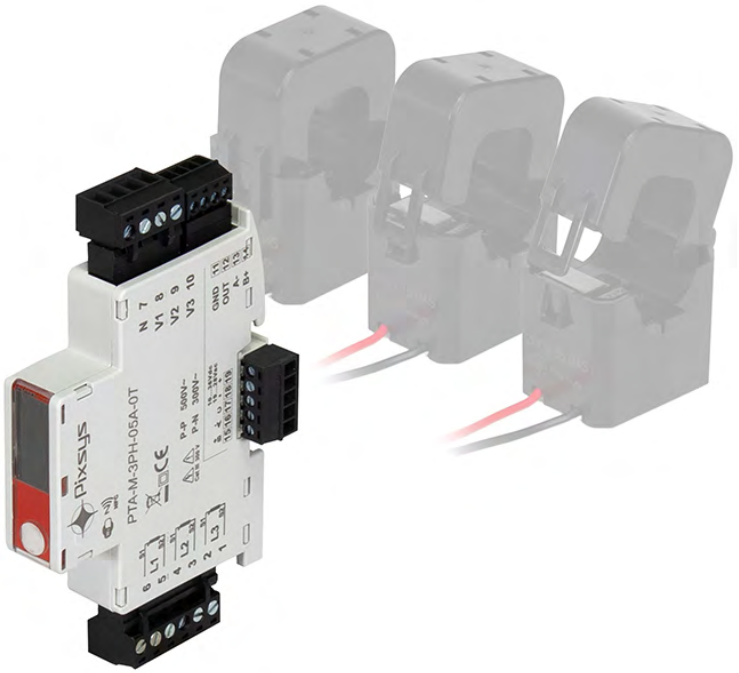
Pixsys®
ELECTRONICS

PTA-M-3PH-05A-OT

Three-phase network analyzer
Analizzatore di rete trifase



User manual / Manuale d'uso

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Introduction

The PTA-M-3PH-05A-OT is a three-phase network analyzer with power supply 10..40VDC or 19..28VAC, 160x80 pixel color graphic display, RS485 port, Wifi, NFC, pulse/alarm output.
Here below summarized the device's main characteristics:

- Equivalent to class 0.2S (kWh) of EN 62053-22
- Equivalent to class 0.2S (kVARh) of EN 62053-24
- Accuracy ±0.5% of reading (RDG)
- Bidirectional energy meter
- TRMS measurement of distorted waveforms (voltage/current)
- Calculation of neutral current
- One output (mosfet) for alarms or pulses
- Wi-Fi station and access point (Modbus TCP)
- RS485 serial output (Modbus RTU)
- NFC
- Logging via internal memory up to 1Mb
- 16-bit colour display, 160x80 pixels, with touch button
- Sampling rate: 6,400 samples @ 50 Hz
- Dimensions: 1 DIN module
- Full harmonic analysis (amplitudes and phases)
- Built-in integrator for Rogowski coils

1 Safety guidelines

Before using the device, please read the instructions and safety precautions contained in this manual carefully.
Disconnect the power supply before carrying out any work on electrical connections or hardware settings, in order to prevent the risk of electric shock, fire or malfunction.
Do not install or operate the device in environments containing flammable substances, gases or explosive materials.
This tool has been designed and manufactured for standard use in industrial environments and for applications requiring safety conditions that comply with national and international regulations on personal protection and workplace safety.
Any application that poses a serious risk to personal safety or involves life-saving medical devices must be avoided. The instrument is not designed or manufactured for installation in nuclear power stations, weaponry, air traffic control or flight safety systems, or mass transit systems.
The product must only be used and maintained by qualified personnel, and in strict accordance with the technical specifications set out in this manual.
Do not dismantle, modify or repair the product, nor touch any of its internal parts.
The instrument must be installed and used exclusively within the specified environmental conditions. Overheating may pose a fire hazard and reduce the service life of the electronic components.

1.1 Organization of safety notice

Safety notices in this manual are organized as follows:

Safety notice	Description
Danger!	Disregarding these safety guidelines and notices can be life-threatening.
Warning!	Disregarding these safety guidelines and notices can result in severe injury or substantial damage to property.
Information!	This information is important for preventing errors.

1.2 Safety Precautions

Warning!	Devices shall be supplied with limited energy according to UL 61010-1 3rd Ed, section 9.4 or LPS in conformance with UL 60950-1 or SELV in conformance with UL 60950-1 or Class 2 in compliance with UL 1310 or UL 1585.
Warning!	Loose screws may occasionally result in fire. For screw terminals, tighten screws to tightening torque is 0.22 Nm
Warning!	A malfunction in the Digital Controller may occasionally make control operations impossible or prevent alarm outputs, resulting in property damage. To maintain safety in the event of malfunction of the Digital Controller, take appropriate safety measures, such as installing a monitoring device on a separate line.

1.3 Precautions for safe use

Be sure to observe the following precautions to prevent operation failure, malfunction, or adverse affects on the performance and functions of the product. Not doing so may occasionally result in unexpected events. Do not handle the Digital Controller in ways that exceed the ratings.

• The product is designed for indoor use only. Do not use or store the product outdoors or in any of the following places.

- Places directly subject to heat radiated from heating equipment.
- Places subject to splashing liquid or oil atmosphere.
- Places subject to direct sunlight.
- Places subject to dust or corrosive gas (in particular, sulfide gas and ammonia gas).
- Places subject to intense temperature change.
- Places subject to icing and condensation.
- Places subject to vibration and large shocks.

• Installing two or more controllers in close proximity might lead to increased internal temperature and this might shorten the life cycle of electronic components. It is strongly recommended to install cooling fans or other air-conditioning devices inside the control cabinet.

• Always check the terminal names and polarity and be sure to wire properly. Do not wire the terminals that are not used.

• To avoid inductive noise, keep the controller wiring away from power cables that carry high voltages or large currents. Also, do not wire power lines together with or parallel to Digital Controller wiring. Using shielded cables and using separate conduits or ducts is recommended. Attach a surge suppressor or noise filter to peripheral devices that generate noise (in particular motors, transformers, solenoids, magnetic coils or other equipment that have an inductance component).

When a noise filter is used at the power supply, first check the voltage or current, and attach the noise filter as close as possible to the Digital Controller. Allow as much space as possible between the Digital Controller and devices that generate powerful high frequencies (high-frequency welders, high-frequency sewing machines, etc.) or surge.

