms)

Active only if Passthrough mode is activated, sets the maximum waiting time before sending a new packet from TCP-IP to the serial port. It must be set according to the longest response time of all the devices present on the RS485 serial port.

#### 12.2. LOAD CELL SETUP SECTION

#### **FUNCTION MODE**

It allows to configure the basic operation of the device, can be set to factory calibration or to Calibration with standard weight.

#### **FACTORY CALIBRATION**

It is used when a load cell with declared sensitivity is available.

In this mode, calibration only consists in acquiring the tare directly in the field with a direct measurement. If it is not possible to acquire the tare with a direct measurement (for example in the case of an already filled silo) it is possible to manually enter the tare value in the desired unit of measurement (kg, t, etc.).

#### **CALIBRATION WITH STANDARD WEIGHT**

It is used when a standard weight is available (as far as possible towards the load cell full scale). In this mode the calibration consists in acquiring both the tare and the standard weight directly on the field.

#### **MEASURE TYPE**

It allows to configure the operation of the device between:

#### **BALANCE (UNIPOLAR)**

It is used when a scale is being created in which the load cell is only compressed, in this case the maximum resolution of the compression measurement is obtained.

# **COMPRESSION AND TRACTION (BIPOLAR)**

It is used when a measurement system (typically of force) is being created that can both compress and extend the load cell. In this case the direction of the force can also be decided, if compression the measurement will have the + sign, if traction it will have the - sign. A typical case of use is to link the direction of the force to the analog output so that, for example, 4mA correspond to the maximum traction force and 20mA correspond to the maximum compression force (in this case the cell at rest will provide 12Ma).

#### **MEASURE UNIT**

Sets the unit of measurement for the weighing in g, Kg, t etc.

#### **CELL SENSIBILITY**

It is the declared cell sensitivity value expressed in mV/V (in most cells it is 2mV/V).

#### **CELL FULL SCALE**

It is the full scale value of the cell expressed in the selected unit of measurement.

#### STANDARD WEIGHT VALUE

It represents the value of the standard weight that will be used in the calibration if the operating mode with standard weight has been chosen.

# **NOISE FILTER**

Enables or disables measurement filtering.

#### **FILTER LEVEL**

Allows you to set the measurement filter level according to the following table:

FILTER LEVEL	RESPONSE TIME [ms]
0	2
1	6.7
2	13
3	30
4	50
5	250
6	850
ADVANCED	Configurable

The higher the filter level the more stable (but slow) the weight measurement will be.

If you select the advanced filtering level (Advanced), the configuration will allow you to select the following parameters:

**ADC SPEED** Selects the ADC acquisition speed from 4.7 Hz to 960 Hz

**NOISE VARIATION** It is the variation in ADC points due to noise alone (represents the measurement uncertainty due to noise) or how much we expect the measurement to vary (the unit of measurement is in raw ADC points).

#### FILTER RESPONSE SPEED

Represents a parameter related to the filter response speed, it can vary from 0.001 (slowest response) to 1 (fastest response). Represents the variance of the process.

#### **NET WEIGHT RESOLUTION**

It is the resolution with which the value of the net weighing is represented, it can be worth:

#### **MAXIMUM RESOLUTION**

It will represent the net weight with the highest possible resolution

#### MANUAL

It will represent the net weight with the manual resolution set (in engineering units). For example, by setting 0.1 Kg you will get that the net weight can only vary by multiples of 100g.

#### **AUTOMATIC RESOLUTION**

It will represent the net weight with a calculated resolution of about 20000 points. Unlike Maximum or Manual resolution, this setting limits also the ADC value and therefore affects all measurements.



Keep in mind that in the "Calibration with standard weight" mode, using the "Manual Resolution", the correct standard weight value may not be perfectly represented:

For example, you have:

Cell full scale 15000 g Standard weight 14000 g Manual Resolution 1.5 g

The value of the standard weight (14000 g) cannot be represented with the resolution in 1.5g steps (14000/1.5g = 9333.333 is not an integer value) so it will be represented as: 9333\*1.5g = 13999.5g To avoid this effect, use a resolution that allows the value to be represented (for example 1g or 2g).



#### SAMPLE PIECE WEIGHT

Sets the weight of a single piece in technical units for the mode. By setting the net weight of a single element in this register, the converter will be able to indicate the number of pieces present in the scales special register according to the relation:

$$Nr \ Pezzi = \frac{Peso \ Netto}{Peso \ Pezzo \ Campione}$$

#### AUTOMATIC TARE TRACKER

It allows you to enable or disable the automatic tare reset.

#### **ADC VALUE**

It allows to set the number of ADC points within which to reset the tare automatically. If after 5 seconds of stable weighing condition the ADC value of the net weight deviates by less than this value then a new tare is acquired.

#### 12.3. I/O SETUP SECTION

#### DIGITAL I/O MODE

Configures the digital I/O of the device

## **DIGITAL INPUT**

If the nth IO is configured as an input, it is possible to choose its function from:

#### **FUNCTION DIGITAL INPUT**

The input is configured as a digital input whose value can be read from the appropriate register.

# **FUNCTION ACQUIRE TARE**

In this mode, if the digital input is activated for a time longer than 3 seconds, a new tare value is acquired (in RAM, then it is lost upon restart). It is equivalent to sending the command 49594 (decimal) in the command register.

#### **DIGITAL OUTPUT**

If the nth IO is configured as an output, it is possible to choose its function from:

#### DIGITAL OUTPUT MODE

The output can be configured as normally open (**Normally Open**) or as normally closed (**Normally Close**).



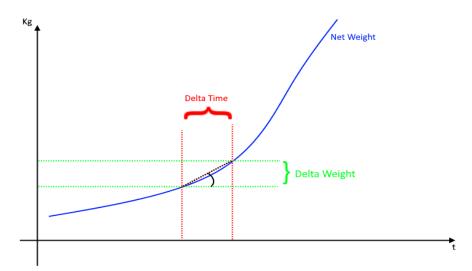
#### DIGITAL OUTPUT CONFIGURATION

Here you can choose the behaviour of the digital output:

#### STABLE WEIGHT

The stable weighing condition is used to indicate that the net weight measurement is stable if:

The net weight remains within the weight  $\Delta peso\_netto$  over time  $\Delta tempo$  or if the slope of the curve drawn by the net weight is less than  $\frac{\Delta peso\_netto}{\Delta tempo}$ :



You will be prompted to enter Delta Net Weight (*Delta Weight*) (in engineering units) and Delta Time (*Delta Time*) (in 0.1 seconds).

#### THRESHOLD AND STABLE WEIGHT

In this mode, the output activates when the net weight reaches the threshold and the weigh is in a stable weighing condition.

#### STABLE WEIGHT

In this mode the output is activated if the weighing is in the stable weighing condition.

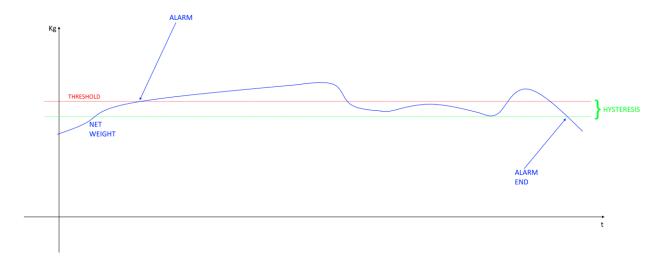


#### **COMMANDABLE FROM MODBUS**

In this mode the output can be controlled by the modbus register.

# THRESHOLD WITH HYSTERESIS

In this mode the output is activated when the net weight reaches the threshold, the alarm is cancelled when the net weight falls below the Threshold-Hysteresis value:

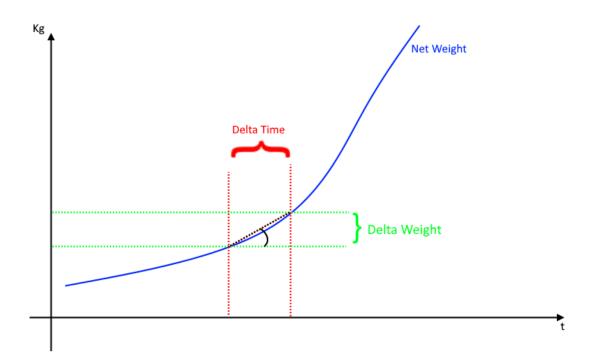


### STABLE WEIGHT CONDITION

The stable weighing condition is used to indicate that the net weight measurement is stable if:

The net weight remains within the weight  $\Delta peso\_netto$  (DELAT WEIGHT) over time  $\Delta tempo$  (DELTA TIME) or if the slope of the curve drawn by the net weight is less than  $\frac{\Delta peso\_netto}{\Delta tempo}$ :





#### 12.4. TEST AND LOAD CELL CALIBRATION SECTION

In this section it is possible to calibrate the cell and carry out the tests. For more information on cell calibration refer to the Cell Calibration chapter of this manual.

#### 12.5. **P2P CONFIGURATION**

In the P2P Client section it is possible to define which local events to send to one or more remote devices. This way it is possible to send the status of the inputs to the remote outputs and obtain the input-output replication without wiring. It is also possible to send the same input to several outputs simultaneously.

In the P2P Server section it is instead possible to define which inputs must be copied to the outputs.

The "*Disable all rules*" button places all the rules in a disabled status (default).

The "*APPLY*" button allows you to confirm and then save the set rules in the non-volatile memory.

#### 12.6. LOAD CELL CALIBRATION THROUGH THE WEB SERVER

To calibrate the load cell, access the "TEST AND LOAD CELL CALIBRATION" section of the web server. Depending on the two modes chosen between factory calibration or with standard weight, it will be possible to proceed with the calibration.

#### 12.6.1. CELL CALIBRATION WITH FACTORY PARAMETERS

In cell calibration with factory parameters it is not necessary to use a standard weight as reference is made to the parameters acquired in the factory.

The necessary data are:

- -The cell sensitivity
- -The cell full scale

For the cell calibration procedure it is necessary to acquire the tare.

The tare can be entered manually in technical units (if known) or it can be acquired from the field.

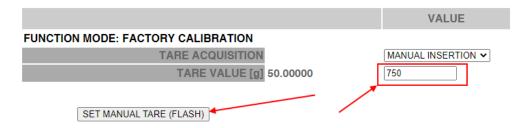


## TO OBTAIN A BETTER MEASUREMENT ACCURACY ACQUIRE THE TARE FROM THE FIELD

#### 12.6.1.1. MANUAL ENTRY OF THE TARE VIA WEB SERVER

It is not always possible to acquire the tare value from the field (for example in the case of already filled silos), in these cases it is possible to introduce the tare weight in technical units.

#### LOAD CELL CALIBRATION

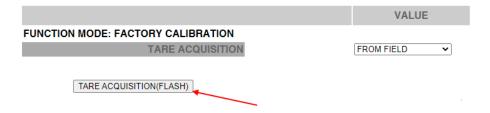


To acquire the tare value, press the "SET MANUAL TARE (FLASH)" button

#### 12.6.1.2. ACQUISITION OF THE TARE FROM THE FIELD VIA WEB SERVER

- 1) Enter the "Test and load cell calibration" web server page
- 2) Replace the tare on the cell
- 3) Wait for the measurement to stabilize
- 4) Press the "TARE ACQUISITION (FLASH)" button

#### LOAD CELL CALIBRATION



#### 12.6.2. CELL CALIBRATION WITH A STANDARD WEIGHT

In cell calibration with a standard weight it is necessary to know:

- -The cell sensitivity
- -The cell full scale
- -A standard weight (so that Standard weight + Tare are as close as possible to the cell full scale)
  - 1) Enter the "Test and load cell calibration" web server page
  - 2) Replace the tare on the cell
  - 3) Wait for the measurement to stabilize
  - 4) Press the "TARE ACQUISITION (FLASH)" button

# **LOAD CELL CALIBRATION**



- 5) Replace the Tare + Standard Weight
- 6) Wait for the measurement to stabilize
- 7) Press the "STANDARD WEIGHT ACQUISITION (FLASH)" button



# 13. CONFIGURATION OF THE R-4AO-8DIDO DEVICE VIA WEB SERVER

#### 13.1. SETUP SECTION

# DHCP (ETH) (default: Disabled)

Sets the DHCP client to get an IP address automatically.

# *IP ADDRESS STATIC (ETH)* (default: 192.168.90.101)

Sets the device static address. Careful not to enter devices with the same IP address into the same network.

# IP MASK STATIC (ETH) (default: 255.255.255.0)

Sets the mask for the IP network.

# GATEWAY ADDRESS STATIC (ETH) (default: 192.168.90.1)

Sets the gateway address.

# PROTECT CONFIGURATION (default: Disabled)

Allows you to enable or disable password protection for reading and writing the configuration (including the IP address) using the Seneca Discovery Device software. The password is the same one that allows accessing the web server.



# ATTENTION!

IF THE CONFIGURATION PROTECTION IS ENABLED IT WILL BE IMPOSSIBLE TO READ/WRITE THE CONFIGURATION OF THE DEVICE WITHOUT KNOWING THE PASSWORD.

IN THE EVENT OF LOSING THE PASSWORD IT WILL BE POSSIBLE TO RETURN THE DEVICE TO THE FACTORY CONFIGURATION (SEE CHAPTER6)

#### MODBUS SERVER PORT (ETH) (default: 502)

Sets the communication port for the Modbus TCP-IP server.

# MODBUS SERVER STATION ADDRESS (ETH) (default: 1)

Active only if Modbus Passthrough is also active, it sets the station address of the modbus TCP-IP server.



# **ATTENTION!**

THE MODBUS SERVER WILL ANSWER ANY STATION ADDRESS ONLY IF THE MODBUS PASSTHROUGH MODE IS DISABLED.

#### MODBUS PASSTHROUGH (ETH) (default: disabled)

Sets the conversion mode from Modbus TCP-IP to Modbus RTU serial (see chapter 5).



# MODBUS TCP-IP CONNECTION TIMEOUT [sec] (ETH) (default: 60)

Sets the TCP-IP connection timeout for the Modbus TCP-IP server and Passthrough modes.

# P2P SERVER PORT (default: 50026)

Sets the communication port for the P2P server.

## WEBSERVER USERNAME (default: admin)

Sets the username to access the webserver.

# CONFIGURATION/WEBSERVER PASSWORD (default: admin)

Sets the password to access the webserver and to read/write the configuration (if enabled).

#### WEBSERVER PORT (default: 80)

Sets the communication port for the web server.

# BAUDRATE MODBUS RTU (SER) (default: 38400 baud)

Sets the baud rate for the RS485 communication port.

# DATA MODBUS RTU (SER) (default: 8 bit)

Sets the number of bits for the RS485 communication port.

#### PARITY MODBUS RTU (SER) (default: None)

Sets the parity for the RS485 communication port.

#### STOP BIT MODBUS RTU (SER) (default: 1 bit)

Sets the number of stop bits for the RS485 communication port.

# MODBUS PASSTROUGH SERIAL TIMEOUT (default: 100ms)

Active only if Passthrough mode is activated, sets the maximum waiting time before sending a new packet from TCP-IP to the serial port. It must be set according to the longest response time of all the devices present on the RS485 serial port.

# CHANNEL SAMPLE TIME [ms] (default: 100ms)

Sets the sampling time of each analog input.



#### 13.2. ANALOG OUTPUT SETUP SECTION

This section allows the configuration of the analog outputs present in the device.

# MODE (default Voltage)

Sets whether the analog output must work in Voltage (range +-10V) or Current (range 0-20mA).

## WATCHDOG MODE (default Disabled)

Sets whether the analog output must load the safety value or not in the event of a lack of communication with the Modbus client.

# WATCHDOG TIMEOUT [s] (default 0)

Sets the time in seconds within which communication with the Modbus master must take place in order not to trigger the watchdog.

## WATCHDOG FAIL ENG. VALUE (default 0)

Sets the engineering value (scaled) that the output must take on in the event of a fail due to the watchdog. It is also the value the analogs assume at startup.

#### START SCALE [mV/uA]

Represents the start of the electrical scale of the analog output used for the register of the engineering measurement.

#### STOP SCALE [mV/uA]

Represents the electrical full scale of the analog measurement used for the engineering measurement register.

#### **ENG START SCALE**

Represents the value of the engineering register when the output reaches the value shown in the START SCALE parameter.

For example if: START SCALE = 4mA STOP SCALE = 20mA ENG STOP SCALE = -200 metres ENG START SCALE = 200 metres

By writing the engineering value -200 meters on the Modbus register, the analog output will be worth 4 mA. By writing the engineering value 0 meters on the Modbus register, the analog output will be worth 12 mA. By writing the engineering value 200 meters on the Modbus register, the analog output will be worth 20 mA.

#### **ENG STOP SCALE**

Represents the value of the engineering register when the output reaches the value shown in the STOP SCALE parameter.

For example if: START SCALE = 4mA STOP SCALE = 20mA ENG STOP SCALE = -200 metres ENG START SCALE = 200 metres

By writing the engineering value -200 meters on the Modbus register, the analog output will be worth 4 mA. By writing the engineering value 0 meters on the Modbus register, the analog output will be worth 12 mA. By writing the engineering value 200 meters on the Modbus register, the analog output will be worth 20 mA.

#### 13.3. DIGITAL I/O SETUP SECTION

This section allows the configuration of the digital I/Os present in the device.

# DIGITAL I/O MODE (default Input)

Selects whether the chosen terminal will work as an input, output or output commanded by an event related to the selected analog input.

#### DIGITAL INPUT NORMALLY HIGH/LOW (default Normally Low)

If selected as digital input, it configures whether the input is normally high or low.

### DIGITAL OUTPUT NORMALLY STATE (default Normally Open)

If selected as digital output, it configures whether the output is normally open or closed.

#### DIGITAL OUTPUT WATCHDOG (default Disabled)

If selected as digital output, it sets the output watchdog mode.

If "Disabled", it disables the watchdog function for the selected output.

If "Enabled on Modbus Communication" the output goes into "Watchdog state" if there has been no generic Modbus communication within the set time.

If "Enabled on Modbus Digital Output Writing" the output goes into "Watchdog state" if there has been no writing of the output within the set time.

# DIGITAL OUTPUT WATCHDOG STATE (default Open)

Sets the value that the digital output must adopt if the watchdog has been triggered.

#### DIGITAL OUTPUT WATCHDOG TIMEOUT [s] (default 100s)

Represents the watchdog time of the digital output in seconds.



#### 13.4. SETUP COUNTERS SECTION

# COUNTERS FILTER [ms] (default 0)

Sets the value in [ms] for filtering all the counters connected to the inputs.

#### 13.5. P2P CONFIGURATION

In the P2P Client section it is possible to define which local events to send to one or more remote devices. This way it is possible to send the status of the inputs to the remote outputs and obtain the input-output replication without wiring. It is also possible to send the same input to several outputs simultaneously.

In the P2P Server section it is instead possible to define which inputs must be copied to the outputs.

The "Disable all rules" button places all the rules in a disabled status (default).

The "APPLY" button allows you to confirm and then save the set rules in the non-volatile memory.

#### 13.6. ANALOG TEST SECTION

Here you can control analog outputs through a web page.

#### 13.7. DIGITAL TEST SECTION

Here you can read or control digital inputs or outputs through a web page.

#### 13.8. COUNTERS TEST SECTION

In this section it is possible to view the value of the counters or set a starting one.

#### 14. CONFIGURATION OF THE R-4RTD-8DIDO DEVICE VIA WEB SERVER

#### 14.1. SETUP SECTION

# DHCP (ETH) (default: Disabled)

Sets the DHCP client to get an IP address automatically.

# IP ADDRESS STATIC (ETH) (default: 192.168.90.101)

Sets the device static address. Careful not to enter devices with the same IP address into the same network.

#### IP MASK STATIC (ETH) (default: 255.255.255.0)

Sets the mask for the IP network.

# GATEWAY ADDRESS STATIC (ETH) (default: 192.168.90.1)

Sets the gateway address.



#### PROTECT CONFIGURATION (default: Disabled)

Allows you to enable or disable password protection for reading and writing the configuration (including the IP address) using the Seneca Discovery Device software. The password is the same one that allows accessing the web server.



IF THE CONFIGURATION PROTECTION IS ENABLED IT WILL BE IMPOSSIBLE TO READ/WRITE THE CONFIGURATION OF THE DEVICE WITHOUT KNOWING THE PASSWORD.

IN THE EVENT OF LOSING THE PASSWORD IT WILL BE POSSIBLE TO RETURN THE DEVICE TO THE FACTORY CONFIGURATION (SEE CHAPTER6)

#### MODBUS SERVER PORT (ETH) (default: 502)

Sets the communication port for the Modbus TCP-IP server.

## MODBUS SERVER STATION ADDRESS (ETH) (default: 1)

Active only if Modbus Passthrough is also active, it sets the station address of the modbus TCP-IP server.



THE MODBUS SERVER WILL ANSWER ANY STATION ADDRESS ONLY IF THE MODBUS PASSTHROUGH MODE IS DISABLED.

# MODBUS PASSTHROUGH (ETH) (default: disabled)

Sets the conversion mode from Modbus TCP-IP to Modbus RTU serial (see chapter 5).

# MODBUS TCP-IP CONNECTION TIMEOUT [sec] (ETH) (default: 60)

Sets the TCP-IP connection timeout for the Modbus TCP-IP server and Passthrough modes.

# P2P SERVER PORT (default: 50026)

Sets the communication port for the P2P server.

# WEBSERVER USERNAME (default: admin)

Sets the username to access the webserver.

#### CONFIGURATION/WEBSERVER PASSWORD (default: admin)

Sets the password to access the webserver and to read/write the configuration (if enabled).

# WEBSERVER PORT (default: 80)

Sets the communication port for the web server.

**R SERIES** 

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# BAUDRATE MODBUS RTU (SER) (default: 38400 baud)

Sets the baud rate for the RS485 communication port.

# DATA MODBUS RTU (SER) (default: 8 bit)

Sets the number of bits for the RS485 communication port.

# PARITY MODBUS RTU (SER) (default: None)

Sets the parity for the RS485 communication port.

# STOP BIT MODBUS RTU (SER) (default: 1 bit)

Sets the number of stop bits for the RS485 communication port.

# MODBUS PASSTROUGH SERIAL TIMEOUT (default: 100ms)

Active only if Passthrough mode is activated, sets the maximum waiting time before sending a new packet from TCP-IP to the serial port. It must be set according to the longest response time of all the devices present on the RS485 serial port.

#### 14.2. ANALOG INPUT SETUP SECTION

This section allows the configuration of the analog inputs present in the device.

#### **SENSOR**

Sets the type of sensor connected to the input.

You can choose between the following sensors:

PT100

Ni100

PT500

PT1000

Cu50

Cu100

Ni120

Ni1000

#### SAMPLING TIME

Sets the sampling time of the channel (each channel is independent)

#### **MOVING FILTER**

Allows you to set whether or not to activate the 10-sample moving average filter.



#### **CONNECTION WIRES**

Allows you to select the connection type with the sensors of 2, 3 or 4 wires.

# WIRES CONNECTION RESISTANCE [Ohm]

Allows you to select the possible resistance of connection cables.

#### **UNIT MEASURE**

Allows you to select the channel unit of measurement among °C, K, °F, Ohm.

#### TEMPERATURE OFFSET

Allows you to set a channel temperature offset.

#### **FAULT MODE**

Allows you to set the behaviour in case of channel fault between "Last valid Value" or "Fail value"

#### **FAIL VALUE**

Allows you to set the channel fail value.

#### **BURN SENSOR DETECT**

Allows you to activate or deactivate the speed detect of sensor burn state.

#### **BURN SENSOR SAMPLING TIME (s)**

Allows you to set how often the measurement must be taken to detect the channel burn state.

## ANALOG INPUT START SCALE

Represents the start of the electrical scale of the analog measurement used for the register of the engineering measurement.

#### ANALOG INPUT STOP SCALE

Represents the electrical full scale of the analog measurement used for the engineering measurement register.

### ANALOG INPUT ENG START SCALE

It represents the value of the engineering measurement register when the input reaches the value shown in the ANALOG INPUT START SCALE parameter.

For example if:

ANALOG INPUT START SCALE = 0 °C

ANALOG INPUT STOP SCALE = 100 °C

ANALOG INPUT ENG STOP SCALE = -200

ANALOG INPUT ENG START SCALE = 200

With a 50 °C input the engineering value will be 0.

#### ANALOG INPUT ENG STOP SCALE

It represents the value of the engineering measurement register when the input reaches the value shown in the ANALOG INPUT STOP SCALE parameter.

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## For example if:

ANALOG INPUT START SCALE = 0 °C
ANALOG INPUT STOP SCALE = 100 °C
ANALOG INPUT ENG STOP SCALE = -200
ANALOG INPUT ENG START SCALE = 200

With a 50 °C input the engineering value will be 0.

#### 14.3. ANALOG TEST SECTION

Here you can view analog intputs values through a web page.

#### 14.4. DIGITAL I/O SETUP SECTION

This section allows the configuration of the digital I/Os present in the device.

# DIGITAL I/O MODE (default Input)

Selects whether the chosen terminal will work as an input, output or output commanded by an event related to the selected analog input.

# DIGITAL INPUT NORMALLY HIGH/LOW (default Normally Low)

If selected as digital input, it configures whether the input is normally high or low.

# DIGITAL OUTPUT NORMALLY STATE (default Normally Open)

If selected as digital output, it configures whether the output is normally open or closed.

# **DIGITAL OUTPUT WATCHDOG (default Disabled)**

If selected as digital output, it sets the output watchdog mode.

If "Disabled", it disables the watchdog function for the selected output.

If "Enabled on Modbus Communication" the output goes into "Watchdog state" if there has been no generic Modbus communication within the set time.

If "Enabled on Modbus Digital Output Writing" the output goes into "Watchdog state" if there has been no writing of the output within the set time.

#### DIGITAL OUTPUT WATCHDOG STATE (default Open)

Sets the value that the digital output must adopt if the watchdog has been triggered.

# DIGITAL OUTPUT WATCHDOG TIMEOUT [s] (default 100s)

Represents the watchdog time of the digital output in seconds.

#### 14.5. SETUP COUNTERS SECTION

# COUNTERS FILTER [ms] (default 0)

Sets the value in [ms] for filtering all the counters connected to the inputs.

#### 14.6. DIGITAL IO TEST SECTION

Here you can read or control digital inputs or outputs through a web page.

#### 14.7. COUNTERS TEST SECTION

In this section it is possible to view the value of the digital counters or set a starting one.

#### 14.8. P2P CONFIGURATION

In the P2P Client section it is possible to define which local events to send to one or more remote devices. This way it is possible to send the status of the inputs to the remote outputs and obtain the input-output replication without wiring. It is also possible to send the same input to several outputs simultaneously.

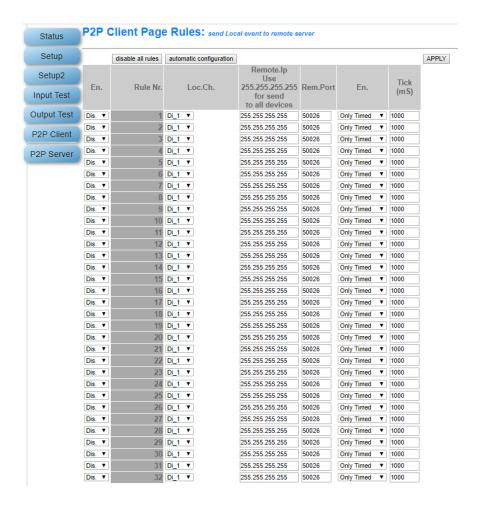
In the P2P Server section it is instead possible to define which inputs must be copied to the outputs.

The "Disable all rules" button places all the rules in a disabled status (default).

The "APPLY" button allows you to confirm and then save the set rules in the non-volatile memory.



#### 15. P2P CLIENT



The "Automatic configuration" button allows you to prepare the rules for sending all the inputs available in the device in use.

#### En.

Selects whether the copy rule is active or not.

#### Loc. Ch.

Selects the status of which channel should be sent to the remote device(s).

#### Remote IP

Selects the IP address of the remote device to which the status of that input channel is to be sent.

If the channel has to be sent simultaneously to all the devices (broadcast), enter the broadcast address (255.255.255.255) as the IP address.

#### Remote Port

Selects the communication port for sending the status of the inputs. It must coincide with the **P2P SERVER PORT** parameter of the remote device.