• A switch or circuit breaker must be provided close to device. The switch or circuit breaker must be within easy reach of the operator, and must be marked as a disconnecting means for the controller.

• Wipe off any dirt from the Digital Controller with a soft dry cloth. Never use thinners, benzine, alcohol, or any cleaners that contain these or other organic solvents. Deformation or discoloration may occur.

• The number of non-volatile memory write operations is limited. Therefore, use EEprom write mode when frequently overwriting data, e.g.: through serial port communications.

1.4 Environmental policy / WEEE

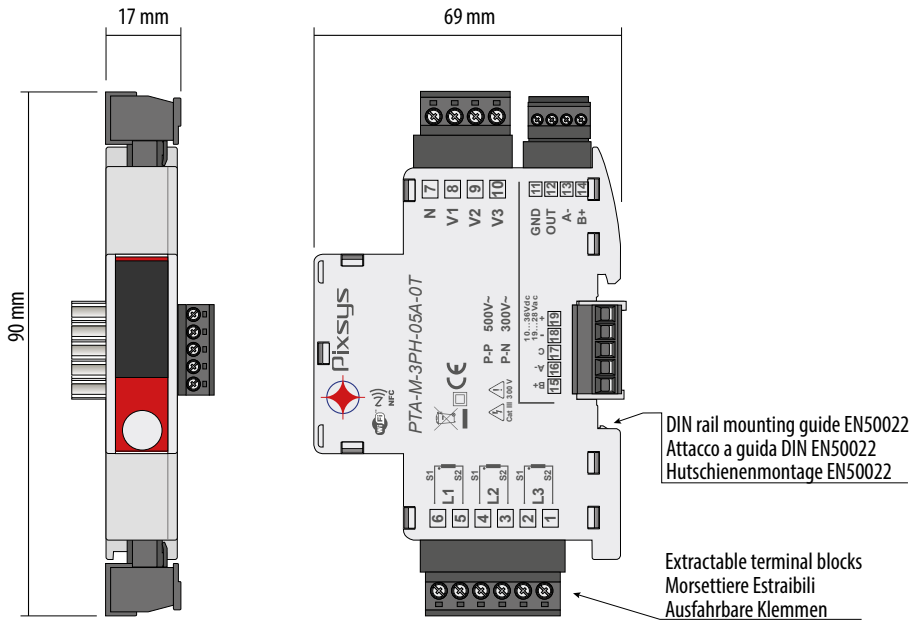
Do not dispose electric tools together with household waste material.

According to European Directive 2012/19/EU on waste electrical and electronic equipment and its implementation in accordance with national law, electric tools that have reached the end of their life must be collected separately and returned to an environmentally compatible recycling facility.

2 Model identification

PTA-M-3PH-05A-OT	NETWORK ANALYZER 3PH 1DIN MODBUS TCP ALIM.10..36VDC, TA 5A

3 Dimension and installation



4 Technical data

4.1 General characteristics

Type	Auxiliar low voltage supply
Power supply type	Single-phase from the red terminal
AC/DC voltage	10..40VDC / 19..28VAC
Consumption	< 1,5W
Operating conditions	-25°C..65°C, HR 10..90% non-condensing, < 2000m o.s.l.
Storage temperature	-40°C..+85°C
Connections	1x screw terminal block, 3.5 mm pitch, 4 poles 1x screw terminal block, 5 mm pitch, 4 poles 1x screw terminal block 5 mm pitch 6 poles 1x T-BUS terminal
Installation category	III
Insulation	4 kVRMS between power supply and measurement inputs 4 kVRMS between RS485 and measurement inputs 1,5 kVRMS between the power supply and RS485
Dimensions	90 x 69 x 17 mm
Material and Protection rating	PBT - IP20
Display	16 bit 160x80px colour display, with touch button
Configuration	via built-in webserver

4.2 Regulations

Electrostatic discharges (EN 61000-4-2)	8 kV in contact, 15 kV in air
Radiated immunity (EN 61000-4-3)	10 V/m
EFT fast transient immunity (EN 61000-4-4)	2 kV
Surge immunity (EN 61000-4-5)	2 kV on the power supply; 1 kV on the amperometric measurement inputs, RS485 and digital output
Immunity to conducted disturbances (EN 61000-4-6)	10 V
Conducted and radiated emissions (EN 55032)	Class B
Safety	EN 61010-1; EN 61010-2-030
Certifications	CE, UKCA

4.3 Input specifications

Rated voltage range L-N	85 - 265 Vac
Rated voltage range L-L	150 - 450 Vac
Operating frequency	DC / 1 - 65 Hz
Connection	with 5A CT
Starting current (Ist)	5 mA
Minimum current (In)	50 mA
Rated current (In)	5 AAC
Maximum current (IMAX)	6 AAC
Crest factor	< 4 (20 APK MAX)
Burden	< 1 VA per phase
Overload for 500 ms	40 AAC

4.4 Accuracy (in accordance to EN50470-3 and EN62053-24)

Accuracy (@25 ± 5°C; frequency = 50 Hz)		Refresh time
Frequency	± 0,008 Hz (45..65 Hz)	100ms
Voltage	± 0,2% rdg	Configurable from 1 to 65535 periods (from 20 ms to 21,8 minutes if frequency = 50Hz)
Current	± 0,3% rdg	
Active and apparent power (PF = 0.5L ..0.5C)	± 0,3% rdg (In o Vn from 5% to 100%)	
	± 0,4% rdg (In o Vn from 1% to 5%)	
Reactive power (sinφ = 0.5L .. 0.5C)	± 0,3% rdg (In o Vn from 5% to 100%)	
	± 0,4% rdg (In o Vn from 1% to 5%)	
Active power	class C according EN50470-1/3 class 0,5 S according EN62053-22	
Reactive energy (when measured, see below)	class 0,5 S according EN62053-24	
Power factor	± (0,001 +1%(1.00-PF))	
Bandwidth (-3dB)	> 2KHz	not applicable
Thermal drift	<100 ppm/°C	
THD	±0.3%	100ms
Harmonics	±3% amplitude up to the 16th harmonic ±5% amplitude from the 17th harmonic to the 63rd harmonic ±5° phase shift up to the 16th harmonic ±10° phase shift from the 17th harmonic to the 63rd harmonic	

Note: reactive power accuracy is guaranteed when the device is set to calculate Q with the Budeanu formula.

4.5 Measurements taken

Realtime measurements	VRMS LL and VRMS LN [V]; IRMS [A]; Active power P [W]; Reactive power Q [VAR]; Apparent power S [VA]; Cos φ; Tan φ; Crest factor; Frequency [Hz]; Internal temperature [°C]; Phase sequence; Wi-Fi RSSI;
Counters	Active Energy [Wh] (pos, neg, total), Reactive Energy [VARh] (pos, neg, total), Apparent Energy [Vah] (pos, neg, total), Installation time [h]
Average, maximum and minimum values	Average, maximum and minimum VRMS LL; average, maximum and minimum VRMS LN; average, maximum and minimum IRMS; average, maximum and minimum active power P; average, maximum and minimum reactive power Q; average, maximum and minimum apparent power S; average, maximum and minimum cos φ; Average, maximum and minimum crest factor; Average, maximum and minimum frequency; VLL voltage peaks; VLN voltage peaks; I current peaks; MAX demand; Configurable moving average for P, P_ Plus, P_neg, Q_plus_ind, Q_plus_cap, Q_neg_ind, Q_neg_cap;

4.6 RS485 port

Protocol	Modbus RTU
Number of addresses	Up to 247 (**Default** 1)
Baudrate	From 1200 to 115200 Baud (**Default** 9600)
Configuration parameters	Address Baudrate Parity Stop bit
Connection	Via T-BUS or via 4-poles terminal block 3.5mm pitch

4.7 Wifi port

Protocol	Modbus TCP HTTP MQTT
Number of clients	Up to 10
Frequency	2.4 Ghz 802.11 b/g/n
Associated features	Webserver Firmware update Communication Logging
Configuration parameters	IP address Subnet mask Gateway address TCP port DHCP MQTT

4.8 Digital output

Use	Alarm or pulses/kWh
Number	1
Type	Solid state
Rating	< 40V, < 100mA
Connection	Via 4 poles terminale block 3.5 mm pitch

4.9 Software features

Type of measure	TRMS
Sampling time	6400 sample/s @ 50 Hz; 7280 sample/s @ 60 Hz
Update to the measure	programmable via software; default: every 50 cycles (AC); maximum 65,535 cycles
Transformation ratios	**Default** TA and TV: 1.0; can be set via software
Delays in processing	0,0° @ 50 Hz default; can be set via software
Minimum display threshold	Adjustable for voltage, current and power
Battery duration	min 4 years

5 Graphic display



Short press of the button:
scroll through energy data pages

Long press:
configure Wi-Fi settings, password, etc.

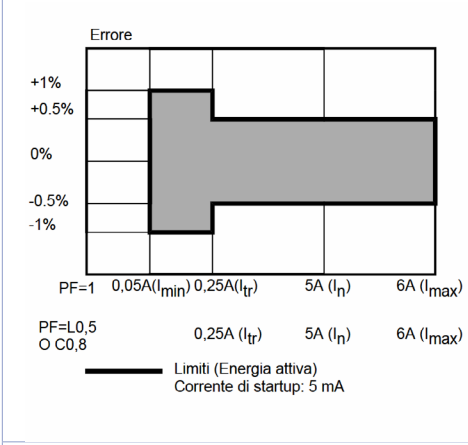
6 Supplementary information

6.1 Insulation between inputs and outputs

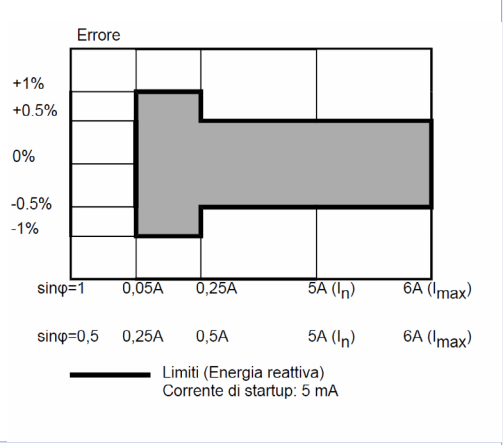
	Power supply	Meas.Input	RS485	Ethernet	Digital Output
Power supply	-	4kV	1,5kV	1,5kV	1,5kV
Measurement Input	4kV	-	4kV	4kV	4kV
RS485	1,5kV	4kV	-	1,5kV	1,5kV
Ethernet	1,5kV	4kV	1,5kV	-	1,5kV
Digital Output	1,5kV	4kV	1,5kV	1,5kV	-

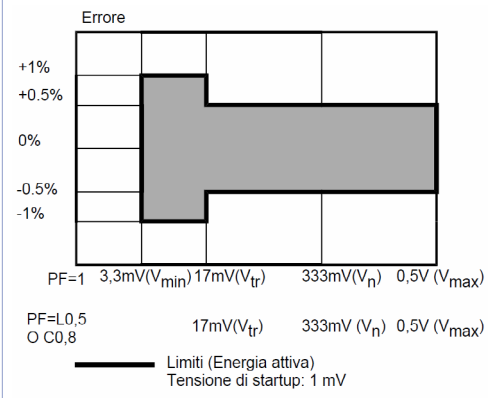
6.2 Accuracy

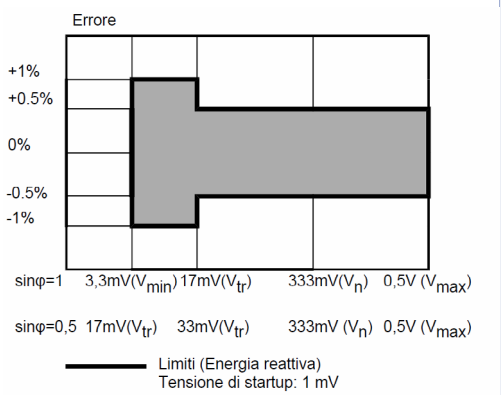
Wh, accuracy as a function of load (CT with current output)



VARh, accuracy as a function of load (CT with current output)