#### En

Selects operation in "Only Timed" or "Timed+Event" mode.

In "Only Timed" mode, the status of the inputs is sent on each "tick [ms]" and then refreshed continuously (cyclic sending).

In the "Timed+Event" mode, the status of the inputs is sent to a digital event (change of status).

# Tick [ms]

Sets the cyclical sending time of the input status.



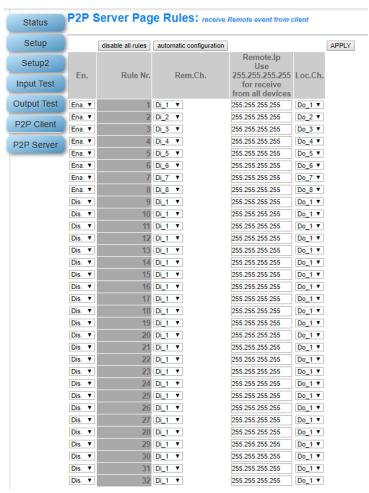
IN CASE OF ENABLED WATCHDOG OF DIGITAL OUTPUTS THE RULE'S TICK TIME MUST BE LOWER
THAN THE WATCHDOG TIMEOUT SET



IT IS ALSO POSSIBLE TO COPY SOME I/O OF THE SAME DEVICE (FOR EXAMPLE, COPY THE I01 INPUT TO D01) BY ENTERING THE IP OF THE DEVICE AS REMOTE IP



#### 16. P2P SERVER



The "Automatic configuration" button allows you to prepare the rules to receive all the inputs on the outputs of the device in use.

#### En.

Selects whether the copy rule is active or not.

#### Rem. Ch.

Selects the status of which remote channel should be received by the local device.

#### Remote IP

Selects the IP address of the remote device from which to receive the input status.

If the channel must be received simultaneously by all the devices (broadcast), enter the broadcast address (255.255.255) as the IP address.

#### Loc. Ch.

Selects the copy destination of the remote input value.



# **ATTENTION!**

IT IS ALSO POSSIBLE TO COPY SOME I/O OF THE SAME DEVICE (FOR EXAMPLE, COPY THE I01 INPUT TO D01) BY ENTERING THE IP OF THE DEVICE AS REMOTE IP. HOWEVER, THE ETHERNET PORT MUST BE CORRECTLY CONNECTED.

#### 16.1. P2P CONFIGURATION EXAMPLE

In the following example we have No.2 devices and we want to copy the status of digital input 1 of the first to the digital output of the second.

The IP address of Device 1 is 192.168.1.10

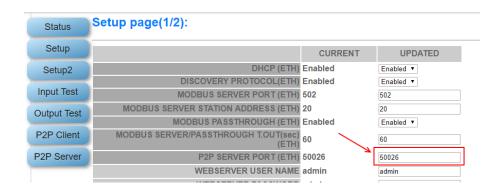
The IP address of Device 2 is 192.168.1.11

Let's move to device 1 with IP address 192.168.1.10 and select the sending of digital input 1 to the remote address 192.168.1.11 of device 2 this way:

#### **DEVICE 1**

En.	Rule Nr.	Loc.Ch.	Remote.lp Use 255.255.255.255 for send to all devices	Rem.Port	En.	Tick (mS)
Ena. ▼	1	Di_1 ▼	192.168.1.11	50026	Timed+Event ▼	1000

Now let's move on to device 2 and first configure the P2P server communication port on 50026:



And we now configure the P2P server, the channel to be received from 192.168.1.10 is Di\_1 and must be copied to Do\_1:

#### **DEVICE 2**





With this configuration, each time digital input 1 of device 1 (192.168.1.10) changes status, a packet will be sent to device 2 (192.168.1.11) which will copy it to digital output 1.

After 1 second, the same packet will be sent cyclically.

#### 16.2. **P2P EXECUTION TIME**

The switching time depends on the client device model and the server device model in addition to the congestion of the ethernet network.

For example, for the R-16DI8DO model, the switching time of the remote digital output as a response to an incoming event into another R-16DI8DO is about 20 ms (daisy chain connection of 2 devices, 1 set rule).

As regards the analog models, the refresh time of the digital inputs/outputs and analog inputs typical of the device must also be considered.

#### 17. UPDATING THE FIRMWARE AND SAVING/OPENING A CONFIGURATION

The firmware update can be performed via the web server in the appropriate section. Via the web server it is possible to save or open a saved configuration.



NOT TO DAMAGE THE DEVICE DO NOT REMOVE THE POWER SUPPLY DURING THE FIRMWARE UPDATE OPERATION.



# 18. MODBUS RTU/ MODBUS TCP-IP REGISTERS

The following abbreviations are used in the register tables:

MS	Most Significant
LS	Least Significant
MSBIT	Most Significant Bit
LSBIT	Least Significant Bit
MMSW	"Most" Most Significant Word (16bit )
MSW	Most Significant Word (16bit )
LSW	Least Significant Word (16bit)
LLSW	"Least" Least Significant Word (16bit)
RO	Read Only
RW	Register in RAM or Fe-RAM Writable infinite times.
RW*	Flash Read-Write: REGISTERS CONTAINED IN THE FLASH MEMORY: WRITABLE
IXVV	AT THE MAXIMUM ABOUT 10000 TIMES.
UNSIGNED 16 BIT	Unsigned integer register that can take values from 0 to 65535
SIGNED 16 BIT	Signed integer register that can take values from -32768 to +32767
UNSIGNED 32 BIT	Unsigned integer register that can take values from 0 to +4294967296
SIGNED 32 BIT	Signed integer register that can take values from -2147483648 to 2147483647
UNSIGNED 64 BIT	Unsigned integer register that can take values from 0 to 18.446.744.073.709.551.615
SIGNED 64 BIT	Signed integer register that can take values from -2^63 to 2^63-1
FLOAT 32 BIT	Single-precision, 32-bit floating point register (IEEE 754)
I LOAT 32 DIT	https://en.wikipedia.org/wiki/IEEE_754
BIT	Boolean register, which can take values 0 (false) or 1 (true)

#### 18.1. NUMBERING OF "0-BASED" OR "1-BASED" MODBUS ADDRESSES

According to the Modbus standard the Holding Registers are addressable from 0 to 65535, there are 2 different conventions for numbering the addresses: "0-BASED" and "1-BASED".

For greater clarity, Seneca shows its register tables in both conventions.



# **ATTENTION!**

CAREFULLY READ THE DOCUMENTATION OF THE MODBUS MASTER DEVICE IN ORDER TO UNDERSTAND WHICH OF THE TWO CONVENTIONS THE MANUFACTURER HAS DECIDED TO USE

#### 18.2. NUMBERING OF MODBUS ADDRESSES WITH "0-BASED" CONVENTION

The numbering is:

HOLDING REGISTER MODBUS ADDRESS (OFFSET)	MEANING
0	FIRST REGISTER
1	SECOND REGISTER
2	THIRD REGISTER
3	FOURTH REGISTER
4	FIFTH REGISTER

Therefore, the first register is at address 0.

In the following tables, this convention is indicated with "ADDRESS OFFSET".

# 18.3. NUMBERING OF MODBUS ADDRESSES WITH "1 BASED" CONVENTION (STANDARD)

The numbering is that established by the Modbus consortium and is of the type:

HOLDING REGISTER MODBUS  ADDRESS 4x	MEANING
40001	FIRST REGISTER
40002	SECOND REGISTER
40003	THIRD REGISTER
40004	FOURTH REGISTER
40005	FIFTH REGISTER

In the following tables this convention is indicated with "ADDRESS 4x" since a 4 is added to the address so that the first Modbus register is 40001.



A further convention is also possible where the number 4 is omitted in front of the register address:

HOLDING MODBUS ADDRESS WITHOUT 4x	MEANING
1	FIRST REGISTER
2	SECOND REGISTER
3	THIRD REGISTER
4	FOURTH REGISTER
5	FIFTH REGISTER

#### 18.4. BIT CONVENTION WITHIN A MODBUS HOLDING REGISTER

A Modbus Holding Register consists of 16 bits with the following convention:

| BIT |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 15  | 14  | 13  | 12  | 11  | 10  | 9   | 8   | 7   | 6   | 5   | 4   | 3   | 2   | 1   | 0   |

For instance, if the value of the register in decimal is:

12300

the value 12300 in hexadecimal is:

0x300C

the hexadecimal 0x300C in binary value is:

11 0000 0000 1100

So, using the above convention, we get:

| BIT |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 15  | 14  | 13  | 12  | 11  | 10  | 9   | 8   | 7   | 6   | 5   | 4   | 3   | 2   | 1   | 0   |
| 0   | 0   | 1   | 1   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 1   | 1   | 0   | 0   |

# 18.5. MSB and LSB BYTE CONVENTION WITHIN A MODBUS HOLDING REGISTER

A Modbus Holding Register consists of 16 bits with the following convention:

| BIT |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 15  | 14  | 13  | 12  | 11  | 10  | 9   | 8   | 7   | 6   | 5   | 4   | 3   | 2   | 1   | 0   |

LSB Byte (Least Significant Byte) defines the 8 bits ranging from Bit 0 to Bit 7 included, we define MSB Byte (Most Significant Byte) the 8 bits ranging from Bit 8 to Bit 15 inclusive:

BIT	BIT	BIT	BIT	BIT	BIT	BIT	BIT	BIT	BIT	BIT	BIT	BIT	BIT	BIT	BIT
15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
BYTE MSB											BYTE	LSB			



# 18.6. REPRESENTATION OF A 32-BIT VALUE IN TWO CONSECUTIVE MODBUS HOLDING REGISTERS

The representation of a 32-bit value in the Modbus Holding Registers is made using 2 consecutive Holding Registers (a Holding Register is a 16-bit register). To obtain the 32-bit value it is therefore necessary to read two consecutive registers:

For example, if register 40064 contains the 16 most significant bits (MSW) while register 40065 contains the least significant 16 bits (LSW), the 32-bit value is obtained by composing the 2 registers:

BIT	BIT	BIT	BIT	BIT	BIT	BIT	BIT	BIT	BIT	BIT	BIT	BIT	BIT	BIT	BIT
15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
40064 MOST SIGNIFICANT WORD															

BIT	BIT	BIT	BIT	BIT	BIT	BIT	BIT	BIT	BIT	BIT	BIT	BIT	BIT	BIT	BIT
15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
	40065 LEAST SIGNIFICANT WORD														

$$Value_{32bit} = Register_{LSW} + (Register_{MSW} * 65536)$$

In the reading registers it is possible to swap the most significant word with the least significant word, therefore it is possible to obtain 40064 as LSW and 40065 as MSW.

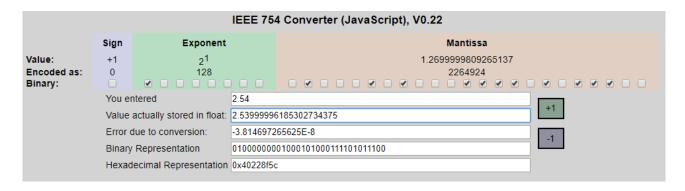


# 18.7. TYPE OF 32-BIT FLOATING POINT DATA (IEEE 754)

The IEEE 754 standard (<a href="https://en.wikipedia.org/wiki/IEEE\_754">https://en.wikipedia.org/wiki/IEEE\_754</a>) defines the format for representing floating point numbers.

As already mentioned, since it is a 32-bit data type, its representation occupies two 16-bit holding registers. To obtain a binary/hexadecimal conversion of a floating point value it is possible to refer to an online converter at this address:

# http://www.h-schmidt.net/FloatConverter/IEEE754.html



Using the last representation the value 2.54 is represented at 32 bits as:

#### 0x40228F5C

Since we have 16-bit registers available, the value must be divided into MSW and LSW:

0x4022 (16418 decimal) are the 16 most significant bits (MSW) while 0x8F5C (36700 decimal) are the 16 least significant bits (LSW).



### 18.8. SUPPORTED MODBUS COMMUNICATION PROTOCOLS

The Modbus communication protocols supported are:

- Modbus RTU Slave (from the RS485 port)
- Modbus TCP-IP Server (from Ethernet ports) 8 clients max

### 18.9. SUPPORTED MODBUS FUNCTION CODES

The following Modbus functions are supported:

Read Holding Register (function 3)
Read Coil Status (function 1)
Write Coil (function 5)
Write Multiple Coil (function 15)
Write Single Register (function 6)
Write Multiple Registers (function 16)



All 32-bit values are contained in 2 consecutive registers



Any registers with RW\* (in flash memory) can be written up to 10000 times. The PLC/Master Modbus programmer must not exceed this limit



# 19. MODBUS REGISTER TABLE FOR THE R-32DIDO PRODUCT

# 19.1. R-32DIDO: MODBUS 4X HOLDING REGISTERS TABLE (FUNCTION CODE 3)

ADDRESS (4x)	OFFSET (4x)	REGISTER	CHANNEL	DESCRIPTION	W/R	TYPE
40001	0	MACHINE-ID	-	Device identification	RO	UNSIGNED 16 BIT
40002	1	FW REVISION (Maior/Minor)	-	Fw Revision	RO	UNSIGNED 16 BIT
40003	2	FW REVISION (Fix/Build)	-	Fw Revision	RO	UNSIGNED 16 BIT
40004	3	FW CODE	-	Fw Code	RO	UNSIGNED 16 BIT
40005	4	RESERVED	-	-	RO	UNSIGNED 16 BIT
40006	5	RESERVED	-	-	RO	UNSIGNED 16 BIT
40007	6	BOARD-ID	-	Hw Revision	RO	UNSIGNED 16 BIT
40008	7	BOOT REVISION (Maior/Minor)	-	Bootloader Revision	RO	UNSIGNED 16 BIT
40009	8	BOOT REVISION (Fix/Build)	-	Bootloader Revision	RO	UNSIGNED 16 BIT
40010	9	RESERVED	-	-	RO	UNSIGNED 16 BIT
40011	10	RESERVED	-	-	RO	UNSIGNED 16 BIT
40012	11	RESERVED	-	-	RO	UNSIGNED 16 BIT
40013	12	COMMAND_AUX _3H	-	Aux Command Register	RW	UNSIGNED 16 BIT
40014	13	COMMAND_AUX _3L	-	Aux Command Register	RW	UNSIGNED 16 BIT
40015	14	COMMAND_AUX 2	-	Aux Command Register	RW	UNSIGNED 16 BIT
40016	15	COMMAND_AUX 1	-	Aux Command Register	RW	UNSIGNED 16 BIT
40017	16	COMMAND	-	Aux Command Register	RW	UNSIGNED 16 BIT
40018	17	STATUS	-	Device Status	RW	UNSIGNED 16 BIT
40019	18	RESERVED	-	-	RW	UNSIGNED 16 BIT
40020	19	RESERVED	-	-	RW	UNSIGNED 16 BIT
40021	20	DIGITAL I/O	161	Digital IO Value [Channel 161]	RW	UNSIGNED 16 BIT





ADDRESS (4x)	OFFSET (4x)	REGISTER	CHANNEL	DESCRIPTION	W/R	ТҮРЕ
40022	21	DIGITAL I/O	3217	Digital IO Value [Channel 3217]	RW	UNSIGNED 16 BIT

ADDRESS (4x)	OFFEST (4x)	REGISTER	CHANNEL	DESCRIPTION	W/R	TYPE
40101	100	COUNTER MSW DIN	1	CHANNEL COUNTER VALUE	RW	UNSIGNED 32 BIT
40102	101	COUNTER LSW DIN			RW	
40103	102	COUNTER MSW DIN	2	CHANNEL COUNTER VALUE	RW	UNSIGNED 32 BIT
40104	103	COUNTER LSW DIN			RW	
40105	104	COUNTER MSW DIN	- 3	CHANNEL COUNTER	RW	UNSIGNED 32 BIT
40106	105	COUNTER LSW DIN	3	VALUE	RW	
40107	106	COUNTER MSW DIN	4	CHANNEL COUNTER VALUE	RW	UNSIGNED 32 BIT
40108	107	COUNTER LSW DIN	7		RW	
40109	108	COUNTER MSW DIN	- 5	CHANNEL COUNTER VALUE	RW	UNSIGNED 32 BIT
40110	109	COUNTER LSW DIN			RW	
40111	110	COUNTER MSW DIN	- 6	CHANNEL COUNTER VALUE	RW	UNSIGNED 32 BIT
40112	111	COUNTER LSW DIN	Ü		RW	
40113	112	COUNTER MSW DIN	7	CHANNEL COUNTER VALUE	RW	UNSIGNED 32 BIT
40114	113	COUNTER LSW DIN			RW	
40115	114	COUNTER MSW DIN	- 8	CHANNEL COUNTER VALUE	RW	UNSIGNED 32 BIT
40116	115	COUNTER LSW DIN			RW	
40117	116	COUNTER MSW DIN	9	CHANNEL COUNTER VALUE	RW	UNSIGNED 32 BIT
40118	117	COUNTER LSW DIN			RW	
40119	118	COUNTER MSW DIN	- 10	CHANNEL COUNTER VALUE	RW	UNSIGNED 32 BIT
40120	119	COUNTER LSW DIN			RW	





ADDRESS (4x)	OFFEST (4x)	REGISTER	CHANNEL	DESCRIPTION	W/R	ТҮРЕ
40121	120	COUNTER MSW DIN	- 11	CHANNEL COUNTER VALUE	RW	UNSIGNED 32 BIT
40122	121	COUNTER LSW DIN			RW	
40123	122	COUNTER MSW DIN	12	CHANNEL COUNTER VALUE	RW	UNSIGNED 32 BIT
40124	123	COUNTER LSW DIN			RW	
40125	124	COUNTER MSW DIN	13	CHANNEL COUNTER	RW	UNSIGNED 32 BIT
40126	125	COUNTER LSW DIN	13	VALUE	RW	
40127	126	COUNTER MSW DIN	14	CHANNEL COUNTER	RW	UNSIGNED 32 BIT
40128	127	COUNTER LSW DIN		VALUE	RW	
40129	128	COUNTER MSW DIN	15	CHANNEL COUNTER VALUE	RW	UNSIGNED 32 BIT
40130	129	COUNTER LSW DIN			RW	
40131	130	COUNTER MSW DIN	16	CHANNEL COUNTER VALUE	RW	UNSIGNED 32 BIT
40132	131	COUNTER LSW DIN			RW	
40133	132	COUNTER MSW DIN	17	CHANNEL COUNTER VALUE	RW	UNSIGNED 32 BIT
40134	133	COUNTER LSW DIN			RW	
40135	134	COUNTER MSW DIN	18	CHANNEL COUNTER VALUE	RW	UNSIGNED 32 BIT
40136	135	COUNTER LSW DIN			RW	
40137	136	COUNTER MSW DIN	19	CHANNEL COUNTER VALUE	RW	UNSIGNED 32 BIT
40138	137	COUNTER LSW DIN			RW	
40139	138	COUNTER MSW DIN	- 20	CHANNEL COUNTER VALUE	RW	UNSIGNED
40140	139	COUNTER LSW DIN			RW	32 BIT
40141	140	COUNTER MSW DIN	- 21	CHANNEL COUNTER VALUE	RW	UNSIGNED 32 BIT
40142	141	COUNTER LSW DIN			RW	
40143	142	COUNTER MSW DIN	22	CHANNEL COUNTER VALUE	RW	UNSIGNED 32 BIT



ADDRESS (4x)	OFFEST (4x)	REGISTER	CHANNEL	DESCRIPTION	W/R	ТҮРЕ
40144	143	COUNTER LSW DIN			RW	
40145	144	COUNTER MSW DIN	23	CHANNEL COUNTER	RW	UNSIGNED
40146	145	COUNTER LSW DIN	23	VALUE	RW	32 BIT
40147	146	COUNTER MSW DIN	24	CHANNEL COUNTER	RW	UNSIGNED
40148	147	COUNTER LSW DIN		VALUE	RW	32 BIT
40149	148	COUNTER MSW DIN	25	CHANNEL COUNTER	RW	UNSIGNED
40150	149	COUNTER LSW DIN	25	VALUE	RW	32 BIT
40151	150	COUNTER MSW DIN	- 26	CHANNEL COUNTER	RW	UNSIGNED
40152	151	COUNTER LSW DIN		VALUE	RW	32 BIT
40153	152	COUNTER MSW DIN	- 27	CHANNEL COUNTER	RW	UNSIGNED 32 BIT
40154	153	COUNTER LSW DIN		VALUE	RW	
40155	154	COUNTER MSW DIN	- 28	CHANNEL COUNTER VALUE	RW	UNSIGNED
40156	155	COUNTER LSW DIN	20		RW	32 BIT
40157	156	COUNTER MSW DIN	29	CHANNEL COUNTER	RW	UNSIGNED
40158	157	COUNTER LSW DIN	23	VALUE	RW	32 BIT
40159	158	COUNTER MSW DIN	30	CHANNEL COUNTER	RW	UNSIGNED
40160	159	COUNTER LSW DIN	30	VALUE	RW	32 BIT
40161	160	COUNTER MSW DIN	31	CHANNEL COUNTER	RW	UNSIGNED
40162	161	COUNTER LSW DIN	31	VALUE	RW	32 BIT
40163	162	COUNTER MSW DIN	27	CHANNEL COUNTER	RW	UNSIGNED
40164	163	COUNTER LSW DIN	32	VALUE	RW	32 BIT
40165 40166	164 165	PERIOD	1	PERIOD [ms]	RW RW	FLOAT 32 BIT
40167	166	PERIOD	2	PERIOD [ms]	RW	FLOAT 32 BIT
40168	167				RW	





ADDRESS	OFFEST	DECISTED	GUANNE	DESCRIPTION	14//5	TV05
(4x)	(4x)	REGISTER	CHANNEL	DESCRIPTION	W/R	TYPE
40169	168	PERIOD	3	PERIOD [ms]	RW	FLOAT 32 BIT
40170	169	PERIOD	5	PERIOD [IIIS]	RW	FLOAT 32 BIT
40171	170	DEDIOD	4	DEDIOD [max]	RW	FLOAT 22 DIT
40172	171	PERIOD	4	PERIOD [ms]	RW	FLOAT 32 BIT
40173	172	DEDIOD	-	DEDIOD [max]	RW	FLOAT 32 BIT
40174	173	PERIOD	5	PERIOD [ms]	RW	
40175	174	PERIOD	6	DEDIOD [mc]	RW	FLOAT 22 DIT
40176	175	PERIOD	0	PERIOD [ms]	RW	FLOAT 32 BIT
40177	176	DEDIOD	7	DEDIOD [mc]	RW	FLOAT 22 DIT
40178	177	PERIOD	/	PERIOD [ms]	RW	FLOAT 32 BIT
40179	178	DEDIOD	0	DEDIOD [ms]	RW	FLOAT 22 DIT
40180	179	PERIOD	8	PERIOD [ms]	RW	FLOAT 32 BIT
40181	180	DEDIOD	9	DEDIOD [mc]	RW	FLOAT 22 DIT
40182	181	PERIOD	9	PERIOD [ms]	RW	FLOAT 32 BIT
40183	182	PERIOD	10	PERIOD [ms]	RW	ELOAT 22 DIT
40184	183	LINIOD	10	PERIOD [IIIS]	RW	FLOAT 32 BIT
40185	184	PERIOD	11	DEDIOD [mc]	RW	FLOAT 32 BIT
40186	185	PERIOD	11	PERIOD [ms]	RW	
40187	186	PERIOD	12	PERIOD [ms]	RW	FLOAT 32 BIT
40188	187		12	PERIOD [IIIS]	RW	FLOAT 32 BIT
40189	188	DEDIOD	13	PERIOD [ms]	RW	FLOAT 32 BIT
40190	189	PERIOD	15	PERIOD [IIIS]	RW	
40191	190	PERIOD	14	PERIOD [ms]	RW	FLOAT 32 BIT
40192	191	PERIOD	14		RW	
40193	192	PERIOD	15	PERIOD [ms]	RW	ELOAT 33 DIT
40194	193	PERIOD	15		RW	FLOAT 32 BIT
40195	194	PERIOD	16	PERIOD [ms]	RW	FLOAT 32 BIT
40196	195	PERIOD	10	PERIOD [IIIS]	RW	FLOAT 32 BIT
40197	196	PERIOD	17	PERIOD [ms]	RW	FLOAT 32 BIT
40198	197	LEVIOD	1/	F LINIOD [IIIS]	RW	TLUAT 32 BIT
40199	198	PERIOD	18	PERIOD [ms]	RW	FLOAT 32 BIT
40200	199	PENIOD	10	רבעוטט [וווז]	RW	I LOAT 32 BIT
40201	200	PERIOD	19	PERIOD [ms]	RW	FLOAT 32 BIT
40202	201	FERIOD	19	FENIOD [IIIS]	RW	I LUAT 32 DIT
40203	202	PERIOD	20	DEDIOD [mc]	RW	FLOAT 32 BIT
40204	203	FERIOD	20	PERIOD [ms]	RW	I LUAT 32 BIT
40205	204	PERIOD	21	DEDIOD [mc]	RW	ELOAT 22 DIT
40206	205	PERIOD	21	PERIOD [ms]	RW	FLOAT 32 BIT
40207	206	DEDIOD	22	DEDIOD [max]	RW	ELOAT 22 DIT
40208	207	PERIOD	22	PERIOD [ms]	RW	FLOAT 32 BIT
40209	208	PERIOD	23	PERIOD [ms]	RW	FLOAT 32 BIT





ADDRESS	OFFEST	REGISTER	CHANNEL	DESCRIPTION	W/R	TYPE
(4x)	(4x)	NEGIOTEN.	0171101022			2
40210	209				RW	
40211	210	PERIOD	24	PERIOD [ms]	RW	FLOAT 32 BIT
40212	211				RW	
40213	212	PERIOD	25	PERIOD [ms]	RW	FLOAT 32 BIT
40214	213	_	_		RW	
40215	214	PERIOD	26	PERIOD [ms]	RW	FLOAT 32 BIT
40216	215				RW	120/11 32 511
40217	216	PERIOD	27	PERIOD [ms]	RW	FLOAT 32 BIT
40218	217	7 211102	27	1 211102 [1113]	RW	120/11 32 511
40219	218	PERIOD	28	PERIOD [ms]	RW	FLOAT 32 BIT
40220	219	TENIOD	20	T EMOD [III3]	RW	TEOMI 32 BIT
40221	220	PERIOD	29	PERIOD [ms]	RW	FLOAT 32 BIT
40222	221	TEMOD	23	T EMOD [M3]	RW	120/11 32 011
40223	222	PERIOD	30	PERIOD [ms]	RW	FLOAT 32 BIT
40224	223	TEMOD	30	i Eniob [iiis]	RW	TEOMI 32 DIT
40225	224	PERIOD	31	PERIOD [ms]	RW	FLOAT 32 BIT
40226	225	TENIOD	31	T EMOD [III3]	RW	120/11 32 311
40227	226	PERIOD	32	PERIOD [ms]	RW	FLOAT 32 BIT
40228	227		32	i Eniob [iiis]	RW	
40229	228	FREQUENCY	1	FREQUENCY [Hz]	RW	FLOAT 32 BIT
40230	229	TREQUENCT	1	TREQUENCT [112]	RW	. 20/11 32 511
40231	230	FREQUENCY	2	FREQUENCY [Hz]	RW	FLOAT 32 BIT
40232	231	PREQUENCY	2	PREQUENCY [HZ]	RW	FLOAT 32 BIT
40233	232	EDECLIENCY	2	FREQUENCY [Hz]	RW	FLOAT 32 BIT
40234	233	FREQUENCY	3		RW	
40235	234	EDECLIENCY	4	EDEOTIENCY [H-]	RW	FLOAT 32 BIT
40236	235	FREQUENCY	4	FREQUENCY [Hz]	RW	FLOAT 32 BIT
40237	236	EDECLIENCY	5	FREQUENCY [Hz]	RW	ELOAT 22 DIT
40238	237	FREQUENCY	5	PREQUENCY [HZ]	RW	FLOAT 32 BIT
40239	238	EDECLIENCY	6	EDECITEMON [11-1	RW	ELOAT 22 DIT
40240	239	FREQUENCY	6	FREQUENCY [Hz]	RW	FLOAT 32 BIT
40241	240	EDECLIENCY	7	FREQUENCY [Hz]	RW	FLOAT 32 BIT
40242	241	FREQUENCY	7	FREQUENCY [HZ]	RW	rLUAT 32 BIT
40243	242	EDECLIENCY	0	EDECHENCY [11-]	RW	FLOAT 22 DIT
40244	243	FREQUENCY	8	FREQUENCY [Hz]	RW	FLOAT 32 BIT
40245	244	EDEOLIENOV	0	EDEOLIENCY [11-]	RW	FLOAT 33 DIT
40246	245	FREQUENCY	9	FREQUENCY [Hz]	RW	FLOAT 32 BIT
40247	246	EDEOLIENOV	10	EDEOLIENCY [11-]	RW	FLOAT 32 BIT
40248	247	FREQUENCY	10	FREQUENCY [Hz]	RW	
40249	248	EDEOLIENOV	11	EDEOLIENCY [11-]	RW	FLOAT 32 BIT
40250	249	FREQUENCY	11	FREQUENCY [Hz]	RW	





ADDRESS	OFFEST					
(4x)	(4x)	REGISTER	CHANNEL	DESCRIPTION	W/R	TYPE
40251	250	EDECLIENCY	12	EDEOTIENCY [II-]	RW	FLOAT 22 DIT
40252	251	FREQUENCY	12	FREQUENCY [Hz]	RW	FLOAT 32 BIT
40253	252	EDECLIENCY	12		RW	FLOAT 22 DIT
40254	253	FREQUENCY	13	FREQUENCY [Hz]	RW	FLOAT 32 BIT
40255	254	EDECLIENCY	1.1		RW	ELOAT 22 DIT
40256	255	FREQUENCY	14	FREQUENCY [Hz]	RW	FLOAT 32 BIT
40257	256	EDECLIENCY	15	EDEOTIENCY [II-]	RW	51 0 A T 22 DIT
40258	257	FREQUENCY	15	FREQUENCY [Hz]	RW	FLOAT 32 BIT
40259	258	FDFOLIENCY	16	EDEOTIENCY [II-]	RW	FLOAT 22 DIT
40260	259	FREQUENCY	16	FREQUENCY [Hz]	RW	FLOAT 32 BIT
40261	260	EDECLIENCY	17	EDEOTIENCY [II-]	RW	FLOAT 22 DIT
40262	261	FREQUENCY	17	FREQUENCY [Hz]	RW	FLOAT 32 BIT
40263	262	EDECLIENCY	10	EDEOTIENCY [II-]	RW	FLOAT 22 DIT
40264	263	FREQUENCY	18	FREQUENCY [Hz]	RW	FLOAT 32 BIT
40265	264	FREQUENCY	10	EDEOTIENCA [TI-]	RW	FLOAT 22 DIT
40266	265	TREQUENCT	19	FREQUENCY [Hz]	RW	FLOAT 32 BIT
40267	266	FREQUENCY	20	EDEOTIENCY [H-]	RW	FLOAT 32 BIT
40268	267	PREQUENCY	20	FREQUENCY [Hz]	RW	
40269	268	FREQUENCY	21	EDEOTIENCY [H-]	RW	FLOAT 32 BIT
40270	269		21	FREQUENCY [Hz]	RW	FLOAT 32 BIT
40271	270	EDECLIENCY	22	FREQUENCY [Hz]	RW	FLOAT 32 BIT
40272	271	FREQUENCY	22	FREQUENCY [HZ]	RW	
40273	272	FREQUENCY	23	FREQUENCY [Hz]	RW	FLOAT 32 BIT
40274	273	PREQUENCY	25		RW	
40275	274	FREQUENCY	24	FREQUENCY [Hz]	RW	FLOAT 32 BIT
40276	275	PREQUENCY	24		RW	FLOAT 32 BIT
40277	276	FREQUENCY	25	FREQUENCY [Hz]	RW	FLOAT 32 BIT
40278	277	PREQUENCY	23	FREQUENCY [HZ]	RW	FLOAT 32 BIT
40279	278	FREQUENCY	26	FREQUENCY [Hz]	RW	FLOAT 32 BIT
40280	279	TREQUENCT	20	TREQUENCT [HZ]	RW	I LOAT 32 BIT
40281	280	FREQUENCY	27	FREQUENCY [Hz]	RW	FLOAT 32 BIT
40282	281	TREQUENCT	21	TREQUENCT [HZ]	RW	I LOAT 32 BIT
40283	282	FREQUENCY	28	FREQUENCY [Hz]	RW	FLOAT 32 BIT
40284	283	TREQUENCY	20	TREQUENCT [HZ]	RW	I LUAT 32 BIT
40285	284	FREQUENCY	29	FREQUENCY [Hz]	RW	FLOAT 32 BIT
40286	285	TREQUENCY	23	TREQUENCT [HZ]	RW	I LUAT 32 BIT
40287	286	FREQUENCY	30	EBEULIENICA [П²]	RW	FLOAT 32 BIT
40288	287	TREQUENCY	30	FREQUENCY [Hz]	RW	I LUAT 32 BIT
40289	288	EDECLIENCY	31	EDEUTIENCA [H-J	RW	ELOAT 22 DIT
40290	289	FREQUENCY	31	FREQUENCY [Hz]	RW	FLOAT 32 BIT
40291	290	FREQUENCY	32	FREQUENCY [Hz]	RW	FLOAT 32 BIT



ADDRESS (4x)	OFFEST (4x)	REGISTER	CHANNEL	DESCRIPTION	W/R	ТҮРЕ
40292	291				RW	

# 19.2. R-32DIDO: MODBUS CONFIGURATION REGISTERS TABLE 4x HOLDING REGISTERS (FUNCTION CODE 3)

ADDRESS	OFFSET	REGISTER	CHANNEL	DESCRIPTION	W/R	ТҮРЕ
(4x) 45001-	(4x) 5000-					UNSIGNED
45001-	5000-	MAC Address	-	MAC Address	R	16 BIT
43000		DHCP mode		0=DHCP OFF, else DHCP		UNSIGNED
45007	5007	Drief mode		ON	RW	16 BIT
45008-	5008-	Static IP address		Static IP address	RW	4 BYTE
45011	5010				11.00	4 0111
45012-	5011-	Static mask		Static mask address	RW	4 BYTE
45015	5014	address			1000	
45016-	5015-	Static Gateway		Static Gateway address	RW	4 BYTE
45019	5018	address			11.00	4 0111
45020	5019	Enable change IP address from Discovery protocol		0=enabled, else disabled	RW	UNSIGNED 16 BIT
45021	5020	Modbus TCP/IP server port		Modbus TCP/IP server port	RW	UNSIGNED 16 BIT
45022	5021	Modbus TCP/IP device address		Modbus TCP/IP device address	RW	UNSIGNED 16 BIT
45023	5022	Modbus Passthrough		0=disabled, 1=enabled	RW	UNSIGNED 16 BIT
45024	5023	Modbus TCP/IP timeout [ms]			RW	UNSIGNED 16 BIT
45025	5024	P2P Server port			RW	UNSIGNED 16 BIT
45026-	5025-	Webserver user		string max 15 chars,	D\A/	16 DVTF
45041	5040	name		terminated by NULL	RW	16 BYTE
45042-	5041-	Webserver		string max 15 chars,	RW	16 BYTE
45057	5056	password		terminated by NULL	IVV	TODILE
45058	5057	Webserver port			RW	UNSIGNED 16 BIT
45059	5058	Baudrate RS485		0=1200 1=2400 2=4800 3=9600 4=19200 5=38400 6=57600, 7=115200	RW	UNSIGNED 16 BIT





ADDRESS (4x)	OFFSET (4x)	REGISTER	CHANNEL	DESCRIPTION	W/R	ТҮРЕ
45060	5059	NOT USED			RW	UNSIGNED 16 BIT
45061	5060	Parity RS485		0=NONE 1=ODD 2=EVEN	RW	UNSIGNED 16 BIT
45062	5061	Bit Stop RS485		0=1 BIT DI STOP 1=2 BIT STOP	RW	UNSIGNED 16 BIT
45063	5062	Modbus RS485 slave device address			RW	UNSIGNED 16 BIT
45064	5063	Timeout [ms] Modbus RS485 slave			RW	UNSIGNED 16 BIT
45065	5064	Digital I/O Configuration	1	bit 0 : 0=input, 1=output bit 1 : 0=input not inverted, 1=input inverted bit 2 : 0=output not inverted, 1=output inverted bit 4,3 : 00=output watchdog disabled 01=out watchdog enabled, refresh on modbus communication 10=output watchdog enabled, refresh on modbus 40020-40021 write registers bit 5 : 0=watchdog expired open digital output, 1= watchdog expired close digital output bit 15-8 : value in [s] of the watchdog timeout	RW	UNSIGNED 16 BIT
45066	5065	Digital I/O Configuration	2	See 45065 for definitions	RW	UNSIGNED 16 BIT
45067	5066	Digital I/O Configuration	3	See 45065 for definitions	RW	UNSIGNED 16 BIT
45068	5067	Digital I/O Configuration	4	See 45065 for definitions	RW	UNSIGNED 16 BIT
45069	5068	Digital I/O Configuration	5	See 45065 for definitions	RW	UNSIGNED 16 BIT
45070	5069	Digital I/O Configuration	6	See 45065 for definitions	RW	UNSIGNED 16 BIT
45071	5070	Digital I/O Configuration	7	See 45065 for definitions	RW	UNSIGNED 16 BIT





ADDRESS (4x)	OFFSET (4x)	REGISTER	CHANNEL	DESCRIPTION	W/R	ТҮРЕ
45072	5071	Digital I/O Configuration	8	See 45065 for definitions	RW	UNSIGNED 16 BIT
45073	5072	Digital I/O Configuration	9	See 45065 for definitions	RW	UNSIGNED 16 BIT
45074	5073	Digital I/O Configuration	10	See 45065 for definitions	RW	UNSIGNED 16 BIT
45075	5074	Digital I/O Configuration	11	See 45065 for definitions	RW	UNSIGNED 16 BIT
45076	5075	Digital I/O Configuration	12	See 45065 for definitions	RW	UNSIGNED 16 BIT
45077	5076	Digital I/O Configuration	13	See 45065 for definitions	RW	UNSIGNED 16 BIT
45078	5077	Digital I/O Configuration	14	See 45065 for definitions	RW	UNSIGNED 16 BIT
45079	5078	Digital I/O Configuration	15	See 45065 for definitions	RW	UNSIGNED 16 BIT
45080	5079	Digital I/O Configuration	16	See 45065 for definitions	RW	UNSIGNED 16 BIT
45081	5080	Digital I/O Configuration	17	See 45065 for definitions	RW	UNSIGNED 16 BIT
45082	5081	Digital I/O Configuration	18	See 45065 for definitions	RW	UNSIGNED 16 BIT
45083	5082	Digital I/O Configuration	19	See 45065 for definitions	RW	UNSIGNED 16 BIT
45084	5083	Digital I/O Configuration	20	See 45065 for definitions	RW	UNSIGNED 16 BIT
45085	5084	Digital I/O Configuration	21	See 45065 for definitions	RW	UNSIGNED 16 BIT
45086	5085	Digital I/O Configuration	22	See 45065 for definitions	RW	UNSIGNED 16 BIT
45087	5086	Digital I/O Configuration	23	See 45065 for definitions	RW	UNSIGNED 16 BIT
45088	5087	Digital I/O Configuration	24	See 45065 for definitions	RW	UNSIGNED 16 BIT
45089	5088	Digital I/O Configuration	25	See 45065 for definitions	RW	UNSIGNED 16 BIT
45090	5089	Digital I/O Configuration	26	See 45065 for definitions	RW	UNSIGNED 16 BIT
45091	5090	Digital I/O Configuration	27	See 45065 for definitions	RW	UNSIGNED 16 BIT
45092	5091	Digital I/O Configuration	28	See 45065 for definitions	RW	UNSIGNED 16 BIT
45093	5092	Digital I/O Configuration	29	See 45065 for definitions	RW	UNSIGNED 16 BIT
45094	5093	Digital I/O Configuration	30	See 45065 for definitions	RW	UNSIGNED 16 BIT





ADDRESS (4x)	OFFSET (4x)	REGISTER	CHANNEL	DESCRIPTION	W/R	TYPE
45095	5094	Digital I/O Configuration	31	See 45065 for definitions	RW	UNSIGNED 16 BIT
45096	5095	Digital I/O Configuration	32	See 45065 for definitions	RW	UNSIGNED 16 BIT
45097	5096	Digital Input filter value [ms]	-		RW	UNSIGNED 16 BIT
45501	5500	P2P CLIENT RULE	1	0=disabled, else enabled	RW	UNSIGNED 16 BIT
45502	5501	P2P CLIENT RULE	1	local channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
45503- 45506	5502- 5505	P2P CLIENT RULE	1	remote ip address	RW	4 BYTE
45507	5506	P2P CLIENT RULE	1	remote tcp/ip port	RW	UNSIGNED 16 BIT
45508	5507	P2P CLIENT RULE	1	0=enabled send on timeout, 1=enebaled send on timeout or changed value	RW	UNSIGNED 16 BIT
45509	5508	P2P CLIENT RULE	1	timeout value [ms]	RW	UNSIGNED 16 BIT
45513	5512	P2P CLIENT RULE	1	ack packet 0=disabled, 1=enabled	RW	UNSIGNED 16 BIT
45533	5532	P2P CLIENT RULE	2	0=disabled, else enabled	RW	UNSIGNED 16 BIT
45534	5533	P2P CLIENT RULE	2	local channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
45535- 45538	5534- 5537	P2P CLIENT RULE	2	remote ip address	RW	4 BYTE
45539	5538	P2P CLIENT RULE	2	remote tcp/ip port	RW	UNSIGNED 16 BIT
45540	5539	P2P CLIENT RULE	2	0=enabled send on timeout, 1=enebaled send on timeout or changed value	RW	UNSIGNED 16 BIT
45541	5540	P2P CLIENT RULE	2	timeout value [ms]	RW	UNSIGNED 16 BIT
45545	5544	P2P CLIENT RULE	2	ack packet 0=disabled, 1=enabled	RW	UNSIGNED 16 BIT
45565	5564	P2P CLIENT RULE	3	0=disabled, else enabled	RW	UNSIGNED 16 BIT
45566	5565	P2P CLIENT RULE	3	local channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
45567- 45570	5566- 5569	P2P CLIENT RULE	3	remote ip address	RW	4 BYTE
45571	5570	P2P CLIENT RULE	3	remote tcp/ip port	RW	UNSIGNED 16 BIT





ADDRESS (4x)	OFFSET (4x)	REGISTER	CHANNEL	DESCRIPTION	W/R	TYPE
45572	5571	P2P CLIENT RULE	3	0=enabled send on timeout, 1=enebaled send on timeout or changed value	RW	UNSIGNED 16 BIT
45573	5572	P2P CLIENT RULE	3	timeout value [ms]	RW	UNSIGNED 16 BIT
45577	5576	P2P CLIENT RULE	3	ack packet 0=disabled, 1=enabled	RW	UNSIGNED 16 BIT
45597	5596	P2P CLIENT RULE	4	0=disabled, else enabled	RW	UNSIGNED 16 BIT
45598	5597	P2P CLIENT RULE	4	local channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
45599- 45602	5598- 5601	P2P CLIENT RULE	4	remote ip address	RW	4 BYTE
45603	5602	P2P CLIENT RULE	4	remote tcp/ip port	RW	UNSIGNED 16 BIT
45604	5603	P2P CLIENT RULE	4	0=enabled send on timeout, 1=enebaled send on timeout or changed value	RW	UNSIGNED 16 BIT
45605	5604	P2P CLIENT RULE	4	timeout value [ms]	RW	UNSIGNED 16 BIT
45609	5608	P2P CLIENT RULE	4	ack packet 0=disabled, 1=enabled	RW	UNSIGNED 16 BIT
45629	5628	P2P CLIENT RULE	5	0=disabled, else enabled	RW	UNSIGNED 16 BIT
45630	5629	P2P CLIENT RULE	5	local channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
45631- 45634	5630- 5633	P2P CLIENT RULE	5	remote ip address	RW	4 BYTE
45635	5634	P2P CLIENT RULE	5	remote tcp/ip port	RW	UNSIGNED 16 BIT
45636	5635	P2P CLIENT RULE	5	0=enabled send on timeout, 1=enebaled send on timeout or changed value	RW	UNSIGNED 16 BIT
45637	5636	P2P CLIENT RULE	5	timeout value [ms]	RW	UNSIGNED 16 BIT
45641	5640	P2P CLIENT RULE	5	ack packet 0=disabled, 1=enabled	RW	UNSIGNED 16 BIT
45661	5660	P2P CLIENT RULE	6	0=disabled, else enabled	RW	UNSIGNED 16 BIT
45662	5661	P2P CLIENT RULE	6	local channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
45663- 45666	5662- 5665	P2P CLIENT RULE	6	remote ip address	RW	4 BYTE





ADDRESS (4x)	OFFSET (4x)	REGISTER	CHANNEL	DESCRIPTION	W/R	ТҮРЕ
45667	5666	P2P CLIENT RULE	6	remote tcp/ip port	RW	UNSIGNED 16 BIT
45668	5667	P2P CLIENT RULE	6	0=enabled send on timeout, 1=enebaled send on timeout or changed value	RW	UNSIGNED 16 BIT
45669	5668	P2P CLIENT RULE	6	timeout value [ms]	RW	UNSIGNED 16 BIT
45673	5672	P2P CLIENT RULE	6	ack packet 0=disabled, 1=enabled	RW	UNSIGNED 16 BIT
45693	5692	P2P CLIENT RULE	7	0=disabled, else enabled	RW	UNSIGNED 16 BIT
45694	5693	P2P CLIENT RULE	7	local channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
45695- 45698	5694- 5697	P2P CLIENT RULE	7	remote ip address	RW	4 BYTE
45699	5698	P2P CLIENT RULE	7	remote tcp/ip port	RW	UNSIGNED 16 BIT
45700	5699	P2P CLIENT RULE	7	0=enabled send on timeout, 1=enebaled send on timeout or changed value	RW	UNSIGNED 16 BIT
45701	5700	P2P CLIENT RULE	7	timeout value [ms]	RW	UNSIGNED 16 BIT
45705	5704	P2P CLIENT RULE	7	ack packet 0=disabled, 1=enabled	RW	UNSIGNED 16 BIT
45725	5724	P2P CLIENT RULE	8	0=disabled, else enabled	RW	UNSIGNED 16 BIT
45726	5725	P2P CLIENT RULE	8	local channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
45727- 45730	5726- 5729	P2P CLIENT RULE	8	remote ip address	RW	4 BYTE
45731	5730	P2P CLIENT RULE	8	remote tcp/ip port	RW	UNSIGNED 16 BIT
45732	5731	P2P CLIENT RULE	8	0=enabled send on timeout, 1=enebaled send on timeout or changed value	RW	UNSIGNED 16 BIT
45733	5732	P2P CLIENT RULE	8	timeout value [ms]	RW	UNSIGNED 16 BIT
45737	5736	P2P CLIENT RULE	8	ack packet 0=disabled, 1=enabled	RW	UNSIGNED 16 BIT
45757	5756	P2P CLIENT RULE	9	0=disabled, else enabled	RW	UNSIGNED 16 BIT
45758	5757	P2P CLIENT RULE	9	local channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT





ADDRESS	OFFCFT					
ADDRESS (4x)	OFFSET (4x)	REGISTER	CHANNEL	DESCRIPTION	W/R	TYPE
45759- 45762	5758- 5761	P2P CLIENT RULE	9	remote ip address	RW	4 BYTE
45763	5762	P2P CLIENT RULE	9	remote tcp/ip port	RW	UNSIGNED 16 BIT
45764	5763	P2P CLIENT RULE	9	0=enabled send on timeout, 1=enebaled send on timeout or changed value	RW	UNSIGNED 16 BIT
45765	5764	P2P CLIENT RULE	9	timeout value [ms]	RW	UNSIGNED 16 BIT
45769	5768	P2P CLIENT RULE	9	ack packet 0=disabled, 1=enabled	RW	UNSIGNED 16 BIT
45789	5788	P2P CLIENT RULE	10	0=disabled, else enabled	RW	UNSIGNED 16 BIT
45790	5789	P2P CLIENT RULE	10	local channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
45791- 45794	5790- 5793	P2P CLIENT RULE	10	remote ip address	RW	4 BYTE
45795	5794	P2P CLIENT RULE	10	remote tcp/ip port	RW	UNSIGNED 16 BIT
45796	5795	P2P CLIENT RULE	10	0=enabled send on timeout, 1=enebaled send on timeout or changed value	RW	UNSIGNED 16 BIT
45797	5796	P2P CLIENT RULE	10	timeout value [ms]	RW	UNSIGNED 16 BIT
45801	5800	P2P CLIENT RULE	10	ack packet 0=disabled, 1=enabled	RW	UNSIGNED 16 BIT
45821	5820	P2P CLIENT RULE	11	0=disabled, else enabled	RW	UNSIGNED 16 BIT
45822	5821	P2P CLIENT RULE	11	local channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
45823- 45826	5822- 5825	P2P CLIENT RULE	11	remote ip address	RW	4 BYTE
45827	5826	P2P CLIENT RULE	11	remote tcp/ip port	RW	UNSIGNED 16 BIT
45828	5827	P2P CLIENT RULE	11	0=enabled send on timeout, 1=enebaled send on timeout or changed value	RW	UNSIGNED 16 BIT
45829	5828	P2P CLIENT RULE	11	timeout value [ms]	RW	UNSIGNED 16 BIT
45833	5832	P2P CLIENT RULE	11	ack packet 0=disabled, 1=enabled	RW	UNSIGNED 16 BIT
45853	5852	P2P CLIENT RULE	12	0=disabled, else enabled	RW	UNSIGNED 16 BIT





4000566	0.5555					
ADDRESS (4x)	OFFSET (4x)	REGISTER	CHANNEL	DESCRIPTION	W/R	TYPE
45854	5853	P2P CLIENT RULE	12	local channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
45855- 45858	5854- 5857	P2P CLIENT RULE	12	remote ip address	RW	4 BYTE
45859	5858	P2P CLIENT RULE	12	remote tcp/ip port	RW	UNSIGNED 16 BIT
45860	5859	P2P CLIENT RULE	12	0=enabled send on timeout, 1=enebaled send on timeout or changed value	RW	UNSIGNED 16 BIT
45861	5860	P2P CLIENT RULE	12	timeout value [ms]	RW	UNSIGNED 16 BIT
45865	5864	P2P CLIENT RULE	12	ack packet 0=disabled, 1=enabled	RW	UNSIGNED 16 BIT
45885	5884	P2P CLIENT RULE	13	0=disabled, else enabled	RW	UNSIGNED 16 BIT
45886	5885	P2P CLIENT RULE	13	local channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
45887- 45890	5886- 5888	P2P CLIENT RULE	13	remote ip address	RW	4 BYTE
45891	5890	P2P CLIENT RULE	13	remote tcp/ip port	RW	UNSIGNED 16 BIT
45892	5891	P2P CLIENT RULE	13	0=enabled send on timeout, 1=enebaled send on timeout or changed value	RW	UNSIGNED 16 BIT
45893	5892	P2P CLIENT RULE	13	timeout value [ms]	RW	UNSIGNED 16 BIT
45897	5896	P2P CLIENT RULE	13	ack packet 0=disabled, 1=enabled	RW	UNSIGNED 16 BIT
45917	5916	P2P CLIENT RULE	14	0=disabled, else enabled	RW	UNSIGNED 16 BIT
45918	5917	P2P CLIENT RULE	14	local channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
45919- 45922	5918- 5921	P2P CLIENT RULE	14	remote ip address	RW	4 BYTE
45923	5922	P2P CLIENT RULE	14	remote tcp/ip port	RW	UNSIGNED 16 BIT
45924	5923	P2P CLIENT RULE	14	0=enabled send on timeout, 1=enebaled send on timeout or changed value	RW	UNSIGNED 16 BIT
45925	5924	P2P CLIENT RULE	14	timeout value [ms]	RW	UNSIGNED 16 BIT
45929	5928	P2P CLIENT RULE	14	ack packet 0=disabled, 1=enabled	RW	UNSIGNED 16 BIT





ADDRESS (4x)	OFFSET (4x)	REGISTER	CHANNEL	DESCRIPTION	W/R	ТҮРЕ
45949	5948	P2P CLIENT RULE	15	0=disabled, else enabled	RW	UNSIGNED 16 BIT
45950	5949	P2P CLIENT RULE	15	local channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
45951- 45954	5950- 5953	P2P CLIENT RULE	15	remote ip address	RW	4 BYTE
45955	5954	P2P CLIENT RULE	15	remote tcp/ip port	RW	UNSIGNED 16 BIT
45956	5955	P2P CLIENT RULE	15	0=enabled send on timeout, 1=enebaled send on timeout or changed value	RW	UNSIGNED 16 BIT
45957	5956	P2P CLIENT RULE	15	timeout value [ms]	RW	UNSIGNED 16 BIT
45961	5960	P2P CLIENT RULE	15	ack packet 0=disabled, 1=enabled	RW	UNSIGNED 16 BIT
45981	5980	P2P CLIENT RULE	16	0=disabled, else enabled	RW	UNSIGNED 16 BIT
45982	5981	P2P CLIENT RULE	16	local channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
45983- 45986	5982- 5985	P2P CLIENT RULE	16	remote ip address	RW	4 BYTE
45987	5986	P2P CLIENT RULE	16	remote tcp/ip port	RW	UNSIGNED 16 BIT
45988	5987	P2P CLIENT RULE	16	0=enabled send on timeout, 1=enebaled send on timeout or changed value	RW	UNSIGNED 16 BIT
45989	5988	P2P CLIENT RULE	16	timeout value [ms]	RW	UNSIGNED 16 BIT
45993	5992	P2P CLIENT RULE	16	ack packet 0=disabled, 1=enabled	RW	UNSIGNED 16 BIT
46013	6012	P2P CLIENT RULE	17	0=disabled, else enabled	RW	UNSIGNED 16 BIT
46014	6013	P2P CLIENT RULE	17	local channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
46015- 46018	6014- 6017	P2P CLIENT RULE	17	remote ip address	RW	4 BYTE
46019	6018	P2P CLIENT RULE	17	remote tcp/ip port	RW	UNSIGNED 16 BIT
46020	6019	P2P CLIENT RULE	17	0=enabled send on timeout, 1=enebaled send on timeout or changed value	RW	UNSIGNED 16 BIT
46021	6020	P2P CLIENT RULE	17	timeout value [ms]	RW	UNSIGNED 16 BIT





ADDRESS (4x)	OFFSET (4x)	REGISTER	CHANNEL	DESCRIPTION	W/R	ТҮРЕ
46025	6024	P2P CLIENT RULE	17	ack packet 0=disabled, 1=enabled	RW	UNSIGNED 16 BIT
46045	6044	P2P CLIENT RULE	18	0=disabled, else enabled	RW	UNSIGNED 16 BIT
46046	6045	P2P CLIENT RULE	18	local channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
46047- 46050	6026- 6049	P2P CLIENT RULE	18	remote ip address	RW	4 BYTE
46051	6050	P2P CLIENT RULE	18	remote tcp/ip port	RW	UNSIGNED 16 BIT
46052	6051	P2P CLIENT RULE	18	0=enabled send on timeout, 1=enebaled send on timeout or changed value	RW	UNSIGNED 16 BIT
46053	6052	P2P CLIENT RULE	18	timeout value [ms]	RW	UNSIGNED 16 BIT
46057	6056	P2P CLIENT RULE	18	ack packet 0=disabled, 1=enabled	RW	UNSIGNED 16 BIT
46077	6076	P2P CLIENT RULE	19	0=disabled, else enabled	RW	UNSIGNED 16 BIT
46078	6077	P2P CLIENT RULE	19	local channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
46079- 46082	6078- 6081	P2P CLIENT RULE	19	remote ip address	RW	4 BYTE
46083	6082	P2P CLIENT RULE	19	remote tcp/ip port	RW	UNSIGNED 16 BIT
46084	6083	P2P CLIENT RULE	19	0=enabled send on timeout, 1=enebaled send on timeout or changed value	RW	UNSIGNED 16 BIT
46085	6084	P2P CLIENT RULE	19	timeout value [ms]	RW	UNSIGNED 16 BIT
46089	6088	P2P CLIENT RULE	19	ack packet 0=disabled, 1=enabled	RW	UNSIGNED 16 BIT
46109	6108	P2P CLIENT RULE	20	0=disabled, else enabled	RW	UNSIGNED 16 BIT
46110	6109	P2P CLIENT RULE	20	local channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
46111- 46114	6110- 6113	P2P CLIENT RULE	20	remote ip address	RW	4 BYTE
46115	6114	P2P CLIENT RULE	20	remote tcp/ip port	RW	UNSIGNED 16 BIT
46116	6115	P2P CLIENT RULE	20	0=enabled send on timeout, 1=enebaled send on timeout or changed value	RW	UNSIGNED 16 BIT