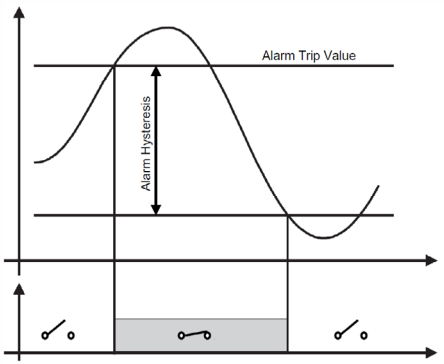


6.3 Digital output

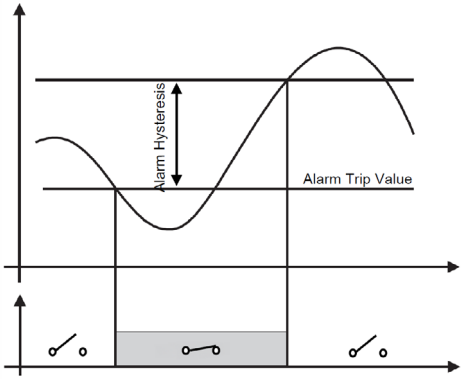
The digital output can be set to operate as an alarm or pulse output.
A buzzer can be associated with alarms to provide an audible alarm

ALARMs

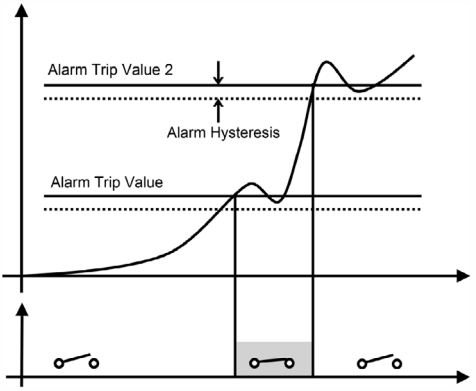
Rising edge: Normally open contact



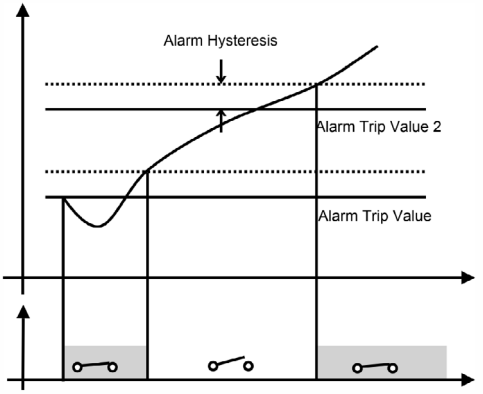
Falling edge: Normally closed contact



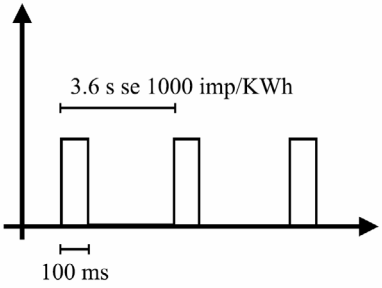
Window: contact closed between thresholds



Window: contact closed outside thresholds



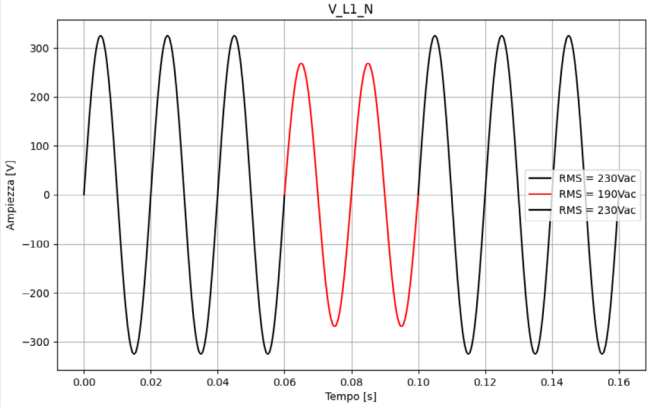
PULSE OUTPUT



Pulse output as an alternative to digital output for alarms.

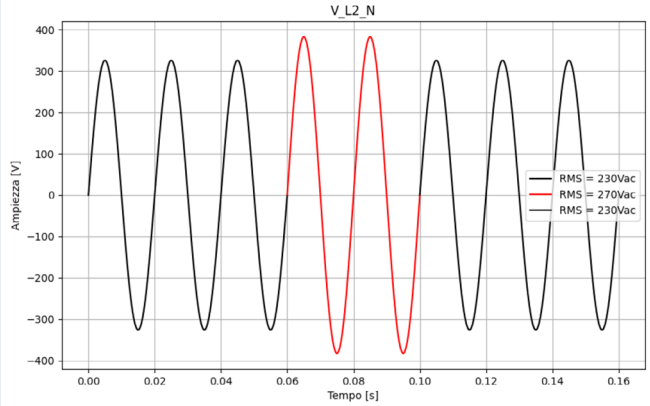
6.4 Power quality

SAG



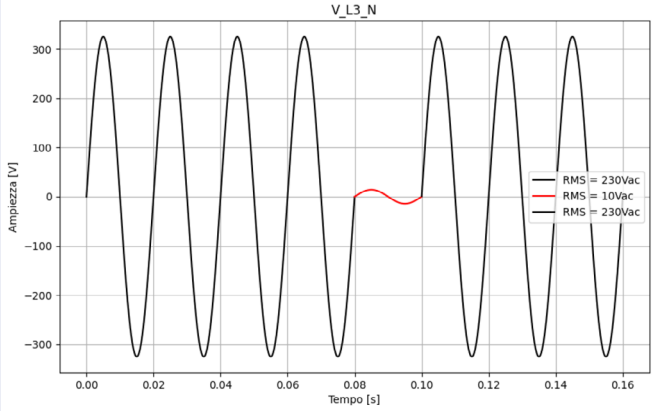
- Type: Sag
- Value: 190 V
- Query: 1 (V_L2_N)
- Duration: 40 ms

SWELL



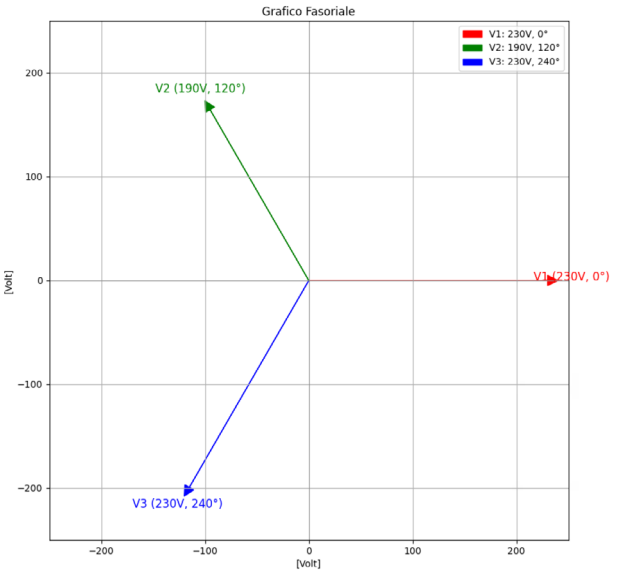
- Type: Swell
- Value: 270 V
- Query: 2 (V_L2_N)
- Duration: 40 ms

INTERRUPTION



- Type: Interruption
- Value: 10 V
- Query: 3 (V_L3_N)
- Duration: 20 ms

UNBALANCE



- Unbalance: 6.15%

6.5 Realtime waveforms

The analyzer can record up to 10 waveforms (3 star-connected voltage channels, 3 line-to-line voltages, 4 line currents).
128 samples are acquired for each period. Sampling is performed at 6400 sps @ 50 Hz.
They can be displayed directly via the webserver. It is also possible to access values via Modbus registers, either through RS485 (Modbus RTU) or through WiFi (Modbus TCP, recommended due to higher speed).

7 First connection

To connect to the device via Wi-Fi, follow these steps:

1. Connect to the exposed access point (by default PTA-M-3PH-05A-OT_SerialNumber) using a smartphone. Password signed on the label as PW AP
2. Disable the data connection
3. Open a browser such as Chrome and enter the address https://192.168.4.1
4. Enter username and password: *"admin"* e PW WEB (signed on the label)
5. In the integrated web server, on the Wi-Fi connections page, enter the target SSID and target password for the Wi-Fi network you are using.
6. Restart the device, which will then be visible directly on the local network. To check that it is working correctly, log in to the internal web server, where you can monitor the key electrical parameters, which should be in line with the expected values

8 Electrical connections

Warning! Since the device is Class II, according to standard "EN 61140:2004-05 Protection against electric shock - Common aspects for installations and equipment - Equipotential bonding", grounding the device is prohibited, as it could damage the device and reduce installation safety. Any grounding must ensure that no current flows between terminal 7 (N) and PE earth. Device intended exclusively for indoor installation in an electrical panel (protection rating ensured by the panel).

For installation in industrial environments it is advisable to take the precautions below:

- Distinguish the power supply line from the power lines.
- Avoid proximity with contactor units, electromagnetic contactors, high power motors and use filters in any event.
- Avoid proximity with power units, particularly if with phase control.
- The use of network filters is recommended on the power supply of the machine in which the instrument will be installed, particular in case of 230Vac power supply.
  The regulator is devised to be assembled with other machines. Therefore, the EC marking of the regulator does not exempt the manufacturer of the system from the safety and conformity obligations imposed for the machine as a whole.
- **Wiring of 3.5 mm terminal block**: use crimped tube terminals or flexible/rigid copper wire with diameter up to 1.5 mm^2 / 16 AWG. Cable stripping lenght max 7 mm. Operating temperature: -40°C ÷ +130°C.
- **Wiring of 5 mm terminal block**: use crimped tube terminals or flexible/rigid copper wire with diameter up to 2.5 mm^2 / 14 AWG. Cable stripping lenght max 9 mm. Operating temperature: -40°C ÷ +130°C.
- It is possible to connect on a single terminal two wires with same diameter comprised between 0.14 and 0.75mm2.

8.1 Wiring diagrams

8.1.a Power supply



Power supply 10..36VDC or 19..28VAC ±15%

- 19: +VDC
- 18: -VDC

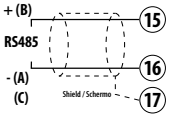
8.1.b Digital output



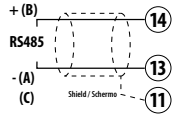
Digital output mosfet (40 V max, 100 mA max)

8.1.c Serial port RS485

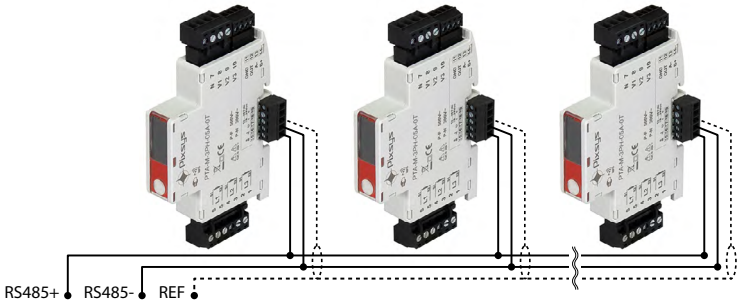
Modbus RTU slave serial port available on the T-BUS terminal and on the 4-pin terminal with 3.5mm pitch:



T-BUS:
15: RS485+
16: RS485-
17: C GND

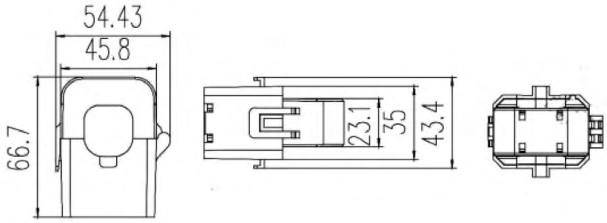


4-pin terminal:
14: RS485+
13: RS485-
11: C GND



8.1.d Current transformers

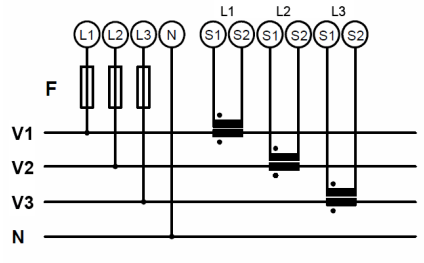




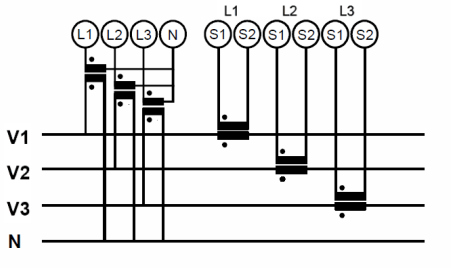
Order code	Hole diameter	Rated current	Output
2000.35.045	24mm	100A	5A
2000.35.046	24mm	200A	5A
2000.35.047	24mm	400A	5A