ADDRESS	OFFSET	REGISTER	CHANNEL	DESCRIPTION	W/R	TYPE
(4x) 46117	(4x)				,	UNSIGNED
46117	6116	P2P CLIENT RULE	20	timeout value [ms]	RW	16 BIT
46121	6120	P2P CLIENT RULE	20	ack packet 0=disabled, 1=enabled	RW	UNSIGNED 16 BIT
46141	6140	P2P CLIENT RULE	21	0=disabled, else enabled	RW	UNSIGNED 16 BIT
46142	6141	P2P CLIENT RULE	21	local channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
46143- 46146	6142- 6145	P2P CLIENT RULE	21	remote ip address	RW	4 BYTE
46147	6146	P2P CLIENT RULE	21	remote tcp/ip port	RW	UNSIGNED 16 BIT
46148	6147	P2P CLIENT RULE	21	0=enabled send on timeout, 1=enebaled send on timeout or changed value	RW	UNSIGNED 16 BIT
46149	6148	P2P CLIENT RULE	21	timeout value [ms]	RW	UNSIGNED 16 BIT
46153	6152	P2P CLIENT RULE	21	ack packet 0=disabled, 1=enabled	RW	UNSIGNED 16 BIT
46173	6172	P2P CLIENT RULE	22	0=disabled, else enabled	RW	UNSIGNED 16 BIT
46174	6173	P2P CLIENT RULE	22	local channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
46175- 46178	6174- 6177	P2P CLIENT RULE	22	remote ip address	RW	4 BYTE
46179	6178	P2P CLIENT RULE	22	remote tcp/ip port	RW	UNSIGNED 16 BIT
46180	6179	P2P CLIENT RULE	22	0=enabled send on timeout, 1=enebaled send on timeout or changed value	RW	UNSIGNED 16 BIT
46181	6180	P2P CLIENT RULE	22	timeout value [ms]	RW	UNSIGNED 16 BIT
46185	6184	P2P CLIENT RULE	22	ack packet 0=disabled, 1=enabled	RW	UNSIGNED 16 BIT
46205	6204	P2P CLIENT RULE	23	0=disabled, else enabled	RW	UNSIGNED 16 BIT
46206	6205	P2P CLIENT RULE	23	local channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
46207- 46210	6206- 6209	P2P CLIENT RULE	23	remote ip address	RW	4 BYTE
46211	6210	P2P CLIENT RULE	23	remote tcp/ip port	RW	UNSIGNED 16 BIT
46212	6211	P2P CLIENT RULE	23	0=enabled send on timeout, 1=enebaled send	RW	UNSIGNED 16 BIT





ADDRESS (4x)	OFFSET (4x)	REGISTER	CHANNEL	DESCRIPTION	W/R	ТҮРЕ
. ,				on timeout or changed value		
46213	6212	P2P CLIENT RULE	23	timeout value [ms]	RW	UNSIGNED 16 BIT
46217	6216	P2P CLIENT RULE	23	ack packet 0=disabled, 1=enabled	RW	UNSIGNED 16 BIT
46237	6236	P2P CLIENT RULE	24	0=disabled, else enabled	RW	UNSIGNED 16 BIT
46238	6237	P2P CLIENT RULE	24	local channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
46239- 46242	6238- 6241	P2P CLIENT RULE	24	remote ip address	RW	4 BYTE
46243	6242	P2P CLIENT RULE	24	remote tcp/ip port	RW	UNSIGNED 16 BIT
46244	6243	P2P CLIENT RULE	24	0=enabled send on timeout, 1=enebaled send on timeout or changed value	RW	UNSIGNED 16 BIT
46245	6244	P2P CLIENT RULE	24	timeout value [ms]	RW	UNSIGNED 16 BIT
46249	6248	P2P CLIENT RULE	24	ack packet 0=disabled, 1=enabled	RW	UNSIGNED 16 BIT
46269	6268	P2P CLIENT RULE	25	0=disabled, else enabled	RW	UNSIGNED 16 BIT
46270	6269	P2P CLIENT RULE	25	local channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
46271- 46274	6270- 6273	P2P CLIENT RULE	25	remote ip address	RW	4 BYTE
46275	6274	P2P CLIENT RULE	25	remote tcp/ip port	RW	UNSIGNED 16 BIT
46276	6275	P2P CLIENT RULE	25	0=enabled send on timeout, 1=enebaled send on timeout or changed value	RW	UNSIGNED 16 BIT
46277	6276	P2P CLIENT RULE	25	timeout value [ms]	RW	UNSIGNED 16 BIT
46281	6280	P2P CLIENT RULE	25	ack packet 0=disabled, 1=enabled	RW	UNSIGNED 16 BIT
46301	6300	P2P CLIENT RULE	26	0=disabled, else enabled	RW	UNSIGNED 16 BIT
46302	6301	P2P CLIENT RULE	26	local channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
46303- 46306	6302- 6305	P2P CLIENT RULE	26	remote ip address	RW	4 BYTE
46307	6306	P2P CLIENT RULE	26	remote tcp/ip port	RW	UNSIGNED 16 BIT





ADDRESS (4x)	OFFSET (4x)	REGISTER	CHANNEL	DESCRIPTION	W/R	TYPE
46308	6307	P2P CLIENT RULE	26	0=enabled send on timeout, 1=enebaled send on timeout or changed value	RW	UNSIGNED 16 BIT
46309	6308	P2P CLIENT RULE	26	timeout value [ms]	RW	UNSIGNED 16 BIT
46313	6312	P2P CLIENT RULE	26	ack packet 0=disabled, 1=enabled	RW	UNSIGNED 16 BIT
46333	6332	P2P CLIENT RULE	27	0=disabled, else enabled	RW	UNSIGNED 16 BIT
46334	6333	P2P CLIENT RULE	27	local channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
46335- 46338	6334- 6337	P2P CLIENT RULE	27	remote ip address	RW	4 BYTE
46339	6338	P2P CLIENT RULE	27	remote tcp/ip port	RW	UNSIGNED 16 BIT
46340	6339	P2P CLIENT RULE	27	0=enabled send on timeout, 1=enebaled send on timeout or changed value	RW	UNSIGNED 16 BIT
46341	6340	P2P CLIENT RULE	27	timeout value [ms]	RW	UNSIGNED 16 BIT
46345	6344	P2P CLIENT RULE	27	ack packet 0=disabled, 1=enabled	RW	UNSIGNED 16 BIT
46365	6364	P2P CLIENT RULE	28	0=disabled, else enabled	RW	UNSIGNED 16 BIT
46366	6365	P2P CLIENT RULE	28	local channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
46367- 46370	6366- 6369	P2P CLIENT RULE	28	remote ip address	RW	4 BYTE
46371	6370	P2P CLIENT RULE	28	remote tcp/ip port	RW	UNSIGNED 16 BIT
46372	6371	P2P CLIENT RULE	28	0=enabled send on timeout, 1=enebaled send on timeout or changed value	RW	UNSIGNED 16 BIT
46373	6372	P2P CLIENT RULE	28	timeout value [ms]	RW	UNSIGNED 16 BIT
46377	6376	P2P CLIENT RULE	28	ack packet 0=disabled, 1=enabled	RW	UNSIGNED 16 BIT
46397	6396	P2P CLIENT RULE	29	0=disabled, else enabled	RW	UNSIGNED 16 BIT
46398	6397	P2P CLIENT RULE	29	local channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
46399- 46402	6398- 6401	P2P CLIENT RULE	29	remote ip address	RW	4 BYTE





ADDRESS (4x)	OFFSET (4x)	REGISTER	CHANNEL	DESCRIPTION	W/R	TYPE
46403	6402	P2P CLIENT RULE	29	remote tcp/ip port	RW	UNSIGNED 16 BIT
46404	6403	P2P CLIENT RULE	29	0=enabled send on timeout, 1=enebaled send on timeout or changed value	RW	UNSIGNED 16 BIT
46405	6404	P2P CLIENT RULE	29	timeout value [ms]	RW	UNSIGNED 16 BIT
46409	6408	P2P CLIENT RULE	29	ack packet 0=disabled, 1=enabled	RW	UNSIGNED 16 BIT
46429	6428	P2P CLIENT RULE	30	0=disabled, else enabled	RW	UNSIGNED 16 BIT
46430	6429	P2P CLIENT RULE	30	local channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
46431- 46434	6430- 6433	P2P CLIENT RULE	30	remote ip address	RW	4 BYTE
46435	6434	P2P CLIENT RULE	30	remote tcp/ip port	RW	UNSIGNED 16 BIT
46436	6435	P2P CLIENT RULE	30	0=enabled send on timeout, 1=enebaled send on timeout or changed value	RW	UNSIGNED 16 BIT
46437	6436	P2P CLIENT RULE	30	timeout value [ms]	RW	UNSIGNED 16 BIT
46441	6440	P2P CLIENT RULE	30	ack packet 0=disabled, 1=enabled	RW	UNSIGNED 16 BIT
46461	6460	P2P CLIENT RULE	31	0=disabled, else enabled	RW	UNSIGNED 16 BIT
46462	6461	P2P CLIENT RULE	31	local channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
46463- 46466	6462- 6465	P2P CLIENT RULE	31	remote ip address	RW	4 BYTE
46467	6466	P2P CLIENT RULE	31	remote tcp/ip port	RW	UNSIGNED 16 BIT
46468	6467	P2P CLIENT RULE	31	0=enabled send on timeout, 1=enebaled send on timeout or changed value	RW	UNSIGNED 16 BIT
46469	6468	P2P CLIENT RULE	31	timeout value [ms]	RW	UNSIGNED 16 BIT
46473	6472	P2P CLIENT RULE	32	ack packet 0=disabled, 1=enabled	RW	UNSIGNED 16 BIT
46493	6492	P2P CLIENT RULE	32	0=disabled, else enabled	RW	UNSIGNED 16 BIT
46494	6493	P2P CLIENT RULE	32	local channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT





ADDRESS (4x)	OFFSET (4x)	REGISTER	CHANNEL	DESCRIPTION	W/R	TYPE
46495- 46498	6494- 6497	P2P CLIENT RULE	32	remote ip address	RW	4 BYTE
46499	6498	P2P CLIENT RULE	32	remote tcp/ip port	RW	UNSIGNED 16 BIT
46500	6499	P2P CLIENT RULE	32	0=enabled send on timeout, 1=enebaled send on timeout or changed value	RW	UNSIGNED 16 BIT
46501	6500	P2P CLIENT RULE	32	timeout value [ms]	RW	UNSIGNED 16 BIT
46505	6504	P2P CLIENT RULE	32	ack packet 0=disabled, 1=enabled	RW	UNSIGNED 16 BIT
47001	7000	P2P SERVER RULE	1	0=disabled, else enabled	RW	UNSIGNED 16 BIT
47002	7001	P2P SERVER RULE	1	remote channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
47003- 47006	7002- 7005	P2P SERVER RULE	1	remote ip address	RW	4 BYTE
47007	7006	P2P SERVER RULE	1	local channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
47017	7016	P2P SERVER RULE	2	0=disabled, else enabled	RW	UNSIGNED 16 BIT
47018	7017	P2P SERVER RULE	2	remote channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
47019- 47022	7018- 7021	P2P SERVER RULE	2	remote ip address	RW	4 BYTE
47023	7022	P2P SERVER RULE	2	local channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
47033	7032	P2P SERVER RULE	3	0=disabled, else enabled	RW	UNSIGNED 16 BIT
47034	7033	P2P SERVER RULE	3	remote channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
47035- 47038	7034- 7037	P2P SERVER RULE	3	remote ip address	RW	4 BYTE
47039	7038	P2P SERVER RULE	3	local channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
47049	7048	P2P SERVER RULE	4	0=disabled, else enabled	RW	UNSIGNED 16 BIT
47050	7049	P2P SERVER RULE	4	remote channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
47051- 47054	7050- 7053	P2P SERVER RULE	4	remote ip address	RW	4 BYTE
47055	7054	P2P SERVER RULE	4	local channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
47065	7064	P2P SERVER RULE	5	0=disabled, else enabled	RW	UNSIGNED 16 BIT





ADDRESS	OFFSET	REGISTER	CHANNEL	DESCRIPTION	W/R	TYPE
(4x)	(4x)	REGISTER	CHANNEL		00/A	
47066	7065	P2P SERVER RULE	5	remote channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
47067- 47070	7066- 7069	P2P SERVER RULE	5	remote ip address	RW	4 BYTE
47071	7070	P2P SERVER RULE	5	local channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
47081	7080	P2P SERVER RULE	6	0=disabled, else enabled	RW	UNSIGNED 16 BIT
47082	7081	P2P SERVER RULE	6	remote channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
47083- 47086	7082- 7085	P2P SERVER RULE	6	remote ip address	RW	4 BYTE
47087	7086	P2P SERVER RULE	6	local channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
47097	7096	P2P SERVER RULE	7	0=disabled, else enabled	RW	UNSIGNED 16 BIT
47098	7097	P2P SERVER RULE	7	remote channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
47099- 47102	7098- 7101	P2P SERVER RULE	7	remote ip address	RW	4 BYTE
47103	7102	P2P SERVER RULE	7	local channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
47113	7112	P2P SERVER RULE	8	0=disabled, else enabled	RW	UNSIGNED 16 BIT
47114	7113	P2P SERVER RULE	8	remote channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
47115- 47118	7114- 7117	P2P SERVER RULE	8	remote ip address	RW	4 BYTE
47119	7118	P2P SERVER RULE	8	local channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
47129	7128	P2P SERVER RULE	9	0=disabled, else enabled	RW	UNSIGNED 16 BIT
47130	7129	P2P SERVER RULE	9	remote channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
47131- 47134	7130- 7133	P2P SERVER RULE	9	remote ip address	RW	4 BYTE
47135	7134	P2P SERVER RULE	9	local channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
47145	7144	P2P SERVER RULE	10	0=disabled, else enabled	RW	UNSIGNED 16 BIT
47146	7145	P2P SERVER RULE	10	remote channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
47147- 47150	7146- 7149	P2P SERVER RULE	10	remote ip address	RW	4 BYTE
47151	7150	P2P SERVER RULE	10	local channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT





ADDRESS	OFFSET	REGISTER	CHANNEL	DESCRIPTION	W/R	ТҮРЕ
(4x)	(4x)	REGISTER	CHAININEL	DESCRIPTION	W/K	TTPE
47161	7160	P2P SERVER RULE	11	0=disabled, else enabled	RW	UNSIGNED 16 BIT
47162	7161	P2P SERVER RULE	11	remote channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
47163- 47166	7162- 7165	P2P SERVER RULE	11	remote ip address	RW	4 BYTE
47167	7166	P2P SERVER RULE	11	local channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
47177	7176	P2P SERVER RULE	12	0=disabled, else enabled	RW	UNSIGNED 16 BIT
47178	7177	P2P SERVER RULE	12	remote channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
47179- 47182	7178- 7181	P2P SERVER RULE	12	remote ip address	RW	4 BYTE
47183	7182	P2P SERVER RULE	12	local channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
47193	7192	P2P SERVER RULE	13	0=disabled, else enabled	RW	UNSIGNED 16 BIT
47194	7193	P2P SERVER RULE	13	remote channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
47195- 47198	7194- 7197	P2P SERVER RULE	13	remote ip address	RW	4 BYTE
47199	7198	P2P SERVER RULE	13	local channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
47209	7208	P2P SERVER RULE	14	0=disabled, else enabled	RW	UNSIGNED 16 BIT
47210	7209	P2P SERVER RULE	14	remote channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
47211- 47214	7210- 7213	P2P SERVER RULE	14	remote ip address	RW	4 BYTE
47215	7214	P2P SERVER RULE	14	local channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
47225	7224	P2P SERVER RULE	15	0=disabled, else enabled	RW	UNSIGNED 16 BIT
47226	7225	P2P SERVER RULE	15	remote channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
47227- 47230	7226- 7229	P2P SERVER RULE	15	remote ip address	RW	4 BYTE
47231	7230	P2P SERVER RULE	15	local channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
47241	7240	P2P SERVER RULE	16	0=disabled, else enabled	RW	UNSIGNED 16 BIT
47242	7241	P2P SERVER RULE	16	remote channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
47243- 47246	7232- 45	P2P SERVER RULE	16	remote ip address	RW	4 BYTE





ADDRESS	OFFSET	REGISTER	CHANNEL	DESCRIPTION	W/R	TYPE
(4x)	(4x)	REGISTER	CHAININEL	DESCRIPTION	W/K	ITPE
47247	7246	P2P SERVER RULE	16	local channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
47257	7256	P2P SERVER RULE	17	0=disabled, else enabled	RW	UNSIGNED 16 BIT
47258	7257	P2P SERVER RULE	17	remote channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
47259- 47262	7258- 7261	P2P SERVER RULE	17	remote ip address	RW	4 BYTE
47263	7262	P2P SERVER RULE	17	local channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
47273	7272	P2P SERVER RULE	18	0=disabled, else enabled	RW	UNSIGNED 16 BIT
47274	7273	P2P SERVER RULE	18	remote channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
47275- 47278	7274- 7277	P2P SERVER RULE	18	remote ip address	RW	4 BYTE
47279	7278	P2P SERVER RULE	18	local channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
47289	7288	P2P SERVER RULE	19	0=disabled, else enabled	RW	UNSIGNED 16 BIT
47290	7289	P2P SERVER RULE	19	remote channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
47291- 47294	7290- 7293	P2P SERVER RULE	19	remote ip address	RW	4 BYTE
47295	7294	P2P SERVER RULE	19	local channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
47305	7304	P2P SERVER RULE	20	0=disabled, else enabled	RW	UNSIGNED 16 BIT
47306	7305	P2P SERVER RULE	20	remote channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
47307- 47310	7306- 7309	P2P SERVER RULE	20	remote ip address	RW	4 BYTE
47311	7310	P2P SERVER RULE	20	local channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
47321	7320	P2P SERVER RULE	21	0=disabled, else enabled	RW	UNSIGNED 16 BIT
47322	7321	P2P SERVER RULE	21	remote channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
47323- 47326	7322- 7325	P2P SERVER RULE	21	remote ip address	RW	4 BYTE
47327	7326	P2P SERVER RULE	21	local channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
47337	7336	P2P SERVER RULE	22	0=disabled, else enabled	RW	UNSIGNED 16 BIT
47338	7337	P2P SERVER RULE	22	remote channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT





ADDRESS	OFFSET	REGISTER	CHANNEL	DESCRIPTION	W/R	ТҮРЕ
(4x)	(4x)	REGISTER	CHAIVIVLL	DESCRIPTION	00/ N	7772
47339- 47342	7338- 7341	P2P SERVER RULE	22	remote ip address	RW	4 BYTE
47343	7342	P2P SERVER RULE	22	local channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
47353	7352	P2P SERVER RULE	23	0=disabled, else enabled	RW	UNSIGNED 16 BIT
47354	7353	P2P SERVER RULE	23	remote channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
47355- 47358	7354- 7357	P2P SERVER RULE	23	remote ip address	RW	4 BYTE
47359	7358	P2P SERVER RULE	23	local channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
47369	7368	P2P SERVER RULE	24	0=disabled, else enabled	RW	UNSIGNED 16 BIT
47370	7369	P2P SERVER RULE	24	remote channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
47371- 47374	7370- 7373	P2P SERVER RULE	24	remote ip address	RW	4 BYTE
47375	7374	P2P SERVER RULE	24	local channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
47385	7384	P2P SERVER RULE	25	0=disabled, else enabled	RW	UNSIGNED 16 BIT
47386	7385	P2P SERVER RULE	25	remote channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
47387- 47390	7386- 7389	P2P SERVER RULE	25	remote ip address	RW	4 BYTE
47391	7390	P2P SERVER RULE	25	local channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
47401	7400	P2P SERVER RULE	26	0=disabled, else enabled	RW	UNSIGNED 16 BIT
47402	7401	P2P SERVER RULE	26	remote channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
47403- 47406	7402- 7405	P2P SERVER RULE	26	remote ip address	RW	4 BYTE
47407	7406	P2P SERVER RULE	26	local channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
47417	7416	P2P SERVER RULE	27	0=disabled, else enabled	RW	UNSIGNED 16 BIT
47418	7417	P2P SERVER RULE	27	remote channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
47419- 47422	7418- 7421	P2P SERVER RULE	27	remote ip address	RW	4 BYTE
47423	7422	P2P SERVER RULE	27	local channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
47433	7432	P2P SERVER RULE	28	0=disabled, else enabled	RW	UNSIGNED 16 BIT





ADDRESS	OFFSET	REGISTER	CHANNEL	DESCRIPTION	W/R	ТҮРЕ
(4x)	(4x)					
47434	7433	P2P SERVER RULE	28	remote channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
47435- 47438	7434- 7437	P2P SERVER RULE	28	remote ip address	RW	4 BYTE
47439	7438	P2P SERVER RULE	28	local channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
47449	7448	P2P SERVER RULE	29	0=disabled, else enabled	RW	UNSIGNED 16 BIT
47450	7449	P2P SERVER RULE	29	remote channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
47451- 47454	7450- 7453	P2P SERVER RULE	29	remote ip address	RW	4 BYTE
47455	7454	P2P SERVER RULE	29	local channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
47465	7464	P2P SERVER RULE	30	0=disabled, else enabled	RW	UNSIGNED 16 BIT
47466	7465	P2P SERVER RULE	30	remote channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
47467- 47470	7466- 7469	P2P SERVER RULE	30	remote ip address	RW	4 BYTE
47471	7470	P2P SERVER RULE	30	local channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
47481	7480	P2P SERVER RULE	31	0=disabled, else enabled	RW	UNSIGNED 16 BIT
47482	7481	P2P SERVER RULE	31	remote channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
47483- 47486	7482- 7485	P2P SERVER RULE	31	remote ip address	RW	4 BYTE
47487	7486	P2P SERVER RULE	31	local channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
47497	7496	P2P SERVER RULE	32	0=disabled, else enabled	RW	UNSIGNED 16 BIT
47498	7497	P2P SERVER RULE	32	remote channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT
47499- 47502	7498- 7501	P2P SERVER RULE	32	remote ip address	RW	4 BYTE
47503	7502	P2P SERVER RULE	32	local channel value Din1Din32 (031)	RW	UNSIGNED 16 BIT







#### 19.3. R-32DIDO: TABLE OF MODBUS REGISTERS 0x COIL STATUS (FUNCTION CODE 1)

ADDRESS (0x)	ADDRESS (0x) OFFSET	REGISTER	CHANNEL	DESCRIPTION	W/R	TYPE
1	0	DIGITAL I/O	1	DIGITAL I/O	RW	BIT
2	1	DIGITAL I/O	2	DIGITAL I/O	RW	BIT
3	2	DIGITAL I/O	3	DIGITAL I/O	RW	BIT
4	3	DIGITAL I/O	4	DIGITAL I/O	RW	BIT
5	4	DIGITAL I/O	5	DIGITAL I/O	RW	BIT
6	5	DIGITAL I/O	6	DIGITAL I/O	RW	BIT
7	6	DIGITAL I/O	7	DIGITAL I/O	RW	BIT
8	7	DIGITAL I/O	8	DIGITAL I/O	RW	BIT
9	8	DIGITAL I/O	9	DIGITAL I/O	RW	BIT
10	9	DIGITAL I/O	10	DIGITAL I/O	RW	BIT
11	10	DIGITAL I/O	11	DIGITAL I/O	RW	BIT
12	11	DIGITAL I/O	12	DIGITAL I/O	RW	BIT
13	12	DIGITAL I/O	13	DIGITAL I/O	RW	BIT
14	13	DIGITAL I/O	14	DIGITAL I/O	RW	BIT
15	14	DIGITAL I/O	15	DIGITAL I/O	RW	BIT
16	15	DIGITAL I/O	16	DIGITAL I/O	RW	BIT
17	16	DIGITAL I/O	17	DIGITAL I/O	RW	BIT
18	17	DIGITAL I/O	18	DIGITAL I/O	RW	BIT
19	18	DIGITAL I/O	19	DIGITAL I/O	RW	BIT
20	19	DIGITAL I/O	20	DIGITAL I/O	RW	BIT
21	20	DIGITAL I/O	21	DIGITAL I/O	RW	BIT
22	21	DIGITAL I/O	22	DIGITAL I/O	RW	BIT
23	22	DIGITAL I/O	23	DIGITAL I/O	RW	BIT
24	23	DIGITAL I/O	24	DIGITAL I/O	RW	BIT
25	24	DIGITAL I/O	25	DIGITAL I/O	RW	BIT
26	25	DIGITAL I/O	26	DIGITAL I/O	RW	BIT
27	26	DIGITAL I/O	27	DIGITAL I/O	RW	BIT
28	27	DIGITAL I/O	28	DIGITAL I/O	RW	BIT
29	28	DIGITAL I/O	29	DIGITAL I/O	RW	BIT
30	29	DIGITAL I/O	30	DIGITAL I/O	RW	BIT
31	30	DIGITAL I/O	31	DIGITAL I/O	RW	BIT
32	31	DIGITAL I/O	32	DIGITAL I/O	RW	BIT





**R SERIES** 

#### 19.4. R-32DIDO: TABLE OF MODBUS REGISTERS 1x INPUT STATUS (FUNCTION CODE 2)

ADDRESS (1x)	ADDRESS (0x) OFFSET	REGISTER	CHANNEL	DESCRIPTION	W/R	TYPE
10001	0	DIGITAL I/O	1	DIGITAL I/O	RW	BIT
10002	1	DIGITAL I/O	2	DIGITAL I/O	RW	BIT
10003	2	DIGITAL I/O	3	DIGITAL I/O	RW	BIT
10004	3	DIGITAL I/O	4	DIGITAL I/O	RW	BIT
10005	4	DIGITAL I/O	5	DIGITAL I/O	RW	BIT
10006	5	DIGITAL I/O	6	DIGITAL I/O	RW	BIT
10007	6	DIGITAL I/O	7	DIGITAL I/O	RW	BIT
10008	7	DIGITAL I/O	8	DIGITAL I/O	RW	BIT
10009	8	DIGITAL I/O	9	DIGITAL I/O	RW	BIT
10010	9	DIGITAL I/O	10	DIGITAL I/O	RW	BIT
10011	10	DIGITAL I/O	11	DIGITAL I/O	RW	BIT
10012	11	DIGITAL I/O	12	DIGITAL I/O	RW	BIT
10013	12	DIGITAL I/O	13	DIGITAL I/O	RW	BIT
10014	13	DIGITAL I/O	14	DIGITAL I/O	RW	BIT
10015	14	DIGITAL I/O	15	DIGITAL I/O	RW	BIT
10016	15	DIGITAL I/O	16	DIGITAL I/O	RW	BIT
10017	16	DIGITAL I/O	17	DIGITAL I/O	RW	BIT
10018	17	DIGITAL I/O	18	DIGITAL I/O	RW	BIT
10019	18	DIGITAL I/O	19	DIGITAL I/O	RW	BIT
10020	19	DIGITAL I/O	20	DIGITAL I/O	RW	BIT
10021	20	DIGITAL I/O	21	DIGITAL I/O	RW	BIT
10022	21	DIGITAL I/O	22	DIGITAL I/O	RW	BIT
10023	22	DIGITAL I/O	23	DIGITAL I/O	RW	BIT
10024	23	DIGITAL I/O	24	DIGITAL I/O	RW	BIT
10025	24	DIGITAL I/O	25	DIGITAL I/O	RW	BIT
10026	25	DIGITAL I/O	26	DIGITAL I/O	RW	BIT
10027	26	DIGITAL I/O	27	DIGITAL I/O	RW	BIT
10028	27	DIGITAL I/O	28	DIGITAL I/O	RW	BIT
10029	28	DIGITAL I/O	29	DIGITAL I/O	RW	BIT
10030	29	DIGITAL I/O	30	DIGITAL I/O	RW	BIT
10031	30	DIGITAL I/O	31	DIGITAL I/O	RW	BIT
10032	31	DIGITAL I/O	32	DIGITAL I/O	RW	BIT