8.1.e Wiring examples

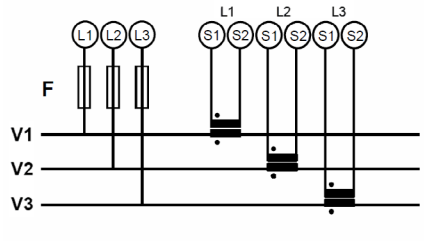
Three-phase, 4-wire, connection with 3 CTs



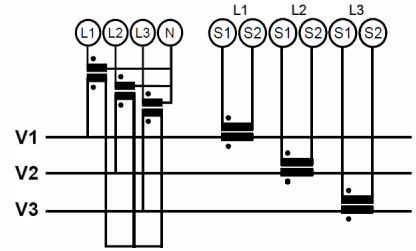
Three-phase, 4-wire, conn. with 3 CTs and 3 VTs



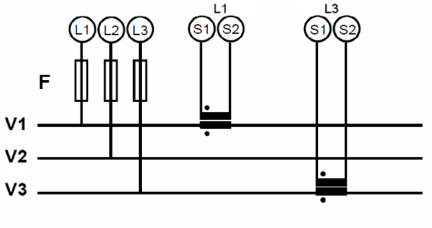
Three-phase, 3-wire, connection with 3 CTs



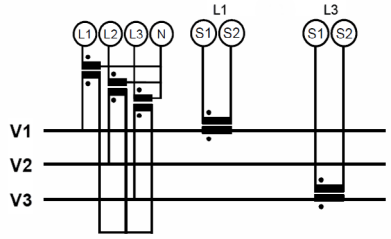
Three-phase, 3-wire, conn. with 3 CTs and 3 VTs



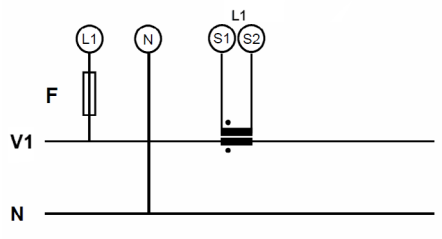
Three-phase, 3-wire, conn. with 2 CTs (Aron)



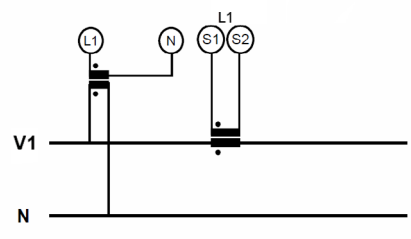
Three-phase, 3-wire, conn. with 2CTs + 3VTs (Aron)



Single-phase, 2-wire, connection with 1 CT



Single-phase, 2-wire, connection with 1 CT + 1 VT



9 Modbus registers mapping
9.1 Device Information

Modbus address	Register name Description	R/W	Default
40001	**machine_id_1** Machine ID. 1 char per register	RO	E
40002	**machine_id_2** Machine ID. 1 char per register	RO	M
40003	**machine_id_3** Machine ID. 1 char per register	RO	T
40004	**machine_id_4** Machine ID. 1 char per register	RO	4
40005	**machine_id_5** Machine ID. 1 char per register	RO	3
40006	**machine_id_6** Machine ID. 1 char per register	RO	2
40007	**machine_id_7** Machine ID. 1 char per register	RO	\0
40008	**machine_id_8** Machine ID. 1 char per register	RO	\0
40009	**hw_version** Hardware version.	RO	1
40010	**fw_version** Firmware version.	RO	1
40011	**mounted_version** 0 -> 5A 1 -> Rogowski, 333 mV	RO	0
40012	**year_month** calibration year and month	RO	2510
40013	**day_Hour** calibration day and hour	RO	610
40014	**minute_second** calibration minute and second	RO	835
40015	**feature_version** 0 -> Base version 1 -> Full version	RO	0
40016	**Mac_address_Wifi_STA_1** Mac address Wifi Station MSB	RO	11
40017	**Mac_address_Wifi_STA_2** Mac address Wifi Station	RO	22
40018	**Mac_address_Wifi_STA_3** Mac address Wifi Station	RO	33
40019	**Mac_address_Wifi_STA_4** Mac address Wifi Station	RO	44
40020	**Mac_address_Wifi_STA_5** Mac address Wifi Station	RO	55
40021	**Mac_address_Wifi_STA_6** Mac address Wifi Station LSB	RO	66
40022	**Mac_address_Wifi_SOFT_AP_1** Mac address Wifi software enabled access point MSB	RO	11
40023	**Mac_address_Wifi_SOFT_AP_2** Mac address Wifi software enabled access point	RO	22

Modbus address	Register name Description	R/W	Default
40024	**Mac_address_Wifi_SOFT_AP_3** Mac address Wifi software enabled access point	RO	33
40025	**Mac_address_Wifi_SOFT_AP_4** Mac address Wifi software enabled access point	RO	44
40026	**Mac_address_Wifi_SOFT_AP_5** Mac address Wifi software enabled access point	RO	55
40027	**Mac_address_Wifi_SOFT_AP_6** Mac address Wifi software enabled access point LSB	RO	66
40028	**Mac_address_Ethernet_1** Mac address Ethernet MSB	RO	31
40029	**Mac_address_Ethernet_2** Mac address Ethernet	RO	32
40030	**Mac_address_Ethernet_3** Mac address Ethernet	RO	33
40031	**Mac_address_Ethernet_4** Mac address Ethernet	RO	34
40032	**Mac_address_Ethernet_5** Mac address Ethernet	RO	35
40033	**Mac_address_Ethernet_6** Mac address Ethernet LSB	RO	36
40034	**Mac_address_Bluetooth_1** Mac address Bluetooth MSB	RO	96
40035	**Mac_address_Bluetooth_2** Mac address Bluetooth	RO	95
40036	**Mac_address_Bluetooth_3** Mac address Bluetooth	RO	94
40037	**Mac_address_Bluetooth_4** Mac address Bluetooth	RO	93
40038	**Mac_address_Bluetooth_5** Mac address Bluetooth	RO	92
40039	**Mac_address_Bluetooth_6** Mac address Bluetooth LSB	RO	91
40041	**plugin_board** 0: nessun plugin 1: Digital input plugin 2: Lora plugin	RO	0

9.2 Device Settings

Modbus address	Register name Description	R/W	Default
40227	**modbus_RTU_address** Modbus address	R/W	1
40228	**modbus_RTU_delay** Delay Modbus answer (in ms)	R/W	0

Modbus address	Register name Description	R/W	Default
40229	**modbus_RTU_baudrate** 0 = 1200 1 = 2400 2 = 4800 3 = 9600 4 = 19200 5 = 38400 6 = 57600 7 = 115200	R/W	3
40230	**modbus_RTU_parity** 0 = NONE 1 = EVEN	R/W	0
40231	**modbus_RTU_Stop_bit** 0 = 1 Bit 1 = 1,5 Bit 2 = 2 Bit	R/W	0
40232	**Measurement_Configuration_Register** Bit 0: Don't care Bit 1..2: Connection 0 = Single phase 1 = Three phase: 3 wires, 2 TA (Aron) 2 = Three phase: 3 wires, 3 TA 3 = Three phase: 4 wires, 3 TA (with neutral) Bit 3: FFT representation 0 = Absolute 1 = Relative to the I_1 value Bit 4: HPF filter 0 = Enabled 1 = Disabled Bit 5: Reactive power calculation method 0 = Triangle method 1 = Budeanu Bit 6: Digital output behaviour 0 = Alarm 1 = Pulsed output for KWh Bit 7: Frequency detection Channel 0 = Voltage 1 = Current Bit 9: Energy saving 0 = Disabled 1 = Enabled Bit 10..11: Output switch condition 0 = Normally Opened condition 1 = Normally Closed condition 2 = Within Threshold 3 = Outside Threshold Bit 13: Integrator condition 0 = Integrator disabled 1 = Integrator enabled (Rogowski input) Bit 15: Filtered measurement 0 = Filtering disabled 1 = Filtering enabled	R/W	518

Modbus address	Register name Description	R/W	Default
40233	**Machine_Configuration_Register** Bit 0: Not Used 0 = Disabled 1 = Enabled Bit 1: Buzzer in touch pad 0 = Disabled 1 = Enabled Bit 2: Buzzer during alarm condition 0 = Disabled 1 = Enabled Bit 3: Wifi STA 0 = Disabled 1 = Enabled Bit 4: Wifi AP 0 = Disabled 1 = Enabled Bit 5: MQTT 0 = Disabled 1 = Enabled	R/W	59
40235	**TA_Transducer_ratio** If Input 1A/5A, 20mA/100 mA = Current transformer ratio M/N - **Default** 1.0 (Ex: 600:5 = transducer_ratio = 120) If Input Rogowski = Sensitivity [V/A]	R/W	1
40237	**TA_Transducer_delay** Current transformer delay in [°] @ 50 Hz for accurate power calculation	R/W	0
40239	**TV_Transducer_ratio** Voltage transformer ratio M/N - **Default** 1.0 (Ex: 1000:100 = transducer_ratio = 10)	R/W	1
40241	**TV_Transducer_delay** Voltage transformer delay in [°] @ 50 Hz for accurate power calculation	R/W	0
40243	**minimum_voltage_ripple** Minimum threshold under which the instrument reads 0 independent from the input value	R/W	0
40245	**minimum_current_ripple** Minimum threshold under which the instrument reads 0 independent from the input value	R/W	0
40247	**minimum_power_ripple** Minimum threshold under which the instrument reads 0 independent from the input value (P, Q, and S)	R/W	0
40249	**DC_Filter** Update rate when no Zero crossing is detected [tenth of second]; lower => faster; higher => more accurate	R/W	10
40250	**AC_Filter** Update rate when Zero crossing is detected [number of periods]; lower => faster; higher => more accurate	R/W	50
40251	**minute_for_Max_and_AVG_demand** Minute for Max demand and Average power calculation (0..45)	R/W	15
40253	**seconds_for_mean_RMS** Register in seconds (0..60) for RMS average	R/W	15
40254	**seconds_for_MAX_RMS** Seconds 1..60 for MAX RMS value. If the register is 0, then the absolute MAX RMS is given	R/W	15

Modbus address	Register name Description	R/W	Default
40255	**seconds_for_min_RMS** Seconds 1..60 for min RMS value. If the register is 0, then the absolute min RMS is given	R/W	15
40256	**Energy_unit_factor** Variable for changing Energy measurement unit: 0 -> [Wh/10] 1 -> [Wh] .. 4 -> [KWh] 7 -> [MWh] 10 -> [GWh]	R/W	4
40258	**MQTT_broker** 0 -> Chronos Broker 1 -> Custom Broker	R/W	0
40261	**MQTT_port** porta broker MQTT	R/W	8883
40271	**Alarm_Register_start_address** DIGITAL OUTPUT 1: Modbus address address for alarm (starting from the modbus address of V_L1_N, V_L2_N, V_L3_N, ecc)	R/W	40000
40272	**Alarm_delay** DIGITAL OUTPUT 1: Delay in ms for Alarm trigger	R/W	0
40273	**Alarm_trip_value** DIGITAL OUTPUT 1: Alarm Threshold for closed and open condition OR first alarm Threshold for Within threshold and Outside threshold	R/W	0
40275	**Alarm_hysteresis** DIGITAL OUTPUT 1: Alarm Hysteresis	R/W	0
40277	**Alarm_trip_value_2** DIGITAL OUTPUT 1: Second alarm Threshold for within threshold and Outside threshold condition	R/W	0
40281	**Nominal_Star_Voltage** Nominal Star Voltage for Sag, Swell, Interruption monitoring [V]	R/W	230
40283	**Sag_percentage_level** Percentage over Nominal_Star_Voltage under which a Sag event is generated (default 0.9 = 90 %); must be over Interruption_percentage_ level	R/W	0,8
40285	**Swell_percentage_level** Percentage over Nominal_Star_Voltage over which a Swell event is generated (default 1.1 = 110 %)	R/W	1,2
40287	**Interruption_percentage_level** Percentage over Nominal_Star_Voltage under which an Interruption event is generated (default 0.1 = 10 %)	R/W	0,1
40291	**Minimum_duration_cutoff** Sag, Swell or Interruption events must be above this cutoff to be displayed and saved [ms]	R/W	0
40292	**Modbus_TCP_port** Porta server modbus TCP	R/W	502
40293	**Wifi_STA_SSID_target_0** WI-FI STA Access point SSID 0	R/W	F
40294	**Wifi_STA_SSID_target_1** WI-FI STA Access point SSID 1	R/W	R
40295	**Wifi_STA_SSID_target_2** WI-FI STA Access point SSID 2	R/W	I