#### MODBUS REGISTER TABLE FOR THE R-16DI-8DO PRODUCT 20.

#### R-16DI-8DO: MODBUS 4X HOLDING REGISTERS TABLE (FUNCTION CODE 3) 20.1.

ADDRESS (4x)	OFFSET ADDRESS (4x)	REGISTER	CHANNEL	DESCRIPTION	W/R	TYPE
				DEVICE		UNSIGNED
40001	0	MACHINE-ID	-	IDENTIFICATION	RO	16
		FIRMWARE		FIRMWARE		UNSIGNED
40002	1	REVISION	-	REVISION	RO	16

ADDRESS (4x)	OFFSET ADDRESS (4x)	REGISTER	CHANNEL	DESCRIPTION	W/R	ТҮРЕ
40017	16	COMMAND	-	COMMAND REGISTER	RW	UNSIGNED 16
40018	17	RESERVED	-	RESERVED	RO	UNSIGNED 16
40019	18	RESERVED	-	RESERVED	RO	UNSIGNED 16
40020	19	RESERVED	-	RESERVED	RO	UNSIGNED 16
40021	20	DIGITAL INPUT [161]	[116]	DIGITAL INPUTS [16 1] THE LEAST SIGNIFICANT BIT IS RELATIVE TO IO1 EXAMPLE: 5 decimal = 0000 0000 0000 0101 binary => IO1 = High, IO2 = LOW, IO3 = HIGH, IO4 I16 = LOW	RO	UNSIGNED 16
40022	21	RESERVED	-	RESERVED	RO	UNSIGNED 16
40023	22	DIGITAL OUT [81]	[81]	DIGITAL OUTPUTS [8 1] THE LEAST SIGNIFICANT BIT IS RELATIVE TO D01 EXAMPLE: 5 decimal =	RW	UNSIGNED 16



	0000 0000 0000 0101 binary => D01=High, D02=LOW, D03=HIGH, D04D08=LOW	
--	--	--

ADDRESS (4x)	OFFSET ADDRESS (4x)	REGISTER	CHANNEL	DESCRIPTION	W/ R	ТҮРЕ
40101	100	RESET_COUNTE R [116]	161 TO COUNTER 1		RW	UNSIGNED 16
40102	101	RESERVED	-		RW	UNSIGNED 16
40103	102	COUNTER	1	LSW	RW	UNSIGNED
40104	103	COUNTER	1	MSW	RW	32
40105	104	104 COUNTER	2	LSW	RW	UNSIGNED
40106	105	COUNTER	2	MSW	RW	32
40107	106	COUNTER	3	LSW	RW	UNSIGNED
40108	107	COUNTER	,	MSW	RW	32
40109	108	COUNTER	4	LSW	RW	UNSIGNED
40110	109	COUNTER	4	MSW	RW	32
40111	110	COUNTER	5	LSW	RW	UNSIGNED
40112	111	COUNTER	٦	MSW	RW	32
40113	112	COUNTER	6	LSW	RW	UNSIGNED
40114	113	COUNTER	O	MSW	RW	32
40115	114	COUNTER	7	LSW	RW	UNSIGNED
40116	115	COONTER	,	MSW	RW	32
40117	116	COUNTER	8	LSW	RW	UNSIGNED
40118	117	COUNTER	0	MSW	RW	32
40119	118	COUNTER	9	LSW	RW	UNSIGNED
40120	119	COUNTER	<i>3</i>	MSW	RW	32
40121	120	COUNTER	10	LSW	RW	UNSIGNED
40122	121	COUNTER	10	MSW	RW	32
40123	122	COUNTER	11	LSW	RW	UNSIGNED
40124	123	COUNTER	11	MSW	RW	32
40125	124	COUNTER	12	LSW	RW	





40126	125			MSW	RW	UNSIGNED 32
40127	126	COUNTER	13	LSW	RW	UNSIGNED
40128	127	COUNTER	15	MSW	RW	32
40129	128	COUNTER	1.4	LSW	RW	UNSIGNED
40130	129	COUNTER	14	MSW	RW	32
40131	130	COUNTER	15	LSW	RW	UNSIGNED
40132	131	COUNTER	15	MSW	RW	32
40133	132	COLINTER	16	LSW	RW	UNSIGNED
40134	133	COUNTER	16	MSW	RW	32

ADDRESS (4x)	OFFSET ADDRESS (4x)	REGISTER	CHANNEL	DESCRIPTION	W/ R	ТҮРЕ
40201	200	INT MEASURE	1	Integer measure of Tlow in [ms*10] LSW	RO	UNSIGNED
40202	201	TLOW	1	Integer measure of Tlow in [ms*10] MSW	RO	32
40203	202	INT MEASURE TLOW	2	Integer measure of Tlow in [ms*10] LSW	RO	UNSIGNED
40204	203		2	Integer measure of Tlow in [ms*10] MSW	RO	32
40205	204	INT MEASURE	3	Integer measure of Tlow in [ms*10] LSW	RO	UNSIGNED
40206	205	TLOW	3	Integer measure of Tlow in [ms*10] MSW	RO	32
40207	206	INT MEASURE TLOW	4	Integer measure of Tlow in [ms*10] LSW	RO	UNSIGNED
40208	207		4	Integer measure of Tlow in [ms*10] MSW	RO	32
40209	208	INT MEASURE TLOW	5	Integer measure of	RO	UNSIGNED 32

I	l	İ		l <b>_</b>	Ī	Ī
				Tlow in		
				[ms*10] LSW		
				Integer measure of		
40210	209			Tlow in	RO	UNSIGNED 32  UNSIGNED 32  UNSIGNED 32
				[ms*10] MSW		
				Integer		
40244	240			measure of		
40211	210			Tlow in	RO	
		INT MEASURE	6	[ms*10] LSW		UNSIGNED
		TLOW	O	Integer		32
40212	211			measure of	RO	
				Tlow in		
				[ms*10] MSW		
			7	Integer measure of		
40213	212			Tlow in	RO	
		INT MEASURE		[ms*10] LSW		
		TLOW		Integer	RO	
40214	242			measure of		
40214	213			Tlow in	RO	
				[ms*10] MSW		
				Integer		
40215	214			measure of	RO	
		INIT MEASIIDE		Tlow in		LINSIGNED
		INT MEASURE TLOW	8	[ms*10] LSW	RO	
		ILOW		Integer measure of		32
40216	215			Tlow in		
				[ms*10] MSW		
				Integer		
40217	216			measure of	RO	
40217	210			Tlow in	I NO	
		INT MEASURE	9	[ms*10] LSW		
		TLOW		Integer		32
40218	217			measure of	RO	
				Tlow in [ms*10] MSW		
				Integer		
				measure of		
40219 218			Tlow in	RO		
		INT MEASURE	40	[ms*10] LSW		UNSIGNED
	TLOW	TLOW	10	Integer		32
40220	219			measure of	RO	
	213			Tlow in	1.0	
				[ms*10] MSW		
40221	220	INT MEASURE	11	Integer	RO	UNSIGNED
		TLOW		measure of		32



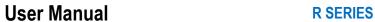




				Tlow in		
				[ms*10] LSW		
40222	221			Integer measure of Tlow in [ms*10] MSW	RO	
40223	222	INT MEASURE	12	Integer measure of Tlow in [ms*10] LSW	RO	UNSIGNED
40224	223	TLOW	12	Integer measure of Tlow in [ms*10] MSW	RO	32
40225	224	INT MEASURE	13	Integer measure of Tlow in [ms*10] LSW	RO	UNSIGNED
40226	225	TLOW	13	Integer measure of Tlow in [ms*10] MSW	RO	32
40227	226	INT MEASURE	1.4	Integer measure of Tlow in [ms*10] LSW	RO	UNSIGNED
40228	227	TLOW	14	Integer measure of Tlow in [ms*10] MSW	RO	32
40229	228	INT MEASURE	15	Integer measure of Tlow in [ms*10] LSW	RO	UNSIGNED
40230	229	TLOW	15	Integer measure of Tlow in [ms*10] MSW	RO	32
40231	230	INT MEASURE	16	Integer measure of Tlow in [ms*10] LSW	RO	UNSIGNED
40232	231	TLOW	10	Integer measure of Tlow in [ms*10] MSW	RO	32



ADDRESS (4x)	OFFSET ADDRESS (4x)	REGISTER	CHANNEL	DESCRIPTION	W/R	TYPE
40233	232	INT MEASURE		Integer measure of Thigh in [ms*10] LSW	RO	UNSIGNED
40234	233	THIGH	1	Integer measure of Thigh in [ms*10] MSW	RO	32
40235	234	INT MEASURE THIGH	2	Integer measure of Thigh in [ms*10] LSW	RO	UNSIGNED
40236	235			Integer measure of Thigh in [ms*10] MSW	RO	32
40237	236	INT MEASURE THIGH	3	Integer measure of Thigh in [ms*10] LSW	RO	UNSIGNED
40238	237		_	Integer measure of Thigh in [ms*10] MSW	RO	32
40239	238	INT MEASURE	_	Integer measure of Thigh in [ms*10] LSW	RO	UNSIGNED
40240	239	THIGH	4	Integer measure of Thigh in [ms*10] MSW	RO	32
40241	240	INT MEASURE	_	Integer measure of Thigh in [ms*10] LSW	RO	UNSIGNED
40242	241	THIGH	5	Integer measure of Thigh in [ms*10] MSW	RO	32
40243	242	INT MEASURE		Integer measure of Thigh in [ms*10] LSW	RO	UNSIGNED
40244	243	THIGH	6	Integer measure of Thigh in [ms*10] MSW	RO	32





40245	244	INT MEASURE THIGH	7	Integer measure of Thigh in [ms*10] LSW Integer	RO	UNSIGNED 32
40246	245			measure of Thigh in [ms*10] MSW	RO	
40247	246	INT MEASURE	8	Integer measure of Thigh in [ms*10] LSW	RO	UNSIGNED
40248	247	THIGH		Integer measure of Thigh in [ms*10] MSW	RO	32
40249	248	INT MEASURE	9	Integer measure of Thigh in [ms*10] LSW	RO	UNSIGNED
40250	249	THIGH	,	Integer measure of Thigh in [ms*10] MSW	RO	32
40251	250	INT MEASURE	10	Integer measure of Thigh in [ms*10] LSW	RO	UNSIGNED
40252	251	THIGH	10	Integer measure of Thigh in [ms*10] MSW	RO	32
40253	252	INT MEASURE	11	Integer measure of Thigh in [ms*10] LSW	RO	UNSIGNED
40254	253	THIGH	11	Integer measure of Thigh in [ms*10] MSW	RO	32
40255	254	INT MEASURE	12	Integer measure of Thigh in [ms*10] LSW	RO	UNSIGNED
40256	255	THIGH	12	Integer measure of Thigh in [ms*10] MSW	RO	32



40257	256	INT MEASURE	13	Integer measure of Thigh in [ms*10] LSW	RO	UNSIGNED
40258	257	THIGH		Integer measure of Thigh in [ms*10] MSW	RO	32
40259	258	INT MEASURE	14	Integer measure of Thigh in [ms*10] LSW	RO	UNSIGNED
40260	259	THIGH		Integer measure of Thigh in [ms*10] MSW	RO	32
40261	260	INT MEASURE	15	Integer measure of Thigh in [ms*10] LSW	RO	UNSIGNED
40262	261	THIGH	15	Integer measure of Thigh in [ms*10] MSW	RO	32
40263	262	INT MEASURE THIGH		Integer measure of Thigh in [ms*10] LSW	RO	UNSIGNED
40264	263		16	Integer measure of Thigh in [ms*10] MSW	RO	32

ADDRESS (4x)	OFFSET ADDRESS (4x)	REGISTER	CHANNEL	DESCRIPTION	W/R	ТҮРЕ
40265	264	INT MEASURE PERIOD	1	Integer Period Measure [ms*10] LSW	RO	UNSIGNED 32
40266	265			Integer Period Measure [ms*10] MSW	RO	
40267	266	INT MEASURE PERIOD	2	Integer Period Measure [ms*10] LSW	RO	UNSIGNED
40268	267		2	Integer Period Measure [ms*10] MSW	RO	32



40269 40270	268 269	INT MEASURE PERIOD	3	Integer Period Measure [ms*10] LSW Integer Period Measure [ms*10] MSW	RO	UNSIGNED 32
40271	270	INT MEASURE	4	Integer Period Measure [ms*10] LSW	RO	UNSIGNED
40272	271	PERIOD		Integer Period Measure [ms*10] MSW	RO	32
40273	272	INT MEASURE	5	Integer Period Measure [ms*10] LSW	RO	UNSIGNED 32
40274	273	PERIOD	J	Integer Period Measure [ms*10] MSW	RO	
40275	274	INT MEASURE	6	Integer Period Measure [ms*10] LSW	RO	UNSIGNED
40276	275	PERIOD		Integer Period Measure [ms*10] MSW	RO	32
40277	276	INT MEASURE		RO	UNSIGNED	
40278	277	PERIOD	,	Integer Period Measure [ms*10] MSW	RO	32
40279	278	INT MEASURE	8	Integer Period Measure [ms*10] LSW	RO	UNSIGNED
40280	279	PERIOD	0	Integer Period Measure [ms*10] MSW	RO	32
40281	280	INT MEASURE PERIOD	9	Integer Period Measure [ms*10] LSW	RO	UNSIGNED
40282	281		<i>3</i>	Integer Period Measure [ms*10] MSW	RO	32
40283	282	INT MEASURE	10	Integer Period Measure [ms*10] LSW	RO	UNSIGNED
40284	283	PERIOD	10	Integer Period Measure [ms*10] MSW	RO	32



40285	284	INT MEASURE	INT MEASURE [ms*10] LSW	RO	UNSIGNED	
40286	285	PERIOD		Integer Period Measure [ms*10] MSW	RO	32
40287	286	INT MEASURE	12	Integer Period Measure [ms*10] LSW	RO	UNSIGNED
40288	287	PERIOD	12	Integer Period Measure [ms*10] MSW	RO	32
40289	288	INT MEASURE	13	Integer Period Measure [ms*10] LSW	RO	UNSIGNED
40290	289	PERIOD	13	Integer Period Measure [ms*10] MSW	RO	32
40291	290	INT MEASURE	14	Integer Period Measure [ms*10] LSW	RO	UNSIGNED 32
40292	291	PERIOD		Integer Period Measure [ms*10] MSW	RO	
40293	292	INT MEASURE	15	Integer Period Measure [ms*10] LSW	RO	UNSIGNED
40294	293	PERIOD	13	Integer Period Measure [ms*10] MSW	RO	32
40295	294	INT MEASURE	16	Integer Period Measure [ms*10] LSW	RO	UNSIGNED
40296	295	PERIOD	10	Integer Period Measure [ms*10] MSW	RO	32

ADDRESS (4x)	OFFSET ADDRESS (4x)	REGISTER	CHANNEL	DESCRIPTION	W/R	TYPE
40297	296	INT MEASURE FREQ	1	Integer measure of the frequency in [Hz]	RO	UNSIGNED 16
40298	297	INT MEASURE FREQ	2	Integer measure of the frequency in [Hz]	RO	UNSIGNED 16
40299	298	INT MEASURE FREQ	3	Integer measure of the frequency in [Hz]	RO	UNSIGNED 16



40300	299	INT MEASURE FREQ	4	Integer measure of the frequency in [Hz]	RO	UNSIGNED 16
40301	300	INT MEASURE FREQ	5	Integer measure of the frequency in [Hz]	RO	UNSIGNED 16
40302	301	INT MEASURE FREQ	6	Integer measure of the frequency in [Hz]		UNSIGNED 16
40303	302	INT MEASURE FREQ	7	Integer measure of the frequency in [Hz]	RO	UNSIGNED 16
40304	303	INT MEASURE FREQ	8	Integer measure of the frequency in [Hz]	RO	UNSIGNED 16
40305	304	INT MEASURE FREQ	9	Integer measure of the frequency in [Hz]	RO	UNSIGNED 16
40306	305	INT MEASURE FREQ	10	Integer measure of the frequency in [Hz]	RO	UNSIGNED 16
40307	306	INT MEASURE FREQ	11	Integer measure of the frequency in [Hz]	RO	UNSIGNED 16
40308	307	INT MEASURE FREQ	12	Integer measure of the frequency in [Hz]	RO	UNSIGNED 16
40309	308	INT MEASURE FREQ	13	Integer measure of the frequency in [Hz]	RO	UNSIGNED 16
40310	309	INT MEASURE FREQ	14	Integer measure of the frequency in [Hz]	RO	UNSIGNED 16
40311	310	INT MEASURE FREQ	15	Integer measure of the frequency in [Hz]	RO	UNSIGNED 16
40312	311	INT MEASURE FREQ	16	Integer measure of the frequency in [Hz]	RO	UNSIGNED 16

ADDRESS (4x)	OFFSET ADDRESS (4x)	REGISTER	CHANNEL	DESCRIPTION	W/R	TYPE
40401	400	FLOAT TLOW	1	Floating point measure of Tlow in [ms] (LSW)	RO	FLOAT 22
40402	401		1	Floating point measure of Tlow in [ms] (MSW)	RO	FLOAT 32
40403	402	FLOAT TLOW	2	Floating point measure of Tlow in [ms] (LSW)	RO	FLOAT 32



40404	403			Floating point measure of Tlow in [ms] (MSW)	RO		
40405	404	51.0.47.71.0144	•	Floating point measure of Tlow in [ms] (LSW)	RO	51.047.33	
40406	405	FLOAT TLOW	3	Floating point measure of Tlow in [ms] (MSW)	RO	FLOAT 32	
40407	406	51.0.4.7.71.0144	_	Floating point measure of Tlow in [ms] (LSW)	RO	51.047.33	
40408	407	FLOAT TLOW	4	Floating point measure of Tlow in [ms] (MSW)	RO	FLOAT 32	
40409	408		_	Floating point measure of Tlow in [ms] (LSW)	RO		
40410	409	FLOAT TLOW	5	Floating point measure of Tlow in [ms] (MSW)	RO	FLOAT 32	
40411	410	51.0.4.7.71.0.44		Floating point measure of Tlow in [ms] (LSW)	RO	51.047.33	
40412	411	FLOAT TLOW	6	Floating point measure of Tlow in [ms] (MSW)	RO	FLOAT 32	
40413	412	SI OAT TI OW	_	Floating point measure of Tlow in [ms] (LSW)	RO	51.047.22	
40414	413	FLOAT TLOW	7	Floating point measure of Tlow in [ms] (MSW)	RO	FLOAT 32	
40415	414	FLOAT TLOW	8	Floating point measure of Tlow in [ms] (LSW)	RO	FLOAT 32	
40416	415	- FLOAT TLOW	٥	Floating point measure of Tlow in [ms] (MSW)	RO	FLUAT 32	
40417	416	- FLOAT TLOW	9	Floating point measure of Tlow in [ms] (LSW)	RO	FLOAT 32	
40418	417	FLOAT TLOW	9	Floating point measure of Tlow in [ms] (MSW)	RO	FLOAT 32	
40419	418	- FLOAT TLOW	10	Floating point measure of Tlow in [ms] (LSW)	RO	FLOAT 32	
40420	419	- FLOAT TLOW	10	Floating point measure of Tlow in [ms] (MSW)	RO	FLUAT 32	
40421	420	- FLOAT TLOW	11	Floating point measure of Tlow in [ms] (LSW)	RO	FLOAT 32	
40422	421	- FLOAT TLOW	11	Floating point measure of Tlow in [ms] (MSW)	RO	FLUAT 32	
40423	422	ELOAT TLOW	12	Floating point measure of Tlow in [ms] (LSW)	RO	20	
40424	423	FLOAT TLOW	12	Floating point measure of Tlow in [ms] (MSW)	RO	FLOAT 32	
40425	424	FLOAT TLOW	13	Floating point measure of Tlow in [ms] (LSW)	RO	FLOAT 32	





40426	425			Floating point measure of Tlow in [ms] (MSW)	RO	
40427	426	FLOAT TLOW	14	Floating point measure of Tlow in [ms] (LSW)	RO	FLOAT 32
40428	427	FLOAT TLOW	14	Floating point measure of Tlow in [ms] (MSW)	RO	FLOAT 32
40429	428	FLOAT TLOW	15	Floating point measure of Tlow in [ms] (LSW)	RO	FLOAT 32
40430	429	TLOAT TLOW		Floating point measure of Tlow in [ms] (MSW)	RO	TLOAT 32
40431	430	FLOAT TLOW	16	Floating point measure of Tlow in [ms] (LSW)	RO	FLOAT 32
40432	431	FLOAT TLOW	16	Floating point measure of Tlow in [ms] (MSW)	RO	FLUAT 32

ADDRESS (4x)	OFFSET ADDRESS (4x)	REGISTER	CHANNEL	DESCRIPTION	W/R	TYPE
40465	464	FLOAT THIGH	1	Floating point measure of Thigh in [ms] (LSW)	RO	FLOAT 32
40466	465	FLOAT THIGH	1	Floating point measure of Thigh in [ms] (MSW)	RO	FLUAT 32
40467	466	FLOAT THIGH	2	Floating point measure of Thigh in [ms] (LSW)	RO	FLOAT 32
40468	467	FLOAT THIGH	2	Floating point measure of Thigh in [ms] (MSW)	RO	FLOAT 32
40469	468	ELOAT TUICH	3	Floating point measure of Thigh in [ms] (LSW)	RO	FLOAT 32
40470	469	FLOAT THIGH	3	Floating point measure of Thigh in [ms] (MSW)	RO	PLOAT 52
40471	470	FLOAT TUICH	4	Floating point measure of Thigh in [ms] (LSW)	RO	FLOAT 33
40472	471	FLOAT THIGH	4	Floating point measure of Thigh in [ms] (MSW)	RO	FLOAT 32
40473	472	ELOAT THICH	E	Floating point measure of Thigh in [ms] (LSW)	RO	ELOAT 22
40474	473	FLOAT THIGH	5	Floating point measure of Thigh in [ms] (MSW)	RO	FLOAT 32



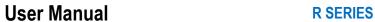


40475	474 475	- FLOAT THIGH	6	Floating point measure of Thigh in [ms] (LSW) Floating point measure of Thigh in	RO	FLOAT 32
				[ms] (MSW)	RO	
40477	476			Floating point measure of Thigh in [ms] (LSW)	RO	
40478	477	FLOAT THIGH	7	Floating point measure of Thigh in [ms] (MSW)	RO	FLOAT 32
40479	478			Floating point measure of Thigh in [ms] (LSW)	RO	
40480	479	FLOAT THIGH	8	Floating point measure of Thigh in [ms] (MSW)	RO	FLOAT 32
40481	480	FLOAT TUROU	•	Floating point measure of Thigh in [ms] (LSW)	RO	
40482	481	FLOAT THIGH	9	Floating point measure of Thigh in [ms] (MSW)	RO	FLOAT 32
40483	482			Floating point measure of Thigh in [ms] (LSW)	RO	
40484	483	FLOAT THIGH	10	Floating point measure of Thigh in [ms] (MSW)	RO	FLOAT 32
40485	484			Floating point measure of Thigh in [ms] (LSW)	RO	
40486	485	FLOAT THIGH	11	Floating point measure of Thigh in [ms] (MSW)	RO	FLOAT 32
40487	486			Floating point measure of Thigh in [ms] (LSW)	RO	
40488	487	FLOAT THIGH	12	Floating point measure of Thigh in [ms] (MSW)	RO	FLOAT 32
40489	488			Floating point measure of Thigh in [ms] (LSW)	RO	
40490	489	FLOAT THIGH	13	Floating point measure of Thigh in [ms] (MSW)	RO	FLOAT 32



40491	490	FLOAT TUICU	1.4	Floating point measure of Thigh in [ms] (LSW)	RO	FLOAT 32
40492	491	FLOAT THIGH	14	Floating point measure of Thigh in [ms] (MSW)	RO	FLOAT 32
40493	492	FLOAT TUICU	15	Floating point measure of Thigh in [ms] (LSW)	RO	FLOAT 22
40494	493	FLOAT THIGH	15	Floating point measure of Thigh in [ms] (MSW)	RO	FLOAT 32
40495	494	FLOAT TUICU	16	Floating point measure of Thigh in [ms] (LSW)	RO	FLOAT 22
40496	495	FLOAT THIGH	16	Floating point measure of Thigh in [ms] (MSW)	RO	FLOAT 32

ADDRESS (4x)	OFFSET ADDRESS (4x)	REGISTER	CHANNEL	DESCRIPTION	W/R	TYPE
				Floating point		
40529	528			measure of the		
		FLOAT PERIOD	1	Period in [ms] (LSW)	RO	FLOAT 32
				Floating point		1 20/11 32
40530	529			measure of the		
				Period in [ms] (MSW)	RO	
				Floating point		
40531	530			measure of the		
		FLOAT PERIOD	2	Period in [ms] (LSW)	RO	FLOAT 33
			2	Floating point		FLOAT 32
40532	531			measure of the		
				Period in [ms] (MSW)	RO	
				Floating point		
40533	532		2	measure of the		EL CAT 22
		FLOAT PERIOD		Period in [ms] (LSW)	RO	
		PLOAT PERIOD	3	Floating point		FLOAT 32
40534	533			measure of the		
				Period in [ms] (MSW)	RO	
				Floating point		
40535	534			measure of the		
		ELOAT DEDIOD	4	Period in [ms] (LSW)	RO	FLOAT 32
40536	535	FLOAT PERIOD	4	Floating point		
				measure of the		
				Period in [ms] (MSW)	RO	



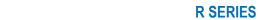
40537	536	FLOAT PERIOD	5	Floating point measure of the Period in [ms] (LSW)	RO	FLOAT 32	
40538	537	T LOXII T LINOS		Floating point measure of the Period in [ms] (MSW)	RO	. 20/11/32	
40539	538	- FLOAT PERIOD	6	Floating point measure of the Period in [ms] (LSW)	RO	FLOAT 32	
40540	539	T LOM T LINOS	Ü	Floating point measure of the Period in [ms] (MSW)	RO	120/11/32	
40541	540	- FLOAT PERIOD	7	Floating point measure of the Period in [ms] (LSW)	RO	FLOAT 22	
40542	541	FLOAT FERIOD	,	Floating point measure of the Period in [ms] (MSW)	RO	FLOAT 32	
40543	542	- FLOAT PERIOD	8	Floating point measure of the Period in [ms] (LSW)	RO	FLOAT 32	
40544	543	TLOAT FERIOD	0	Floating point measure of the Period in [ms] (MSW)	RO		
40545	544	FLOAT DEDIOD	0	Floating point measure of the Period in [ms] (LSW)	RO	FLOAT 22	
40546	545	FLOAT PERIOD	9	Floating point measure of the Period in [ms] (MSW)	RO	FLOAT 32	
40547	546			Floating point measure of the Period in [ms] (LSW)	RO		
40548	547	FLOAT PERIOD	10	Floating point measure of the Period in [ms] (MSW)	RO	FLOAT 32	
40549	548			Floating point measure of the Period in [ms] (LSW)	RO		
40550	549	FLOAT PERIOD	11	Floating point measure of the Period in [ms] (MSW)	RO	FLOAT 32	
40551	550			Floating point measure of the Period in [ms] (LSW)	RO		
40552	551	FLOAT PERIOD	12	Floating point measure of the Period in [ms] (MSW)	RO	FLOAT 32	





40553	552	ELOAT DEDICE	12	Floating point measure of the Period in [ms] (LSW)	RO	EL OAT 22
40554	553	FLOAT PERIOD	13	Floating point measure of the Period in [ms] (MSW)	RO	FLOAT 32
40555	554	EL OAT DEDIOD	1.1	Floating point measure of the Period in [ms] (LSW)	RO	FLOAT 33
40556	555	FLOAT PERIOD	14	Floating point measure of the Period in [ms] (MSW)	RO	FLOAT 32
40557	556	EL GAT DEDIGO	4.5	Floating point measure of the Period in [ms] (LSW)	RO	EL OAT 33
40558	557	FLOAT PERIOD	15	Floating point measure of the Period in [ms] (MSW)	RO	FLOAT 32
40559	558	ELOAT DEDICE	16	Floating point measure of the Period in [ms] (LSW)	RO	ELOAT 22
40560	559	FLOAT PERIOD	16	Floating point measure of the Period in [ms] (MSW)	RO	FLOAT 32

ADDRESS (4x)	OFFSET ADDRESS (4x)	REGISTER	CHANNEL	DESCRIPTION	W/R	TYPE
40593	592	FLOAT FREQUENCY	1	Floating point measure of the Frequency in [Hz] (LSW)	RO	FLOAT 32
40594	593		1	Floating point measure of the Frequency in [Hz] (MSW)	RO	TEOMI 32
40595	594	ELOAT EDEOLIENCY	2	Floating point measure of the Frequency in [Hz] (LSW)	RO	FLOAT 32
40596	595	FLOAT FREQUENCY	2	Floating point measure of the Frequency in [Hz] (MSW)	RO	FLOAT 32
40597	596	FLOAT FREQUENCY	3	Floating point measure of the Frequency in [Hz] (LSW)	RO	FLOAT 32





40598	597			Floating point measure of the Frequency in [Hz] (MSW)	RO	
40599	598	- FLOAT FREQUENCY	4	Floating point measure of the Frequency in [Hz] (LSW)	RO	FLOAT 32
40600	599	TEOATTREQUENCT	7	Floating point measure of the Frequency in [Hz] (MSW)	RO	TEONI 32
40601	600	- FLOAT FREQUENCY	5	Floating point measure of the Frequency in [Hz] (LSW)	RO	FLOAT 32
40602	601	TEOATTREQUERCI		Floating point measure of the Frequency in [Hz] (MSW)	RO	
40603	602	FLOAT FREQUENCY	6	Floating point measure of the Frequency in [Hz] (LSW)	RO	FLOAT 32
40604	603	FLOAT FREQUENCY	-	Floating point measure of the Frequency in [Hz] (MSW)	RO	1 20/11 32
40605	604	- FLOAT FREQUENCY	7	Floating point measure of the Frequency in [Hz] (LSW)	RO	FLOAT 32
40606	605	FLOAT FREQUENCY	,	Floating point measure of the Frequency in [Hz] (MSW)	RO	FLOAT 32
40607	606	ELOAT EDEOLIENCY	8	Floating point measure of the Frequency in [Hz] (LSW)	RO	FLOAT 32
40608	607	FLOAT FREQUENCY	0	Floating point measure of the Frequency in [Hz] (MSW)	RO	TILUAT 52
40609	608	FLOAT FREQUENCY	9	Floating point measure of the Frequency in [Hz] (LSW)	RO	FLOAT 32





40610	609			Floating point measure of the Frequency in [Hz] (MSW)	RO	
40611	610	- FLOAT FREQUENCY	10	Floating point measure of the Frequency in [Hz] (LSW)	RO	FLOAT 32
40612	611	TEGATTREQUERCY	10	Floating point measure of the Frequency in [Hz] (MSW)	RO	TLOAT 32
40613	612	- FLOAT FREQUENCY	11	Floating point measure of the Frequency in [Hz] (LSW)	RO	FLOAT 32
40614	613			Floating point measure of the Frequency in [Hz] (MSW)	RO	-
40615	614		12	Floating point measure of the Frequency in [Hz] (LSW)	RO	FLOAT 32
40616	615	FLOAT FREQUENCY	12	Floating point measure of the Frequency in [Hz] (MSW)	RO	
40617	616	FLOAT FREQUENCY	12	Floating point measure of the Frequency in [Hz] (LSW)	RO	FLOAT 32
40618	617	PLOAT FREQUENCY	13	Floating point measure of the Frequency in [Hz] (MSW)	RO	FLOAT 32
40619	618	ELOAT EDECLIENCY	14	Floating point measure of the Frequency in [Hz] (LSW)	RO	FLOAT 33
40620	619	FLOAT FREQUENCY	14	Floating point measure of the Frequency in [Hz] (MSW)	RO	FLOAT 32
40621	620	FLOAT FREQUENCY	15	Floating point measure of the Frequency in [Hz] (LSW)	RO	FLOAT 32





40622	621			Floating point measure of the Frequency in [Hz] (MSW)	RO	
40623	622		16	Floating point measure of the Frequency in [Hz] (LSW)	RO	EL O A T 22
40624	623	FLOAT FREQUENCY	16	Floating point measure of the Frequency in [Hz] (MSW)	RO	FLOAT 32



# 20.2. R-16DI-8DO: CONSECUTIVE REGISTERS MODBUS 4x COPY (WITH INTEGER MEASURE REGISTERS)

ADDRESS (4x)	OFFSET ADDRESS (4x)	REGISTER	CHANNEL	DESCRIPTION	W/ R	TYPE
48001	8000	DIGITAL INPUT [161]	[116]	DIGITAL INPUTS [16 1] THE LEAST SIGNIFICANT BIT IS RELATIVE TO IO1 EXAMPLE: 5 decimal = 0000 0000 0000 0101 binary => IO1 = High, IO2 = LOW, IO3 = HIGH, IO4 I16 = LOW	RO	UNSIGNED 16
48002	8001	DIGITAL OUT [81]	[81]	DIGITAL OUTPUTS [8 1] THE LEAST SIGNIFICANT BIT IS RELATIVE TO D01 EXAMPLE: 5 decimal = 0000 0000 0000 0101 binary => D01=High, D02=LOW, D03=HIGH, D04D08=LO W	RW	UNSIGNED 16
48003	8002	COUNTER	1	LSW	RW	UNSIGNED
48004	8003		<del>-</del>	MSW	RW	32
48005	8004	COUNTER	2	LSW	RW	UNSIGNED
48006	8005			MSW	RW	32
48007	8006	COUNTER	3	LSW	RW	UNSIGNED
48008	8007			MSW	RW	32
48009	8008	COUNTER	4	LSW	RW	UNSIGNED
48010	8009			MSW	RW	32
48011	8010	COUNTER	5	LSW	RW	





48012	8011			MSW	RW	UNSIGNED 32
48013	8012	COUNTED		LSW	RW	UNSIGNED
48014	8013	COUNTER	6	MSW	RW	32
48015	8014	COLINITED	7	LSW	RW	UNSIGNED
48016	8015	COUNTER	7	MSW	RW	32
48017	8016	COLINITED	0	LSW	RW	UNSIGNED
48018	8017	COUNTER	8	MSW	RW	32
48019	8018	COUNTED	0	LSW	RW	UNSIGNED
48020	8019	COUNTER	9	MSW	RW	32
48021	8020	COLINITED	10	LSW	RW	UNSIGNED
48022	8021	COUNTER	10	MSW	RW	32
48023	8022	COLINITED	4.4	LSW	RW	UNSIGNED
48024	8023	COUNTER	11	MSW	RW	32
48025	8024	COUNTED	12	LSW	RW	UNSIGNED
48026	8025	COUNTER	12	MSW	RW	32
48027	8026	001111755	4.0	LSW	RW	UNSIGNED
48028	8027	COUNTER	13	MSW	RW	32
48029	8028			LSW	RW	UNSIGNED
48030	8029	COUNTER	14	MSW	RW	32
48031	8030		4-	LSW	RW	UNSIGNED
48032	8031	COUNTER	15	MSW	RW	32
48033	8032		4.6	LSW	RW	UNSIGNED
48034	8033	COUNTER	16	MSW	RW	32
48035	8034	INT - MEASURE	1	Tlow Integer measure [x 50us] LSW	RO	UNSIGNED
48036	8035	TLOW	1	Tlow Integer measure [x 50us] MSW	RO	32
48037	8036	INT - MEASURE	2	Tlow Integer measure [x 50us] LSW	RO	UNSIGNED
48038	8037	TLOW	2	Tlow Integer measure [ms] MSW	RO	32
48039	8038	INT	3	Tlow Integer measure [x 50us] LSW	RO	UNSIGNED
48040	8039	- MEASURE TLOW	3	Tlow Integer measure [x 50us] MSW	RO	32
48041	8040	INT MEASURE TLOW	4	Tlow Integer measure [ms] LSW	RO	UNSIGNED 32





48042	8041			Tlow Integer measure [x 50us] MSW	RO	
48043	8042	INT - MEASURE	5	Tlow Integer measure [x 50us] LSW	RO	UNSIGNED
48044	8043	TLOW	J	Tlow Integer measure [x 50us] MSW	RO	32
48045	8044	INT - MEASURE	6	Tlow Integer measure [x 50us] LSW	RO	UNSIGNED
48046	8045	TLOW	6	Tlow Integer measure [ms] MSW	RO	32
48047	8046	INT MEASURE	7	Tlow Integer measure [x 50us] LSW	RO	UNSIGNED
48048	8047	TLOW		Tlow Integer measure [x 50us] MSW	RO	32
48049	8048	INT	IEASURE 8	Tlow Integer measure [x 50us] LSW	RO	UNSIGNED 32
48050	8049	TLOW		Tlow Integer measure [x 50us] MSW	RO	
48051	8050	INT		Tlow Integer measure [x 50us] LSW	RO	UNSIGNED
48052	8051	- MEASURE TLOW	9	Tlow Integer measure [x 50us] MSW	RO	32
48053	8052	INT		Tlow Integer measure [x 50us] LSW	RO	UNSIGNED
48054	8053	MEASURE TLOW	10	Tlow Integer measure [x 50us] MSW	RO	32
48055	8054	INT		Tlow Integer measure [x 50us] LSW	RO	UNSIGNED
48056	8055	MEASURE TLOW	11	Tlow Integer measure [x 50us] MSW	RO	32
48057	8056	INT MEASURE TLOW	12	Tlow Integer measure [ms] LSW	RO	UNSIGNED 32





48058	8057			Tlow Integer measure	RO	
10030	3037			[x 50us] MSW	110	
48059	8058	INT MEASURE	13	Tlow Integer measure [x 50us] LSW	RO	UNSIGNED
48060	8059	TLOW	15	Tlow Integer measure [x 50us] MSW	RO	32
48061	8060	INT MEASURE	14	Tlow Integer measure [x 50us] LSW	RO	UNSIGNED
48062	8061	TLOW	14	Tlow Integer measure [ms] MSW	RO	32
48063	8062	INT MEASURE	15	Tlow Integer measure [x 50us] LSW	RO	UNSIGNED
48064	8063	TLOW		Tlow Integer measure [x 50us] MSW	RO	32
48065	8064	INT	16	Tlow Integer measure [x 50us] LSW	RO	UNSIGNED
48066	8065	- MEASURE TLOW	10	Tlow Integer measure [x 50us] MSW	RO	32
48067	8066	INT MEASURE	1	Thigh Integer measure [x 50us] LSW	RO	UNSIGNED
48068	8067	THIGH	1	Thigh Integer measure [ms] MSW	RO	32
48069	8068	INT MEASURE	2	Thigh Integer measure [x 50us] LSW	RO	UNSIGNED
48070	8069	THIGH	2	Thigh Integer measure [x 50us] MSW	RO	32
48071	8070	INT	2	Thigh Integer measure [x 50us] LSW	RO	UNSIGNED
48072	8071	MEASURE THIGH		Thigh Integer measure [x 50us] MSW	RO	32
48073	8072	INT MEASURE THIGH	4	Thigh Integer measure [x 50us] LSW	RO	UNSIGNED 32





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40074	0073			Thigh Integer	D0				
48074	8073			measure	RO				
				[x 50us] MSW					
40075	0074			Thigh Integer	D.O.				
48075	8074	INT		measure	RO	LINCICATED			
		MEASURE	5	[x 50us] LSW		UNSIGNED			
40076	0075	THIGH		Thigh Integer	50	32			
48076	8075			measure	RO				
				[x 50us] MSW					
40077	0076			Thigh Integer	пО				
48077	8076	INT		measure	RO	LINCICNED			
		MEASURE	6	[x 50us] LSW		UNSIGNED			
40070	0077	THIGH		Thigh Integer	D0	32			
48078	8077			measure [ms]	RO				
				MSW Thigh Integer					
48079	0070			Thigh Integer	DО				
480/9	8078	INT		measure	RO	UNSIGNED 32			
		MEASURE		[x 50us] LSW					
48080	8079	THIGH		Thigh Integer measure	RO				
46060	8079			[x 50us] MSW	KU				
				Thigh Integer					
12021	8080			measure	RO	UNSIGNED 32			
48081	8080	INT		[x 50us] LSW	NO				
		MEASURE	8	Thigh Integer					
48082	8081	THIGH		measure	RO				
40002	0001			[x 50us] MSW	NO				
				Thigh Integer					
48083	8082			measure	RO				
10003		INT	INI		[x 50us] LSW		UNSIGNED		
			MEASURE			9	Thigh Integer		32
48084	8083	THIGH		measure	RO				
				[x 50us] MSW					
				Thigh Integer					
48085	8084			measure	RO				
		INT	10	[x 50us] LSW		UNSIGNED			
		MEASURE	10	Thigh Integer		32			
48086	8085	THIGH		measure	RO				
				[x 50us] MSW					
				Thigh Integer					
48087	8086	INIT		measure	RO				
		INT	11	[x 50us] LSW		UNSIGNED			
		MEASURE	11	Thigh Integer		32			
48088	8087 THIGH	THIGH	THIGH		measure	RO			
				[x 50us] MSW					
		INT		Thigh Integer		LINSIGNED			
48089		8088 MEASURE	12	measure	RO	UNSIGNED 32			
		THIGH		[x 50us] LSW		32			





48090	8089			Thigh Integer measure [x 50us] MSW	RO	
48091	8090	INT - MEASURE	13	Thigh Integer measure [ms] LSW	RO	UNSIGNED
48092	8091	THIGH	13	Thigh Integer measure [x 50us] MSW	RO	32
48093	8092	INT - MEASURE	14	Thigh Integer measure [x 50us] LSW	RO	UNSIGNED
48094	8093	THIGH	14	Thigh Integer measure [ms] MSW	RO	32
48095	8094	INT - MEASURE	15	Thigh Integer measure [x 50us] LSW	RO	UNSIGNED
48096	8095	THIGH		Thigh Integer measure [x 50us] MSW	RO	32
48097	8096	INT - MEASURE		Thigh Integer measure [x 50us] LSW	RO	UNSIGNED 32
48098	8097	THIGH	10	Thigh Integer measure [x 50us] MSW	RO	
48099	8098	INT	4	Period Integer measure [x 50us] LSW	RO	UNSIGNED
48100	8099	- MEASURE PERIOD	1	Period Integer measure [x 50us] MSW	RO	32
48101	8100	INT	2	Period Integer measure [x 50us] LSW	RO	UNSIGNED
48102	8101	MEASURE PERIOD	2	Period Integer measure [x 50us] MSW	RO	32
48103	8102	INT	2	Period Integer measure [x 50us] LSW	RO	UNSIGNED
48104	8103	MEASURE PERIOD	3	Period Integer measure [x 50us] MSW	RO	32
48105	8104	INT MEASURE PERIOD	4	Period Integer measure [x 50us] LSW	RO	UNSIGNED 32





I	I	 	1	Period Integer					
48106	8105			measure	RO				
10100	0103			[x 50us] MSW					
				Period Integer					
48107	8106			measure	RO				
10107	0100	INT		[x 50us] LSW		UNSIGNED			
		MEASURE	5	Period Integer		32			
48108	8107	PERIOD		measure	RO	32			
10100	0107			[x 50us] MSW					
				Period Integer					
48109	8108			measure	RO				
1323		INT		[x 50us] LSW		UNSIGNED			
		MEASURE	6	Period Integer		32			
48110	8109	PERIOD		measure	RO				
				[x 50us] MSW					
				Period Integer					
48111	8110			measure	RO				
		INT	_	[x 50us] LSW		UNSIGNED			
		MEASURE	7	Period Integer		32			
48112	8111	PERIOD	PERIOD	PERIOD		measure	RO		
				[x 50us] MSW					
		INT		Period Integer	RO	UNSIGNED 32			
48113	8112			measure					
		MEASURE	8	[x 50us] LSW					
		8113 PERIOD	٥	Period Integer					
48114	8113			measure	RO				
				[x 50us] MSW					
							Period Integer		
48115	8114	INT		measure	RO				
		MEASURE	9	[x 50us] LSW		UNSIGNED			
		PERIOD		Period Integer		32			
48116	8115			measure	RO				
				[x 50us] MSW					
				Period Integer					
48117	8116	INT		measure	RO				
		MEASURE	10	[x 50us] LSW		UNSIGNED			
40440	0447	PERIOD		Period Integer	D.C.	32			
48118	8117			measure	RO				
				[x 50us] MSW					
40110	0110			Period Integer	DO.				
48119	8118	INT		measure	RO	LINGICNED			
		MEASURE	11	[x 50us] LSW		UNSIGNED 32			
48120	8119	PERIOD		Period Integer measure	RO	32			
40120	0113			[x 50us] MSW	NO				
		INT		Period Integer					
48121 8120	8120	MEASURE	12	measure	RO	UNSIGNED			
70121	8120		8120 MEASURE PERIOD	12	[x 50us] LSW	1.0	32		
<u> </u>	1	LINIOD	L	[ \ JOU3] L3 VV					





I	I	1	I	l no contra	1	I		
40133	0404			Period Integer	D.O.			
48122	8121			measure	RO			
				[x 50us] MSW				
40422	0422			Period Integer	50			
48123	8122	INT		measure	RO	LINICICNIED		
		MEASURE	13	[x 50us] LSW		UNSIGNED		
40424	0422	PERIOD		Period Integer	00	32		
48124	8123			measure	RO			
				[x 50us] MSW				
48125	8124			Period Integer	RO			
40125	0124	INT		measure [x 50us] LSW	KU	UNSIGNED		
		MEASURE	14	Period Integer				
48126	8125	PERIOD		measure	RO	32		
40120	0123			[x 50us] MSW	NO			
				Period Integer				
48127	8126			measure	RO			
40127	0120	INT		[x 50us] LSW	NO	UNSIGNED		
		MEASURE	15	Period Integer		32		
48128	8127	PERIOD		measure	RO	32		
10120	0127			[x 50us] MSW				
				Period Integer				
48129	8128			measure	RO			
	10123	INT		[x 50us] LSW		UNSIGNED		
		MEASURE PERIOD			16	Period Integer		32
48130	8129			measure	RO			
						[x 50us] MSW		
		INT		Frequency		UNSIGNED		
48131	8130	MEASURE	1	Integer	RO	16		
		FREQ		Measure [Hz]		10		
		INT		Frequency		LINGICALED		
48132	8131	MEASURE	2	Integer	RO	UNSIGNED		
		FREQ		Measure [Hz]		16		
		INT		Frequency				
48133	8132	MEASURE	3	Integer	RO	UNSIGNED		
40133	0132	FREQ		Measure [Hz]	NO	16		
		INT	_	Frequency		UNSIGNED		
48134	48134 8133	MEASURE	4	Integer	RO	16		
		FREQ		Measure [Hz]				
		INT		Frequency		LINCICALED		
48135	8134	MEASURE	5	Integer	RO	UNSIGNED		
		FREQ		Measure [Hz]		16		
		INT		Frequency				
48136 8135	MEASURE	6	Integer	RO	UNSIGNED			
	8135	8135 MEASURE FREQ	6	Measure [Hz]	1.0	16		
		FREQ		ivicasure [HZ]		_		



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48137	8136	INT MEASURE	7	Frequency Integer	RO	UNSIGNED 16
		FREQ		Measure [Hz]		10
		INT		Frequency		
48138	8137	MEASURE	8	Integer	RO	UNSIGNED 16
		FREQ		Measure [Hz]		10
		INT		Frequency		LINGIGNED
48139	8138	MEASURE	9	Integer	RO	UNSIGNED 16
		FREQ		Measure [Hz]		10
		INT		Frequency		LINGICNED
48140	8139	MEASURE	10	Integer	RO	UNSIGNED 16
		FREQ		Measure [Hz]		10
		INT		Frequency		UNSIGNED
48141	8140	MEASURE	11	Integer	RO	16
		FREQ		Measure [Hz]		10
		INT		Frequency		UNSIGNED 16
48142	8141	MEASURE	12	Integer	RO	
		FREQ		Measure [Hz]		10
		INT		Frequency		UNSIGNED
48143	8142	MEASURE	13	Integer	RO	16
		FREQ		Measure [Hz]		10
		INT		Frequency		UNSIGNED
48144	8143	MEASURE	14	Integer	RO	16
		FREQ		Measure [Hz]		10
		INT		Frequency		UNSIGNED
48145	8144	MEASURE	15	Integer	RO	16
		FREQ		Measure [Hz]		10
		INT		Frequency		UNSIGNED
48146	8145	MEASURE	16	Integer	RO UNSIGNED	
		FREQ		Measure [Hz]		





**R SERIES** 

#### 20.3. R-16DI-8DO: TABLE OF MODBUS REGISTERS 0x COIL STATUS (FUNCTION CODE 1)

ADDRESS (0x)	OFFSET ADDRESS (0x)	REGISTER	CHANNEL	DESCRIPTION	W/R	TYPE
1	0	DIGITAL INPUT	1	DIGITAL INPUT	RO	BIT
2	1	DIGITAL INPUT	2	DIGITAL INPUT	RO	BIT
3	2	DIGITAL INPUT	3	DIGITAL INPUT	RO	BIT
4	3	DIGITAL INPUT	4	DIGITAL INPUT	RO	BIT
5	4	DIGITAL INPUT	5	DIGITAL INPUT	RO	BIT
6	5	DIGITAL INPUT	6	DIGITAL INPUT	RO	BIT
7	6	DIGITAL INPUT	7	DIGITAL INPUT	RO	BIT
8	7	DIGITAL INPUT	8	DIGITAL INPUT	RO	BIT
9	8	DIGITAL INPUT	9	DIGITAL INPUT	RO	BIT
10	9	DIGITAL INPUT	10	DIGITAL INPUT	RO	BIT
11	10	DIGITAL INPUT	11	DIGITAL INPUT	RO	BIT
12	11	DIGITAL INPUT	12	DIGITAL INPUT	RO	BIT
13	12	DIGITAL INPUT	13	DIGITAL INPUT	RO	BIT
14	13	DIGITAL INPUT	14	DIGITAL INPUT	RO	BIT
15	14	DIGITAL INPUT	15	DIGITAL INPUT	RO	BIT
16	15	DIGITAL INPUT	16	DIGITAL INPUT	RO	BIT





ADDRESS (0x)	OFFSET ADDRESS (0x)	REGISTER	CHANNEL	DESCRIPTION	W/R	TYPE
33	32	DIGITAL OUT	1	DIGITAL OUTPUT	RW	BIT
34	33	DIGITAL OUT	2	DIGITAL OUTPUT	RW	BIT
35	34	DIGITAL OUT	3	DIGITAL OUTPUT	RW	BIT
36	35	DIGITAL OUT	4	DIGITAL OUTPUT	RW	BIT
37	36	DIGITAL OUT	5	DIGITAL OUTPUT	RW	BIT
38	37	DIGITAL OUT	6	DIGITAL OUTPUT	RW	BIT
39	38	DIGITAL OUT	7	DIGITAL OUTPUT	RW	BIT
40	39	DIGITAL OUT	8	DIGITAL OUTPUT	RW	BIT

ADDRESS (0x)	OFFSET ADDRESS (0x)	REGISTER	CHANNEL	DESCRIPTION	W/R	TYPE
101	100	COUNTER RESET	1	COUNTER RESET	RW	BIT
102	101	COUNTER RESET	2	COUNTER RESET	RW	BIT
103	102	COUNTER RESET	3	COUNTER RESET	RW	BIT
104	103	COUNTER RESET	4	COUNTER RESET	RW	BIT
105	104	COUNTER RESET	5	COUNTER RESET	RW	BIT
106	105	COUNTER RESET	6	COUNTER RESET	RW	BIT
107	106	COUNTER RESET	7	COUNTER RESET	RW	BIT
108	107	COUNTER RESET	8	COUNTER RESET	RW	BIT
109	108	COUNTER RESET	9	COUNTER RESET	RW	BIT
110	109	COUNTER RESET	10	COUNTER RESET	RW	BIT
111	110	COUNTER RESET	11	COUNTER RESET	RW	BIT
112	111	COUNTER RESET	12	COUNTER RESET	RW	BIT
113	112	COUNTER RESET	13	COUNTER RESET	RW	BIT
114	113	COUNTER RESET	14	COUNTER RESET	RW	BIT
115	114	COUNTER RESET	15	COUNTER RESET	RW	BIT
116	115	COUNTER RESET	16	COUNTER RESET	RW	BIT





**R SERIES** 

#### 20.4. R-16DI-8DO: TABLE OF REGISTERS 1x INPUT STATUS (FUNCTION CODE 2)

ADDRESS (1x)	OFFSET ADDRESS (1x)	REGISTER	CHANNEL	DESCRIPTION	W/R	TYPE
10001	0	DIGITAL INPUT	1	DIGITAL INPUT	RO	BIT
10002	1	DIGITAL INPUT	2	DIGITAL INPUT	RO	BIT
10003	2	DIGITAL INPUT	3	DIGITAL INPUT	RO	BIT
10004	3	DIGITAL INPUT	4	DIGITAL INPUT	RO	BIT
10005	4	DIGITAL INPUT	5	DIGITAL INPUT	RO	BIT
10006	5	DIGITAL INPUT	6	DIGITAL INPUT	RO	BIT
10007	6	DIGITAL INPUT	7	DIGITAL INPUT	RO	BIT
10008	7	DIGITAL INPUT	8	DIGITAL INPUT	RO	BIT
10009	8	DIGITAL INPUT	9	DIGITAL INPUT	RO	BIT
10010	9	DIGITAL INPUT	10	DIGITAL INPUT	RO	BIT
10011	10	DIGITAL INPUT	11	DIGITAL INPUT	RO	BIT
10012	11	DIGITAL INPUT	12	DIGITAL INPUT	RO	BIT
10013	12	DIGITAL INPUT	13	DIGITAL INPUT	RO	BIT
10014	13	DIGITAL INPUT	14	DIGITAL INPUT	RO	BIT
10015	14	DIGITAL INPUT	15	DIGITAL INPUT	RO	BIT
10016	15	DIGITAL INPUT	16	DIGITAL INPUT	RO	BIT



#### 21. MODBUS REGISTER TABLE FOR THE R-8AI-8DIDO DEVICE

#### 21.1. R-8AI-8DIDO: MODBUS 4X HOLDING REGISTERS TABLE (FUNCTION CODE 3)

ADDRESS (4x)	OFFSET ADDRESS (4x)	REGISTER	CHANNEL	DESCRIPTION	W/R	ТҮРЕ
40001	0	MACHINE-ID	-	Device ID	RO	UNSIGNED 16 BIT
40002	1	FIRMWARE REVISION (Maior/Minor)	-	FW revision	RO	UNSIGNED 16 BIT
40003	2	FIRMWARE REVISION (Fix/Build)	-	FW revision	RO	UNSIGNED 16 BIT
40004	3	FW CODE	-	FW code	RO	UNSIGNED 16 BIT
40005	4	RESERVED	-	-	RO	UNSIGNED 16 BIT
40006	5	RESERVED	_	-	RO	UNSIGNED 16 BIT
40007	6	BOARD-ID	-	HW revision	RO	UNSIGNED 16 BIT
40008	7	BOOT REVISION (Maior/Minor)	-	FW Bootloader revision	RO	UNSIGNED 16 BIT
40009	8	BOOT REVISION (Fix/Build)	-	FW Bootloader revision	RO	UNSIGNED 16 BIT
40010	9	RESERVED	-	-	RO	UNSIGNED 16 BIT
40011	10	RESERVED	-	-	RO	UNSIGNED 16 BIT
40012	11	RESERVED	-	-	RO	UNSIGNED 16 BIT
40013	12	COMMAND	-	Supported command list: 49568 decimal to perform a Reboot	RW	UNSIGNED 16 BIT
40014  40058	1357	RESERVED	-	-	RW	UNSIGNED 16 BIT





ADDRESS (4x)	OFFSET ADDRESS (4x)	REGISTER	CHANNEL	DESCRIPTION	W/R	ТҮРЕ
40059	58	DIGITAL OUT	[81]	Digital output values  0 = Not active output  1 = Active output  THE LEAST  SIGNIFICANT BIT  RELATES TO IO1  EXAMPLE:  5 decimal = 0000  0000 0000 0101  binary =>  OUT1= Active  OUT2= Not Active  OUT3= Active  OUT4OUT8=Not Active	RW	UNSIGNED 16 BIT
40060	59	DIGITAL IN	[81]	Digital input values  0 = Low  1 = High  THE LEAST SIGNIFICANT BIT RELATES TO IO1 EXAMPLE: 5 decimal = 0000 0000 0000 0101 binary => IN1 = High IN2 = Low IN3 = High OUT4OUT8 = Low	RO	UNSIGNED 16 BIT
40117	116	CHANNEL INTEGER VALUE	1	Channel measurement (unit of measurement depending on the type of measurement or configuration) [V] or [mV] or [mA] or [°C] or [Ohm] or Scaled	RO	SIGNED INTEGER 16 BIT





ADDRESS (4x)	OFFSET ADDRESS (4x)	REGISTER	CHANNEL	DESCRIPTION	W/R	ТҮРЕ
40118	117	CHANNEL INTEGER VALUE	2	Channel measurement (unit of measurement depending on the type of measurement or configuration) [V] or [mV] or [mA] or [°C] or [Ohm] or Scaled	RO	SIGNED INTEGER 16 BIT
40119	118	CHANNEL INTEGER VALUE	3	Channel measurement (unit of measurement depending on the type of measurement or configuration) [V] or [mV] or [mA] or [°C] or [Ohm] or Scaled	RO	SIGNED INTEGER 16 BIT
40120	119	CHANNEL INTEGER VALUE	4	Channel measurement (unit of measurement depending on the type of measurement or configuration) [V] or [mV] or [mA] or [°C] or [Ohm] or Scaled	RO	SIGNED INTEGER 16 BIT
40121	120	CHANNEL INTEGER VALUE	5	Channel measurement (unit of measurement depending on the type of measurement or configuration) [V] or [mV] or [mA] or [°C] or [Ohm] or Scaled	RO	SIGNED INTEGER 16 BIT
40122	121	CHANNEL INTEGER VALUE	6	Channel measurement (unit of measurement depending on the type of measurement or configuration) [V] or [mV] or [mA] or [°C] or [Ohm] or Scaled	RO	SIGNED INTEGER 16 BIT





ADDRESS (4x)	OFFSET ADDRESS (4x)	REGISTER	CHANNEL	DESCRIPTION	W/R	TYPE
40123	122	CHANNEL INTEGER VALUE	7	Channel measurement (unit of measurement depending on the type of measurement or configuration) [V] or [mV] or [mA] or [°C] or [Ohm] or Scaled	RO	SIGNED INTEGER 16 BIT
40124	123	CHANNEL INTEGER VALUE	8	Channel measurement (unit of measurement depending on the type of measurement or configuration) [V] or [mV] or [mA] or [°C] or [Ohm] or Scaled	RO	SIGNED INTEGER 16 BIT
40317	316		1	Channel measurement (unit of measurement depending on the type of	RO	
40318	317	CHANNEL VALUE		measurement or configuration) [V] or [mV] or [mA] or [°C] or [Ohm] or Scaled	RO	FLOAT 32
40319	318			Channel measurement (unit of measurement depending	RO	FLOAT 32
40320	319	CHANNEL VALUE	2	on the type of measurement or configuration) [V] or [mV] or [mA] or [°C] or [Ohm] or Scaled	RO	
40321	320		3	Channel measurement (unit of measurement depending	RO	FLOAT 32
40322	321	CHANNEL VALUE		on the type of measurement or configuration) [V] or [mV] or [mA] or [°C] or [Ohm] or Scaled	RO	



ADDRESS (4x)	OFFSET ADDRESS (4x)	REGISTER	CHANNEL	DESCRIPTION	W/R	ТҮРЕ
40323	322			Channel measurement (unit of measurement depending	RO	
40324	323	CHANNEL VALUE	4	on the type of measurement or configuration) [V] or [mV] or [mA] or [°C] or [Ohm] or Scaled	RO	FLOAT 32
40325	324			Channel measurement (unit of measurement depending on the type of	RO	
40326	325	CHANNEL VALUE	5	measurement or configuration) [V] or [mV] or [mA] or [°C] or [Ohm] or Scaled	RO	FLOAT 32
40327	326	5	6	Channel measurement (unit of measurement depending	RO	
40328	327	CHANNEL VALUE		on the type of measurement or configuration) [V] or [mV] or [mA] or [°C] or [Ohm] or Scaled	RO	FLOAT 32
40329	328			Channel measurement (unit of	RO	
40330	329	CHANNEL VALUE	7	measurement depending on the type of measurement or configuration) [V] or [mV] or [mA] or [°C] or [Ohm] or Scaled	RO	FLOAT 32
40331	330			Channel measurement (unit of measurement depending	RO	FLOAT 32
40332	331	CHANNEL VALUE	8	on the type of measurement depending on the type of measurement or configuration) [V] or [mV] or [mA] or [°C] or [Ohm] or Scaled	RO	



ADDRESS (4x)	OFFSET ADDRESS (4x)	REGISTER	CHANNEL	DESCRIPTION	W/R	ТҮРЕ
40381	380	ERRORS	-	Measurement errors Bit = 0 OK Bit = 1 FAIL Bit[15] CJ Err IN7&IN8 Bit[14]=CJ Err IN5&IN6 Bit[13]=CJ Err IN3&IN4 Bit[12]=CJ Err IN2&IN1 Bit[0]=GENERIC FAULT	RO	UNSIGNED 16
40382	381	ERRORS2	-	Bit = 0 OK Bit = 1 FAIL  Bit[15]=OVERFLOW IN8 Bit[14]=OVERFLOW IN7 Bit[13]=OVERFLOW IN5 Bit[12]=OVERFLOW IN5 Bit[11]=OVERFLOW IN4 Bit[10]=OVERFLOW IN3 Bit[9]=OVERFLOW IN2 Bit[8]=OVERFLOW IN1 Bit[7]=BURNOUT IN8 Bit[6]=BURNOUT IN7 Bit[5]=BURNOUT IN5 Bit[3]=BURNOUT IN4 Bit[2]=BURNOUT IN3 Bit[1]=BURNOUT IN3 Bit[1]=BURNOUT IN3	RO	UNSIGNED 16 BIT
40383	382	DIP SWITCH ERRORS	-	Configuration Dip switch Errors  Bit = 0 OK Bit = 1 FAIL  Bit[7]=DIP SWITCH ERR IN8 Bit[6]= DIP SWITCH ERR IN7 Bit[5]= DIP SWITCH ERR IN6 Bit[4]= DIP SWITCH ERR IN5 Bit[3]= DIP SWITCH ERR IN4 Bit[2]= DIP SWITCH ERR IN3 Bit[1]= DIP SWITCH ERR IN2 Bit[0]= DIP SWITCH ERR IN1	RO	UNSIGNED 16 BIT





ADDRESS (4x)	OFFSET ADDRESS (4x)	REGISTER	CHANNEL	DESCRIPTION	W/R	ТҮРЕ
40416	415	SECONDARY		Secondary Channel measurement (unit of measurement depending	RO	
40417	416	CHANNEL VALUE	1	on the type of measurement or configuration) [V] or [mV] or [mA] or [Ohm]	RO	FLOAT 32
40418	417		2	Secondary Channel measurement (unit of measurement depending	RO	
40419	418	SECONDARY CHANNEL VALUE		on the type of measurement or configuration) [V] or [mV] or [mA] or [Ohm]	RO	FLOAT 32
40420	419	SECONDARY CHANNEL VALUE	3	Secondary Channel measurement (unit of measurement depending	RO	FLOAT 32
40421	420			on the type of measurement or configuration) [V] or [mV] or [mA] or [Ohm]	RO	
40422	421			Secondary Channel measurement (unit of measurement depending	RO	
40423	422	SECONDARY CHANNEL VALUE	4	on the type of measurement or configuration) [V] or [mV] or [mA] or [Ohm]	RO	FLOAT 32
40424	423	SECONDARY		Secondary Channel measurement (unit of measurement depending	RO	
40425	424	CHANNEL VALUE	5	on the type of measurement or configuration) [V] or [mV] or [mA] or [Ohm]	RO	FLOAT 32
40426	425	SECONDARY CHANNEL VALUE	6	Secondary Channel measurement (unit of	RO	FLOAT 32





ADDRESS (4x)	OFFSET ADDRESS (4x)	REGISTER	CHANNEL	DESCRIPTION	W/R	ТҮРЕ
40427	426			measurement depending on the type of measurement or configuration) [V] or [mV] or [mA] or [Ohm]	RO	
40428	427		7	Secondary Channel measurement (unit of	RO	
40429	428	SECONDARY CHANNEL VALUE		measurement depending on the type of measurement or configuration) [V] or [mV] or [mA] or [Ohm]	RO	FLOAT 32
40430	429			Secondary Channel measurement (unit of measurement depending	RO	
40431	430	SECONDARY CHANNEL VALUE	8	on the type of measurement or configuration) [V] or [mV] or [mA] or [Ohm]	RO	FLOAT 32







#### 21.2. R-8AI-8DIDO: TABLE OF MODBUS REGISTERS 0x COIL STATUS (FUNCTION CODE 1)

ADDRESS (0x)	OFFSET ADDRESS (0x)	REGISTER	CHANNEL	DESCRIPTION	W/R	TYPE
1	0	DIGITAL INPUT/OUTPUT	1	DIGITAL INPUT/OUTPUT	RW	BIT
2	1	DIGITAL INPUT/OUTPUT	2	DIGITAL INPUT/OUTPUT	RW	BIT
3	2	DIGITAL INPUT/OUTPUT	3	DIGITAL INPUT/OUTPUT	RW	BIT
4	3	DIGITAL INPUT/OUTPUT	4	DIGITAL INPUT/OUTPUT	RW	BIT
5	4	DIGITAL INPUT/OUTPUT	5	DIGITAL INPUT/OUTPUT	RW	BIT
6	5	DIGITAL INPUT/OUTPUT	6	DIGITAL INPUT/OUTPUT	RW	BIT
7	6	DIGITAL INPUT/OUTPUT	7	DIGITAL INPUT/OUTPUT	RW	BIT
8	7	DIGITAL INPUT/OUTPUT	8	DIGITAL INPUT/OUTPUT	RW	BIT





#### 21.3. R-8AI-8DIDO: TABLE OF MODBUS REGISTERS 1x INPUT STATUS (FUNCTION CODE 2)

ADDRESS (1x)	OFFSET ADDRESS (1x)	REGISTER	CHANNEL	DESCRIPTION	W/R	TYPE
10001	0	DIGITAL INPUT	1	DIGITAL INPUT/OUTPUT	RO	BIT
10002	1	DIGITAL INPUT	2	DIGITAL INPUT/OUTPUT	RO	BIT
10003	2	DIGITAL INPUT	3	DIGITAL INPUT/OUTPUT	RO	BIT
10004	3	DIGITAL INPUT	4	DIGITAL INPUT/OUTPUT	RO	BIT
10005	4	DIGITAL INPUT	5	DIGITAL INPUT/OUTPUT	RO	BIT
10006	5	DIGITAL INPUT	6	DIGITAL INPUT/OUTPUT	RO	BIT
10007	6	DIGITAL INPUT	7	DIGITAL INPUT/OUTPUT	RO	BIT
10008	7	DIGITAL INPUT	8	DIGITAL INPUT/OUTPUT	RO	BIT



#### 22. MODBUS REGISTER TABLE FOR THE R-SG3 DEVICE

#### 22.1. R-SG3: MODBUS 4X HOLDING REGISTERS TABLE (FUNCTION CODE 3)

ADDRESS (4x)	OFFSET ADDRESS (4x)	REGISTER	CHANNEL	DESCRIPTION	W/ R	ТҮРЕ
40001	0	MACHINE-ID	-	DEVICE IDENTIFICATIO N	RO	UNSIGNED 16
40002	1	FIRMWARE REVISION	-	FIRMWARE REVISION	RO	UNSIGNED 16
40003	2	MEASURE UNIT	_	Select the unit of measurement between: 0 = Kg 1=g 2=t 3=lb 4=l 5=N 6=bar 7=atm 8=other	RW	UNSIGNED 16
40004	3	UNIPOLAR	-	0 = compression and traction (Bipolar) 1 = Balance (Unipolar)	RW	UNSIGNED 16
40005	4	ANALOG OUTPUT TYPE (Only Model ZE-SG3, Z- SG3)	-	0 = Voltage, 1 = Current	RW	UNSIGNED 16





ADDRESS (4x)	OFFSET ADDRESS (4x)	REGISTER	CHANNEL	DESCRIPTION	W/ R	ТҮРЕ
40006	5	DIGITAL IN TYPE/ DIGITAL IN-OUT		(MSB) DIGITAL IN TYPE: Select the input digital 1/2 type BIT[8] 0 = digital input 1 acquires the tare 1 = Status of the digital input 1 is shown on Modbus BIT[9] 0 = digital input 2 acquires the tare 1 = Status of the digital input 2 is shown on Modbus BIT[9] 0 = DIDO1 CONFIGURE  (LSB) DIGITAL IN-OUT BIT[0] 0 = DIDO1 configured as Input 1 = DIDO1 configured as output BIT[1] 0 = DIDO2 configured as Input 1 = DIDO2 configured as output BIT[1] 0 = DIDO2 configured as output a configured as output bir[1] configured as output a configured as output bir[1] configured as output a configured as output	RW	UNSIGNED 16





ADDRESS (4x)	OFFSET ADDRESS (4x)	REGISTER	CHANNEL	DESCRIPTION	W/ R	TYPE
40007	6	CALIBRATION MODE	-	Set the calibration type mode: 0 = Factory calibration 1 = Calibration with standard weight	RW	UNSIGNED 16
40008	7			RESERVED MSW	RW	UNSIGNED
40009	8	RESERVED	-	RESERVER LSW	RW	32
40010	9			RESERVED MSW	RW	UNSIGNED
40011	10	RESERVED	-	RESERVER LSW	RW	32
40012	11			RESERVED MSW	RW	UNSIGNED
40013	12	RESERVED	-	RESERVER LSW	RW	32
40014	13	CELL SENSE RATIO		Load cell sensitivity value in [mV/V] MSW	RW	FLOATING POINT 32
40015	14	[mV/V]	-	Load cell sensitivity value in [mV/V] LSW	RW	BIT
40016	15	CELL FULL SCALE [kg/g/t]	-	Full scale value of the load cell in technical units [kg/g/t] MSW	RW	FLOATING POINT 32 BIT
40017	16			Full scale value of the load cell	RW	



ADDRESS (4x)	OFFSET ADDRESS (4x)	REGISTER	CHANNEL	DESCRIPTION	W/ R	ТҮРЕ
				in technical units [kg/g/t] LSW		
40018	17	STANDARD WEIGHT CELL FLOAT [kg/g/t]	-	Standard weight value in technical units to use in calibration mode with sample weight [kg/g/t] MSW	RW	FLOATING POINT 32
40019	18			Standard weight value in technical units to use in calibration mode with sample weight [kg/g/t] LSW	RW	BIT
40020	19	THRESHOLD DO1 [kg/g/t]	-	Alarm threshold value in technical units for digital output 1 [kg/g/t] MSW	RW	FLOATING POINT 32
40021	20			Alarm threshold value in technical units for digital output 1 [kg/g/t] LSW	RW	BIT
40022	21	OUTPUT WEIGHT START  SCALE  [kg/g/t]  (Only for model ZE-SG3,  Z-SG3)	_	Initial scale value of the net weight for the analog output [kg/g/t] MSW	RW	FLOATING POINT 32 BIT
40023	22			Initial scale value of the net weight for the analog	RW	





ADDRESS (4x)	OFFSET ADDRESS (4x)	REGISTER	CHANNEL	DESCRIPTION	W/ R	TYPE
				output [kg/g/t] LSW		
40024	23	OUTPUT WEIGHT STOP SCALE [kg/g/t]	_	Full scale value of the net weight for the analog output [kg/g/t] MSW	RW	FLOATING POINT 32
40025	24	(Only for model ZE-SG3, Z-SG3)		Full scale value of the net weight for the analog output [kg/g/t] LSW	RW	BIT
40026	25	OUTPUT STOP SCALE [V/mA] (Only for model ZE-SG3, Z-SG3)		Full scale value of the analog output in [V/mA] MSW	RW	FLOATING
40027	26			Full scale value of the analog output in [V/mA] LSW	RW	POINT 32 BIT
40028	27	OUTPUT START SCALE [V/mA]	_	Initial scale value of the analog output in [V/mA] MSW	RW	FLOATING POINT 32
40029	28	(Only for model ZE-SG3, Z-SG3)		Initial scale value of the analog output in [V/mA] LSW	RW	BIT
40030	29	DELTA WEIGHT [kg/g/t]	-	Delta weight value in technical units for stable weighing condition [kg/g/t] MSW	RW	FLOATING POINT 32 BIT
40031	30			Delta weight value in technical units for stable weighing	RW	



ADDRESS (4x)	OFFSET ADDRESS (4x)	REGISTER	CHANNEL	DESCRIPTION	W/ R	ТҮРЕ
				condition [kg/g/t] LSW		
40032	31	DELTA TIME [*100 ms]	-	Value of the delta time in 100ms quantities for the stable weighing condition	RW	UNSIGNED 16 BIT
40033	32	DOUT MODE	1-2	BIT[0] 0 = DOUT1 NORMALLY OPEN 1 = DOUT1 NORMALLY CLOSE  BIT[1] 0 = DOUT2 NORMALLY OPEN 1 = DOUT2 NORMALLY CLOSE BIT[27] NOT USED  BIT[811] 0 = DOUT1 MODE FULL SCALE 1 = DOUT1 MODE OVERTHRESH OLD 2 = DOUT1 STABLE WEIGHT 3 = DOUT1 FROM MODBUS 4 = DOUT1 OVERTHRESH OLD WITH HYSTERESIS	RW	UNSIGNED 16 BIT





ADDRESS (4x)	OFFSET ADDRESS (4x)	REGISTER	CHANNEL	DESCRIPTION	W/ R	ТҮРЕ
				BIT[1215]  0 = DOUT2  MODE FULL  SCALE  1 = DOUT2  MODE  OVERTHRESH  OLD  2 = DOUT2  STABLE  WEIGHT  3 = DOUT2  FROM  MODBUS  4 = DOUT2  OVERTHRESH  OLD  UNITH  HYSTERESIS		
40034	33	ADVANCED ADC SPEED	-	Configure the sampling rate of the ADC. It is active only if you set the filtering at level 7 (advanced). 0 = 960 Hz 1 = 300 Hz 2 = 150 Hz 3 = 100 Hz 4 = 60 Hz 5 = 12 Hz 6 = 4.7 Hz	RW	UNSIGNED 16 BIT
40035	34	AUTOMATIC TARE RESET	-	0 = Disable the tare tracker  If >= 1 it is the value of ADC points within which the tare automatically will be reset.  If after 5 seconds of stable weighing	RW	UNSIGNED 32



ADDRESS (4x)	OFFSET ADDRESS (4x)	REGISTER	CHANNEL	DESCRIPTION	W/ R	ТҮРЕ
	·			condition the ADC value of the net weight deviates by less than this value then a new tare is acquired ADC POINTS MSW		
40036	35		-	ADC POINTS LSW	RW	
40037	36	THRESHOLD HYSTERESIS  DO 1 [kg/g/t]	-	Hysteresis value for digital output 1 threshold MSW	RW	FLOATING POINT 32
40038	37		-	Hysteresis value for digital output 1 threshold LSW	RW	BIT
40039	38	ADVANCED DENOISE FILTER VARIATION	-	It represents the change in ADC points due to noise alone. It is active only if you set the filtering at level 7 (advanced). ADC VALUE MSW	RW	FLOATING POINT 32 BIT
40040	39		-	ADC VALUE LSW	RW	
40041	40	ADVANCED DENOISE FILTER RESPONSE	-	Represents a parameter related to the response speed of the filter, it can vary from 0.001	RW	FLOATING POINT 32 BIT



ADDRESS (4x)	OFFSET ADDRESS (4x)	REGISTER	CHANNEL	DESCRIPTION	W/ R	ТҮРЕ
				(Slowest Response) to 1 (Fast Response). It is active only if you set the filtering at level 7 (advanced). RESPONSE SPEED MSW		
40042	41		-	RESPONSE SPEED LSW	RW	
40043	42	DENOISE FILTER VALUE	-	It is possible to configure a pre-established filter level The higher the filter level is, plus the weight measurement will be stable but slow. A value other than 7 will override the advanced parameters. In the "Advanced" mode it will be possible to act on the individual parameters of the ADVANCED NOISE FILTER VARIATION, ADVANCED NOISE FILTER RESPONSE,	RW	UNSIGNED 16 BIT





ADDRESS (4x)	OFFSET ADDRESS (4x)	REGISTER	CHANNEL	DESCRIPTION	W/ R	ТҮРЕ
				ADVANCED ADC SPEED  0 = FILTER RESPONSE TIME 2 ms 1 = FILTER RESPONSE TIME 6,7 ms 2 = FILTER RESPONSE TIME 13 ms 3 = FILTER RESPONSE TIME 30 ms 4 = FILTER RESPONSE TIME 50 ms 5 = FILTER RESPONSE TIME 50 ms 6 = FILTER RESPONSE TIME 250 ms 6 = FILTER RESPONSE TIME 250 ms 6 = FILTER RESPONSE TIME 250 ms 6 = FILTER RESPONSE TIME 850 ms 7 = ADVANCED		
40044	43	RESOLUTION MODE	-	Select the type of resolution to be used in the Weight measurement:  0 = Automatic Resolution (calculated on the basis of the full scale to obtain about 20000 points)  1 = Manual resolution (Taken from MANUAL RESOLUTION register)	RW	UNSIGNED 16 BIT



ADDRESS (4x)	OFFSET ADDRESS (4x)	REGISTER	CHANNEL	DESCRIPTION	W/ R	TYPE
				2 = Max resolution (Full 24 bits resolution)		
40045	44	DENOISE FILTER ENABLE	-	0 = Noise filter disabled (advanced mode enabled) 1 = Noise filter enabled	RW	UNSIGNED 16 BIT
40046	45	MANUAL RESOLUTION [kg/g/t]	-	Sets the manual resolution with which the weight measure is displayed in technical units [kg/g/t]	RW	FLOATING POINT 32
40047	46		-	Sets the manual resolution with which the weight measure is displayed in technical units [kg/g/t] LSW	RW	BIT
40048	47	ONE PIECE WEIGHT [kg/g/t]	-	Sets the weight of a single piece (used for pieces counter) MSW	RW	FLOATING
40049	48		-	Sets the weight of a single piece (used for pieces counter) LSW	RW	POINT 32 BIT
40050	49	THRESHOLD DO2 [kg/g/t]	-	Alarm threshold value in	RW	FLOATING POINT 32 BIT



ADDRESS (4x)	OFFSET ADDRESS (4x)	REGISTER	CHANNEL	DESCRIPTION	W/ R	TYPE
	, ,			technical units for digital output 2 [kg/g/t] MSW		
40051	50		-	Alarm threshold value in technical units for digital output 2 [kg/g/t] LSW	RW	
40052	51	THRESHOLD HYSTERESIS  DO 2 [kg/g/t]	-	Hysteresis value for digital output 1 threshold MSW	RW	FLOATING
40053	52		-	Hysteresis value for digital output 1 threshold LSW	RW	POINT 32 BIT
40061	60	RESERVED		Reserved	RO	FLOATING POINT 32
40062	61	RESERVED	-	Reserved	RO	BIT
40063	62	16 BIT ADC FILTERED	-	ADC Converted in 16 Bit filtered value	RO	UNSIGNED 16 BIT
40064	63	NET WEIGHT VALUE		Net weight in technical units MSW	RO	FLOATING
40065	64	[Kg/g/t]	-	Net weight in technical units LSW	RO	POINT 32 BIT
40066	65	GROSS WEIGHT VALUE		Gross weight in technical units MSW	RO	FLOATING
40067	66	[Kg/g/t]	-	Gross weight in technical units LSW	RO	POINT 32 BIT
40068	67	TARE WEIGHT VALUE [kg/g/t]	-	Tare weight in technical units MSW	RO	FLOATING POINT 32 BIT





ADDRESS (4x)	OFFSET ADDRESS (4x)	REGISTER	CHANNEL	DESCRIPTION	W/ R	ТҮРЕ
40069	68		-	Tare weight in technical units LSW	RO	
40070	69	INTEGER NET WEIGHT VALUE [kg/g/t]	-	Net weight in technical units MSW	RO	SIGNED 32
40071	70		-	Net weight in technical units LSW	RO	BIT
40072	71	INTEGER GROSS WEIGHT VALUE [kg/g/t]	-	Gross weight in technical units MSW	RO	SIGNED 32
40073	72		-	Gross weight in technical units LSW	RO	BIT
40074	73	INTEGER TARE	-	Tare weight in technical units MSW	RO	SIGNED 32
40075	74	WEIGHT VALUE [kg/g/t]	-	Tare weight in technical units LSW	RO	BIT
40076	75	FACTORY MANUAL TARE	-	Value to use for the manual tare in the factory mode calibration (MSW)	RW	FLOATING POINT 32
40077	76	[kg/g/t]	-	Value to use for the manual tare in the factory mode calibration (LSW)	RW	BIT

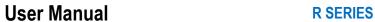




ADDRESS (4x)	OFFSET ADDRESS (4x)	REGISTER	CHANNEL	DESCRIPTION	W/ R	ТҮРЕ
40078	77	STATUS		Status register: BIT 0 LSBIT (RO) Bit 0 = 1 THRESHOLD AND STABLE WEIGHT for DIDO 1 BIT 1 (RO) Bit 1 = 1 FULL SCALE CELL BIT 2 (RO) Bit 2 = 1 NET WEIGHT < 0 BIT 3 (RO) Bit 3 = 1 THRESHOLD AND STABLE WEIGHT for DIDO 2 BIT 4 (RO) Bit 4 = 1 Stable weight BIT 5-6 (R/W) Only if the output mode commandable from modbus has been chosen: Bit 5 = 1 digital output 2 on Bit 5 = 0 digital output 2 off Bit 6 = 1 digital output 1 on Bit 6 = 0 digital output 1 on Bit 6 = 0 digital output 1 off BIT 7 (RO) Bit 7 = 1 Threshold with hysteresis for DIDO 1 BIT 8 (RO) Bit 8 = 1 tare	RW	UNSIGNED 16 BIT



ADDRESS (4x)	OFFSET ADDRESS (4x)	REGISTER	CHANNEL	DESCRIPTION	W/ R	ТҮРЕ
	( 9			tracker (if enabled) BIT 9 (RO) Bit 9 = 1 Threshold with hysteresis for DIDO 2 BIT 1015 Not used		
40079	78	PASSWORD	-	Reserved	RW	UNSIGNED 16 BIT
40080	79	COMMAND REGISTER	-	Command register once the command has been executed, the register returns to the value 0  43948 (decimal) Reboot the device  49594 (decimal) Acquires the	RW	UNSIGNED 16 BIT



ADDRESS (4x)	OFFSET ADDRESS (4x)	REGISTER	CHANNEL	DESCRIPTION	W/ R	TYPE
				tare in RAM (at reboot is lost)  49914 (decimal) Acquires the tare in Flash for the calibration procedure in both operating modes (factory calibration and with sample weight)  50700 (decimal) Acquires the sample weight value in Flash for calibration with standard weight		
				50773 (decimal) Acquires the tare value from the register MANUAL TARE (only for the factory calibration mode)  49151 (decimal)		

maximum net weight





ADDRESS (4x)	OFFSET ADDRESS (4x)	REGISTER	CHANNEL	DESCRIPTION	W/ R	ТҮРЕ
				45056 (decimal) Reset the register with the minimum net weight		
40081	80	PIECES NR	-	PIECES COUNTER VALUE	RO	UNSIGNED 16 BIT
40082	81	MAX NET	-	Maximum weight value net in technical units from last reboot [MSW]	RO	FLOATING POINT 32
40083	82	WEIGHT [Kg/g/t]	-	Maximum weight value net in technical units from last reboot [LSW]	RO	BIT
40084	83	MIN NET	-	Minimum weight value net in technical units from last reboot [MSW]	RO	FLOATING POINT 32
<b>40085</b> 84	WEIGHT [Kg/g/t]	-	Minimum weight value net in technical units from last reboot [LSW]	RO	BIT	
40086	85	RESERVED	-	Reserved	RO	UNSIGNED
40087	86	MEDELLAED	-	Reserved	RO	32 BIT

40095

94

ADDRESS (4x)	OFFSET ADDRESS (4x)	REGISTER	CHANNEL	DESCRIPTION	W/ R	ТҮРЕ	
40088	87		-	Reserved	RO	UNSIGNED	
40089	88	RESERVED	-	Reserved	RO	32 BIT	
40090	89		-	Reserved	RO	UNSIGNED	
40091	90	RESERVED	-	Reserved	RO	32 BIT	
40092	91	ADC DAW 24 DIT	-	ADC 24 bit value not filtered	RO	UNSIGNED	
40093	92	ADC RAW 24 BIT	-	ADC 24 bit value not filtered	RO	32 BIT	
40094	93	ADC RAW 24 BIT	-	ADC 24 bit value filtered	RO	UNSIGNED	
40095	94	FILTERED	_	ADC 24 bit	R∩	32 BIT	

#### 23. MODBUS REGISTER TABLE FOR THE R-4AO-8DIDO PRODUCT

#### 23.1. R-4AO-8DIDO: MODBUS 4X HOLDING REGISTERS TABLE (FUNCTION CODE 3)

ADDRESS (4x)	OFFSET (4x)	REGISTER	CHANNEL	DESCRIPTION	W/R	ТҮРЕ
40001	0	MACHINE-ID	-	Device identification	RO	UNSIGNED 16 BIT
40002	1	FW REVISION (Maior/Minor)	-	Fw Revision	RO	UNSIGNED 16 BIT
40003	2	FW REVISION (Fix/Build)	-	Fw Revision	RO	UNSIGNED 16 BIT
40004	3	FW CODE	-	Fw Code	RO	UNSIGNED 16 BIT
40005	4	BOARD-ID	-	Hw Revision	RO	UNSIGNED 16 BIT
40006	5	MODBUS ID	-	-	RO	UNSIGNED 16 BIT
40007	6	BOOT REVISION (Maior/Minor)	-	Bootloader Revision	RO	UNSIGNED 16 BIT

RO

value filtered





ADDRESS (4x)	OFFSET (4x)	REGISTER	CHANNEL	DESCRIPTION	W/R	TYPE
40008	7	BOOT REVISION (Fix/Build)	-	Bootloader Revision	RO	UNSIGNED 16 BIT
40009	8	BOOTLOADER CODE	-	Bootloader Code	RO	UNSIGNED 16 BIT
40010	9	RESERVED	-	-	RO	UNSIGNED 16 BIT
40011	10	RESERVED	-	-	RO	UNSIGNED 16 BIT
40012	11	RESERVED	-	-	RO	UNSIGNED 16 BIT
40013	12	COMMAND_AUX _3H	-	Aux Command Register	RW	UNSIGNED 16 BIT
40014	13	COMMAND_AUX _3L	-	Aux Command Register	RW	UNSIGNED 16 BIT
40015	14	COMMAND_AUX 2	-	Aux Command Register	RW	UNSIGNED 16 BIT
40016	15	COMMAND_AUX 1	-	Aux Command Register	RW	UNSIGNED 16 BIT
40017	16	COMMAND	-	Aux Command Register  0xC1A0 = reset device  0x0100 = set factory  default  0x0101 = clear al counters	RW	UNSIGNED 16 BIT
40018	17	STATUS	-	Device Status	R	UNSIGNED 16 BIT
40019	18	RESERVED	-	-	RW	UNSIGNED 16 BIT
40020	19	RESERVED	-	-	RW	UNSIGNED 16 BIT
40021	20	ANALOG STATUS BIT	-	bit 0: under-scale AO1 bit 1: under-scale AO2 bit 2: under-scale AO3 bit 3: under-scale AO4 bit 4: over-scale AO1 bit 5: over-scale AO2 bit 6: over-scale AO3 bit 7: over-scale AO4 bit 8: fail watchdog AO1 bit 9: fail watchdog AO2 bit 10: fail watchdog AO3 bit 11: fail watchdog AO4 bit 1215: not used	R	UNSIGNED 16 BIT
40022	21	DIGITAL I/O	81	Digital IO Value [Channel 81]	RW	UNSIGNED 16 BIT





						I	
ADDRESS	OFFSET	REGISTER	CHANNEL	DESCRIPTION	W/R	TYPE	
(4x)	(4x)					UNSIGNED	
40023	22	RESERVED	-	-	RW	16 BIT	
40024	23	COUNTER	1	MSW	RW	UNSIGNED	
40025	24	COUNTER	1	LSW	RW	32 BIT	
40026	25	COUNTER	2	MSW	RW	UNSIGNED	
40027	26	COONTER		LSW	RW	32 BIT	
40028	27	COUNTER	3	MSW	RW	UNSIGNED	
40029	28	COONTER	J	LSW	RW	32 BIT	
40030	29	COUNTER	4	MSW	RW	UNSIGNED	
40031	30	COOMIEN	7	LSW	RW	32 BIT	
40032	31	COUNTER	5	MSW	RW	UNSIGNED	
40033	32	666111211		LSW	RW	32 BIT	
40034	33	COUNTER	6	MSW	RW	UNSIGNED	
40035	34	COOTTEN		LSW	RW	32 BIT	
40036	35	COUNTER	7	MSW	RW	UNSIGNED	
40037	36	COOMIEN	,	LSW	RW	32 BIT	
40038	37	COUNTER	8	MSW	RW	UNSIGNED	
40039	38	COOTTEN		LSW	RW	32 BIT	
40040	39	PERIOD [s]	1	MSW	R	FLOATING	
40041	40		1	LSW	R	POINT 32 BIT	
40042	41		2	MSW	R	FLOATING	
40043	42	PERIOD [s]		LSW	R	POINT 32 BIT	
40044	43			MSW	R	FLOATING	
40045	44	PERIOD [s]	3	LSW	R	POINT 32 BIT	
40046	45			MSW	R	FLOATING	
40047	46	PERIOD [s]	4	LSW	R	POINT 32 BIT	
40048	47			MSW	R	FLOATING	
40049	48	PERIOD [s]	5	LSW	R	POINT 32 BIT	
40050	49			MSW	R	FLOATING	
40051	50	PERIOD [s]	6	LSW	R	POINT 32 BIT	
40052	51			MSW	R	FLOATING	
40053	52	PERIOD [s]	7	LSW	R	POINT 32 BIT	
40054	53			MSW	R	FLOATING	
40055	54	PERIOD [s]	8	LSW	R	POINT 32 BIT	
40056	55			MSW	R	FLOATING	
40057	56	FREQUENCY [Hz]	1	LSW	R	POINT	
						32 BIT	





ADDRESS (4x)	OFFSET (4x)	REGISTER	CHANNEL	DESCRIPTION	W/R	TYPE	
40058	57			MSW	R	FLOATING	
40059	58	FREQUENCY [Hz]	2	LSW	R	POINT 32 BIT	
40060	59			MSW	R	FLOATING	
40061	60	FREQUENCY [Hz]	3	LSW	R	POINT 32 BIT	
40062	61			MSW	R	FLOATING	
40063	62	FREQUENCY [Hz]	4	LSW	R	POINT 32 BIT	
40064	63			MSW	R	FLOATING	
40065	64	FREQUENCY [Hz]	5	LSW	R	POINT 32 BIT	
40066	65			MSW	R	FLOATING	
40067	66	FREQUENCY [Hz]	6	LSW	R	POINT 32 BIT	
40068	67		_	MSW	R	FLOATING	
40069	68	FREQUENCY [Hz]	7	LSW	R	POINT 32 BIT	
40070	69		_	MSW	R	FLOATING	
40071	70	FREQUENCY [Hz]	8	LSW	R	POINT 32 BIT	
40072	71	ANALOG OUTPUT ENG (SCALED)	1	ENG. SCALED FLOAT ANALOG OUTPUT VALUE	R/W	FLOATING POINT	
40073	72	VALUE FLOAT		(default mV/uA)	,	32 BIT	
40074	73	ANALOG OUTPUT ENG (SCALED)	2	ENG. SCALED FLOAT ANALOG OUTPUT VALUE	E R/W	FLOATING POINT	
40075	74	VALUE FLOAT		(default mV/uA)	,	32 BIT	
40076	75	ANALOG OUTPUT ENG (SCALED)	3	ENG. SCALED FLOAT ANALOG OUTPUT VALUE	R/W	FLOATING POINT	
40077	76	VALUE FLOAT		(default mV/uA)	,	32 BIT	
40078	77	ANALOG OUTPUT ENG (SCALED)	4	ENG. SCALED FLOAT ANALOG OUTPUT VALUE	R/W	FLOATING POINT	
40079	78	VALUE FLOAT		(default mV/uA)	1,700	32 BIT	
40080	79	ANALOG OUTPUT ENG (SCALED) VALUE INTEGER	1	ENG. SCALED INTEGER  1 ANALOG OUTPUT VALUE (default mV/uA)		SIGNED INTEGER 16 BIT	
40081	80	ANALOG OUTPUT ENG (SCALED) VALUE INTEGER	2	ENG. SCALED INTEGER ANALOG OUTPUT VALUE (default mV/uA)	R/W	SIGNED INTEGER 16 BIT	
40082	81	ANALOG OUTPUT ENG (SCALED) VALUE INTEGER	3	ENG. SCALED INTEGER ANALOG OUTPUT VALUE (default mV/uA)	R/W	SIGNED INTEGER 16 BIT	



ADDRESS (4x)	OFFSET (4x)	REGISTER	CHANNEL	DESCRIPTION	W/R	TYPE
		ANALOG OUTPUT		ENG. SCALED INTEGER		SIGNED
40083	82	ENG (SCALED)	4	ANALOG OUTPUT VALUE	R/W	INTEGER 16
		VALUE INTEGER		(default mV/uA)		BIT

#### 23.2. R-4AO-8DIDO: TABLE OF MODBUS REGISTERS 0x COIL STATUS (FUNCTION CODE 1)

ADDRESS (0x)	OFFSET ADDRESS (0x)	REGISTER	CHANNEL	DESCRIPTION	W/R	TYPE
1	0	DIGITAL INPUT/OUTPUT	1	DIGITAL INPUT/OUTPUT	RW	BIT
2	1	DIGITAL INPUT/OUTPUT	2	DIGITAL INPUT/OUTPUT	RW	BIT
3	2	DIGITAL INPUT/OUTPUT	3	DIGITAL INPUT/OUTPUT	RW	BIT
4	3	DIGITAL INPUT/OUTPUT	4	DIGITAL INPUT/OUTPUT	RW	BIT
5	4	DIGITAL INPUT/OUTPUT	5	DIGITAL INPUT/OUTPUT	RW	BIT
6	5	DIGITAL INPUT/OUTPUT	6	DIGITAL INPUT/OUTPUT	RW	BIT
7	6	DIGITAL INPUT/OUTPUT	7	DIGITAL INPUT/OUTPUT	RW	BIT
8	7	DIGITAL INPUT/OUTPUT	8	DIGITAL INPUT/OUTPUT	RW	BIT

#### 23.3. R-4AO-8DIDO: TABLE OF MODBUS REGISTERS 1x INPUT STATUS (FUNCTION CODE 2)

ADDRESS (1x)	OFFSET ADDRESS (1x)	REGISTER	CHANNEL	DESCRIPTION	W/R	TYPE
10001	0	DIGITAL INPUT	1	DIGITAL INPUT/OUTPUT	RO	BIT
10002	1	DIGITAL INPUT	2	DIGITAL INPUT/OUTPUT	RO	BIT
10003	2	DIGITAL INPUT	3	DIGITAL INPUT/OUTPUT	RO	BIT
10004	3	DIGITAL INPUT	4	DIGITAL INPUT/OUTPUT	RO	BIT
10005	4	DIGITAL INPUT	5	DIGITAL INPUT/OUTPUT	RO	BIT
10006	5	DIGITAL INPUT	6	DIGITAL INPUT/OUTPUT	RO	BIT
10007	6	DIGITAL INPUT	7	DIGITAL INPUT/OUTPUT	RO	BIT



10008	7	DIGITAL INPUT	8	DIGITAL INPUT/OUTPUT	RO	BIT	
		INPUT		INPUT/OUTPUT			

#### 24. MODBUS REGISTER TABLE FOR THE R-4RTD-8DIDO PRODUCT

#### 24.1. R-4RTD-8DIDO: MODBUS 4X HOLDING REGISTERS TABLE (FUNCTION CODE 3)

ADDRESS (4x)	OFFSET (4x)	REGISTER	CHANNEL	DESCRIPTION	W/R	TYPE
40001	0	MACHINE-ID	-	Device identification	RO	UNSIGNED 16 BIT
40002	1	FW REVISION (Maior/Minor)	-	Fw Revision	RO	UNSIGNED 16 BIT
40003	2	FW REVISION (Fix/Build)	-	- Fw Revision		UNSIGNED 16 BIT
40004	3	FW CODE	-	Fw Code	RO	UNSIGNED 16 BIT
40005	4	BOARD-ID	-	Hw Revision	RO	UNSIGNED 16 BIT
40006	5	MODBUS ID	-	-	RO	UNSIGNED 16 BIT
40007	6	BOOT REVISION (Maior/Minor)	-	Bootloader Revision	RO	UNSIGNED 16 BIT
40008	7	BOOT REVISION (Fix/Build)	-	Bootloader Revision	RO	UNSIGNED 16 BIT
40009	8	BOOTLOADER CODE	-	Bootloader Code	RO	UNSIGNED 16 BIT
40010	9	RESERVED	-	-	RO	UNSIGNED 16 BIT
40011	10	RESERVED	-	-	RO	UNSIGNED 16 BIT
40012	11	RESERVED	-	-	RO	UNSIGNED 16 BIT
40013	12	COMMAND	-	Command Register  0xC1A0 = reset device  0x0100 = set factory  default	RW	UNSIGNED 16 BIT
40014 40029	1339	RESERVED	-	-	RO	UNSIGNED 16 BIT
40030	29	STATUS	-	bit 0 : OVERRANGE RTD1 bit 1 : OVERRANGE RTD2 bit 2 : OVERRANGE RTD3 bit 3 : OVERRANGE RTD4 bit 4 : BURN RTD1	RO	UNSIGNED 16 BIT



ADDRESS (4x)	OFFSET (4x)	REGISTER	CHANNEL	DESCRIPTION	W/R	ТҮРЕ	
				bit 5 : BURN RTD2 bit 6 : BURN RTD3 bit 7 : BURN RTD4 bit 15 : FAIL			
40031	30	DIGITAL OUTPUT	18	bit 0 = OUTPUT 1 bit 1 = OUTPUT 2 bit 7= OUTPUT 8	RW	UNSIGNED 16 BIT	
40032	31	DIGITAL INPUT	18	bit 0 = INPUT 1 bit 1 = INPUT 2 bit 7= INPUT 8	RO	UNSIGNED 16 BIT	
40033	32	CHANNEL		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	MSW		
	32	TEMPERATURE	1	TEMPERATURE	RO LSW	FLOAT 32 BIT	
40034	4 33	FLOAT			RO	ыі	
40035	34	CHANNEL			MSW		
		TEMPERATURE	2	TEMPERATURE	RO LSW	FLOAT 32 BIT	
40036	35	FLOAT			RO		
40037	36	CHANNEL TEMPERATURE			MSW	51.047.00	
10007			3	TEMPERATURE	RO LSW	FLOAT 32 BIT	
40038	37	FLOAT			RO	DII	
40039	38	CHANNEL			MSW		
10033	30	TEMPERATURE	4	TEMPERATURE	RO	FLOAT 32	
40040	39	FLOAT			LSW RO	BIT	
40041	32	CHANNEL			MSW		
40041	32	RESITANCE	1	RESISTANCE	RO	FLOAT 32	
40042	33	FLOAT			LSW RO	BIT	
40042	24	CHANNEL			MSW		
40043	34	CHANNEL RESITANCE	2	RESISTANCE	RO	FLOAT 32	
40044	35	FLOAT	_		LSW RO	BIT	
					MSW		
40045	36	CHANNEL RESITANCE	3	RESISTANCE	RO	FLOAT 32	
40046	37	FLOAT	3	NESISTANCE	LSW	BIT	
					RO MSW		
40047	38	CHANNEL		DECICTANCE	RO	FLOAT 32	
40048	39	RESITANCE FLOAT	4	RESISTANCE	LSW	BIT	
10010					RO	FLOAT 22	
40049	48	CHANNEL ENG. VALUE FLOAT	1	RESISTANCE	MSW RO	FLOAT 32 BIT	





ADDRESS (4x)	OFFSET (4x)	REGISTER	CHANNEL	DESCRIPTION	W/R	TYPE	
40050	49				LSW RO		
40051	50	CHANNEL ENG.	2	DESISTANCE	MSW RO	FLOAT 32	
40052	51	VALUE FLOAT	2	RESISTANCE	LSW RO	BIT	
40053	52	CHANNEL ENG.	3	RESISTANCE	MSW RO	FLOAT 32	
40054	53	VALUE FLOAT	3	RESISTANCE	LSW RO	BIT	
40055	54	CHANNEL ENG.	4	RESISTANCE	MSW RO	FLOAT 32	
40056	55	VALUE FLOAT	4	RESISTANCE	LSW RO	BIT	
40057	56	CHANNEL TEMPERATURE INT	1	TEMPERATURE	RO	SIGNED 16 BIT	
40058	57	CHANNEL TEMPERATURE INT	2	TEMPERATURE	RO	SIGNED 16 BIT	
40059	58	CHANNEL TEMPERATURE INT	3	TEMPERATURE	RO	SIGNED 16 BIT	
40060	59	CHANNEL TEMPERATURE INT	4	TEMPERATURE	RO	SIGNED 16 BIT	
40061	60	ADC RAW	1	ADC RAW VALUE		UNSIGNED 16 BIT	
40062	61	ADC RAW	2	ADC RAW VALUE	RO	UNSIGNED 16 BIT	
40063	62	ADC RAW	3	ADC RAW VALUE	RO	UNSIGNED 16 BIT	
40064	63	ADC RAW	4	ADC RAW VALUE	RO	UNSIGNED 16 BIT	
41847	1846	COUNTER	1	DIGITAL INPUT COUNTER MSW	RW	UNSIGNED	
41848	1847	COUNTER	1	DIGITAL INPUT COUNTER LSW	RW	32 BIT	
41849	1848	COUNTER	2	DIGITAL INPUT COUNTER MSW	RW	UNSIGNED	
41850	1849	COONTEN		DIGITAL INPUT COUNTER LSW	RW	32 BIT	
41851	1850	COUNTER	3	DIGITAL INPUT COUNTER MSW	RW	UNSIGNED 32 BIT	
41852	1851			DIGITAL INPUT COUNTER LSW	RW		



ADDRESS (4x)	OFFSET (4x)	REGISTER	CHANNEL	DESCRIPTION	W/R	ТҮРЕ	
41853	1852	COUNTER	4	DIGITAL INPUT COUNTER MSW	RW UNSIGNED 32 BIT		
41854	1853			DIGITAL INPUT COUNTER LSW	RW		
41855	1854	COLINITED	-	DIGITAL INPUT COUNTER MSW	RW	UNSIGNED	
41856	1855	COUNTER	5	DIGITAL INPUT COUNTER LSW	RW	32 BIT	
41857	1856	COUNTER	6	DIGITAL INPUT COUNTER MSW	RW	UNSIGNED	
41858	1857	COUNTER	0	DIGITAL INPUT COUNTER LSW	RW	32 BIT	
41859	1858	COUNTER 7		DIGITAL INPUT COUNTER MSW	RW	UNSIGNED 32 BIT	
41860	1859			DIGITAL INPUT COUNTER LSW	RW		
41861	1860	COUNTER	8	DIGITAL INPUT COUNTER MSW	RW	UNSIGNED 32 BIT	
41862	1861			DIGITAL INPUT COUNTER LSW	RW		

#### 24.2. R-4RTD-8DIDO: TABLE OF MODBUS REGISTERS 0x COIL STATUS (FUNCTION CODE 1)

ADDRESS (0x)	OFFSET ADDRESS (0x)	REGISTER	CHANNEL	DESCRIPTION	W/R	TYPE
1	0	DIGITAL INPUT/OUTPUT	1	DIGITAL INPUT/OUTPUT	RW	BIT
2	1	DIGITAL INPUT/OUTPUT	2	DIGITAL INPUT/OUTPUT	RW	BIT
3	2	DIGITAL INPUT/OUTPUT	3	DIGITAL INPUT/OUTPUT	RW	BIT
4	3	DIGITAL INPUT/OUTPUT	4	DIGITAL INPUT/OUTPUT	RW	BIT
5	4	DIGITAL INPUT/OUTPUT	5	DIGITAL INPUT/OUTPUT	RW	BIT
6	5	DIGITAL INPUT/OUTPUT	6	DIGITAL INPUT/OUTPUT	RW	BIT
7	6	DIGITAL INPUT/OUTPUT	7	DIGITAL INPUT/OUTPUT	RW	BIT
8	7	DIGITAL INPUT/OUTPUT	8	DIGITAL INPUT/OUTPUT	RW	BIT

#### 24.3. R-4RTD-8DIDO: TABLE OF MODBUS REGISTERS 1x INPUT STATUS (FUNCTION CODE 2)

ADDRESS (1x)	OFFSET ADDRESS (1x)	REGISTER	CHANNEL	DESCRIPTION	W/R	TYPE
10001	0	DIGITAL	1	DIGITAL	RO	BIT
		INPUT		INPUT/OUTPUT		
10002	1	DIGITAL	2	DIGITAL	RO	BIT
10002		INPUT		INPUT/OUTPUT		
10003	2	DIGITAL	2	DIGITAL	RO	BIT
10003	2	INPUT	3	INPUT/OUTPUT		
10004	3	DIGITAL	4	DIGITAL	RO	BIT
10004		INPUT		INPUT/OUTPUT		
10005	4	DIGITAL	5	DIGITAL	RO	BIT
10005		INPUT		INPUT/OUTPUT		
10000	-	DIGITAL		DIGITAL	RO	D.T.
10006	5	INPUT	6	INPUT/OUTPUT		BIT
10007	6	DIGITAL	7	DIGITAL	RO	BIT
10007		INPUT		INPUT/OUTPUT		
10008	7	DIGITAL		DIGITAL	RO	BIT
		INPUT	8	INPUT/OUTPUT		

#### 25. R-SG3: LOAD CELL CALIBRATION THROUGH MODBUS REGISTERS

It is not always possible to use the Web server to calibrate the load cell, for example if a PLC or an HMI is to be used.

It is also possible to implement the calibration of a load cell in a simple way by sending Modbus RTU / TCP-IP commands according to the type of operation chosen.

# 25.1. CELL CALIBRATION PROCEDURE WITH FACTORY PARAMETERS AND WITH TARE ACQUIRED FROM THE FIELD

- 1) Place the tare on the load cell
- 2) Wait for the measurement to stabilize
- 3) Write the decimal value 49914 in the COMMAND REGISTER
- 4) The device saves the new tare value in flash and resets the COMMAND REGISTER value
- 5) The load cell is calibrated

## 25.2. CELL CALIBRATION PROCEDURE WITH FACTORY PARAMETERS AND MANUALLY ENTERED TARE

1) Write the tare value in technical units in the FACTORY MANUAL TARE registers

- 2) Write the decimal value 50773 in the COMMAND REGISTER
- 3) The device acquires the new flash tare value and resets the COMMAND REGISTER value
- 4) The load cell is calibrated

#### 25.3. PROCEDURE FOR CALIBRATION OF THE CELL WITH A STANDARD WEIGHT

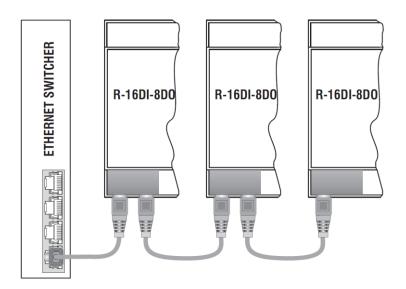
- 1) Place the tare on the load cell
- 2) Wait for the measurement to stabilize
- 3) Write the decimal value 49914 in the COMMAND REGISTER
- 4) The device saves the new tare value in flash and resets the COMMAND REGISTER value
- 5) Enter the weight value of the standard weight in technical units in the STANDARD WEIGHT VALUE registers
- 6) Place the standard weight on the load cell
- 7) Wait for the measurement to stabilize
- 8) Write the decimal value 50700 in the COMMAND REGISTER
- 9) The device saves the new standard weight value in flash and resets the COMMAND REGISTER value
- 10) The load cell is calibrated

#### 26. CABLE HARNESS FOR MODELS WITH DOUBLE ETHERNET PORT

Models with double Ethernet port can be connected in daisy chain and take advantage of the Lan Fault Bypass.

#### 26.1. CHAIN ETHERNET CONNECTION (DAISY CHAIN)

Using the daisy chain connection it is not necessary to use switches to connect the devices. An example (in this case on R-16DI-8DO) of connection of 3 devices is as follows:

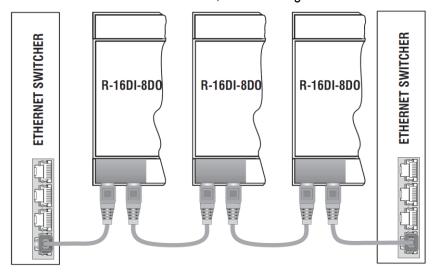






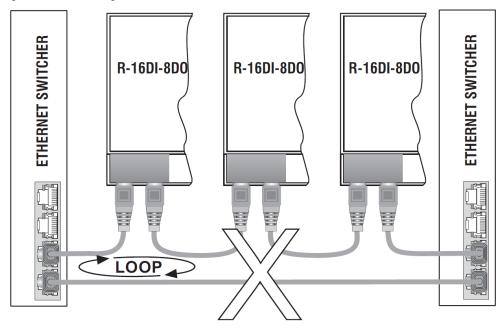
#### IT IS NOT POSSIBLE CREATE LOOPS WITH ETHERNET CABLES

If it is necessary to connect the devices to the switches, correct wiring is as follows:





In the Ethernet wiring there must be no loop, otherwise the communication will not work, some examples of incorrect wiring are the following:



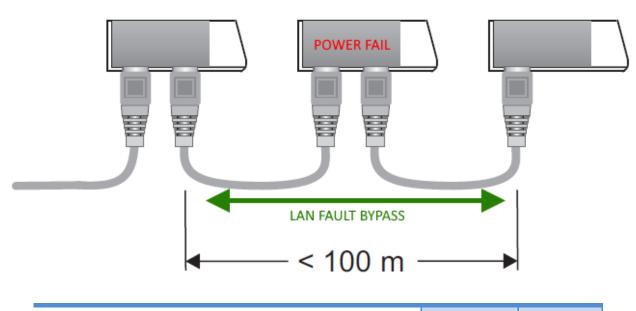
#### 26.2. LAN FAULT-BYPASS FUNCTION

The LAN fault-bypass function allows you to keep the connection between the two Ethernet ports of the device ON, in the event of power failure problems.

If a device turns off, the chain is not interrupted and the devices downstream of the switched-off one will still be accessible.

This function has a limited duration: the connection remains active for a few days, typically 4.

The Lan fault-bypass function requires that the sum of the lengths of the two cables connected to the switched off module is less than 100m.





# 27. SEARCH AND MODIFICATION OF THE DEVICE IP WITH THE SENECA DISCOVERY DEVICE TOOL

The search and modification of an IP of the device can be performed via the Seneca Discovery Device software

If Seneca devices that are not part of the R series are also used, it is more convenient to set the addresses with a single software.

When in the R series device the STS LED is on steady, it is possible to obtain the IP address which has been set using the "Seneca Discovery Device" tool too.

The software can be downloaded from:

#### https://www.seneca.it/en/linee-di-prodotto/software/easy/sdd

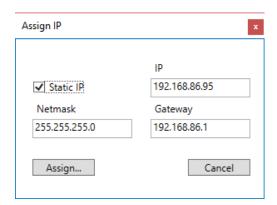
Pressing the "search" button starts the search for all Seneca devices present in the network even if with IP addresses not compatible with the current PC configuration:



It is now possible to change the address by pressing the "Assign" button:







The software works on layer 2 level and it is therefore not necessary to have an Ethernet configuration compatible with the device you are looking for.