Modbus address	Register name Description	R/W	Default
40296	**Wifi_STA_SSID_target_3** WI-FI STA Access point SSID 3	R/W	T
40297	**Wifi_STA_SSID_target_4** WI-FI STA Access point SSID 4	R/W	Z
40298	**Wifi_STA_SSID_target_5** WI-FI STA Access point SSID 5	R/W	!
40299	**Wifi_STA_SSID_target_6** WI-FI STA Access point SSID 6	R/W	B
40300	**Wifi_STA_SSID_target_7** WI-FI STA Access point SSID 7	R/W	o
40301	**Wifi_STA_SSID_target_8** WI-FI STA Access point SSID 8	R/W	x
40302	**Wifi_STA_SSID_target_9** WI-FI STA Access point SSID 9	R/W	
40303	**Wifi_STA_SSID_target_10** WI-FI STA Access point SSID 10	R/W	7
40304	**Wifi_STA_SSID_target_11** WI-FI STA Access point SSID 11	R/W	5
40305	**Wifi_STA_SSID_target_12** WI-FI STA Access point SSID 12	R/W	3
40306	**Wifi_STA_SSID_target_13** WI-FI STA Access point SSID 13	R/W	0
40307	**Wifi_STA_SSID_target_14** WI-FI STA Access point SSID 14	R/W	
40308	**Wifi_STA_SSID_target_15** WI-FI STA Access point SSID 15	R/W	P
40309	**Wifi_STA_SSID_target_16** WI-FI STA Access point SSID 16	R/W	U
40310	**Wifi_STA_SSID_target_17** WI-FI STA Access point SSID 17	R/W	\0
40311	**Wifi_STA_SSID_target_18** WI-FI STA Access point SSID 18	R/W	\0
40312	**Wifi_STA_SSID_target_19** WI-FI STA Access point SSID 19	R/W	\0
40313	**Wifi_STA_SSID_target_20** WI-FI STA Access point SSID 20	R/W	\0
40314	**Wifi_STA_SSID_target_21** WI-FI STA Access point SSID 21	R/W	\0
40315	**Wifi_STA_SSID_target_22** WI-FI STA Access point SSID 22	R/W	\0
40316	**Wifi_STA_SSID_target_23** WI-FI STA Access point SSID 23	R/W	\0
40317	**Wifi_STA_SSID_target_24** WI-FI STA Access point SSID 24	R/W	\0
40318	**Wifi_STA_SSID_target_25** WI-FI STA Access point SSID 25	R/W	\0
40319	**Wifi_STA_SSID_target_26** WI-FI STA Access point SSID 26	R/W	\0
40320	**Wifi_STA_SSID_target_27** WI-FI STA Access point SSID 27	R/W	\0
40322	**Wifi_STA_SSID_target_29** WI-FI STA Access point SSID 29	R/W	\0

Modbus address	Register name Description	R/W	Default
40323	**Wifi_STA_SSID_target_30** WI-FI STA Access point SSID 30	R/W	\0
40324	**Wifi_STA_SSID_target_31** WI-FI STA Access point SSID 31	R/W	\0
40325	**Wifi_STA_PASSWORD_target_0** WI-FI STA Access point Password 0	WO	3
40326	**Wifi_STA_PASSWORD_target_1** WI-FI STA Access point Password 1	WO	4
40327	**Wifi_STA_PASSWORD_target_2** WI-FI STA Access point Password 2	WO	7
40328	**Wifi_STA_PASSWORD_target_3** WI-FI STA Access point Password 3	WO	7
40329	**Wifi_STA_PASSWORD_target_4** WI-FI STA Access point Password 4	WO	1
40330	**Wifi_STA_PASSWORD_target_5** WI-FI STA Access point Password 5	WO	2
40331	**Wifi_STA_PASSWORD_target_6** WI-FI STA Access point Password 6	WO	1
40332	**Wifi_STA_PASSWORD_target_7** WI-FI STA Access point Password 7	WO	9
40333	**Wifi_STA_PASSWORD_target_8** WI-FI STA Access point Password 8	WO	3
40334	**Wifi_STA_PASSWORD_target_9** WI-FI STA Access point Password 9	WO	0
40335	**Wifi_STA_PASSWORD_target_10** WI-FI STA Access point Password 10	WO	6
40336	**Wifi_STA_PASSWORD_target_11** WI-FI STA Access point Password 11	WO	5
40337	**Wifi_STA_PASSWORD_target_12** WI-FI STA Access point Password 12	WO	6
40338	**Wifi_STA_PASSWORD_target_13** WI-FI STA Access point Password 13	WO	4
40339	**Wifi_STA_PASSWORD_target_14** WI-FI STA Access point Password 14	WO	7
40340	**Wifi_STA_PASSWORD_target_15** WI-FI STA Access point Password 15	WO	7
40341	**Wifi_STA_PASSWORD_target_16** WI-FI STA Access point Password 16	WO	6
40342	**Wifi_STA_PASSWORD_target_17** WI-FI STA Access point Password 17	WO	0
40343	**Wifi_STA_PASSWORD_target_18** WI-FI STA Access point Password 18	WO	0
40344	**Wifi_STA_PASSWORD_target_19** WI-FI STA Access point Password 19	WO	3
40345	**Wifi_STA_PASSWORD_target_20** WI-FI STA Access point Password 20	WO	\0
40346	**Wifi_STA_PASSWORD_target_21** WI-FI STA Access point Password 21	WO	\0
40347	**Wifi_STA_PASSWORD_target_22** WI-FI STA Access point Password 22	WO	\0
40348	**Wifi_STA_PASSWORD_target_23** WI-FI STA Access point Password 23	WO	\0

Modbus address	Register name Description	R/W	Default
40349	**Wifi_STA_PASSWORD_target_24** WI-FI STA Access point Password 24	WO	\0
40350	**Wifi_STA_PASSWORD_target_25** WI-FI STA Access point Password 25	WO	\0
40351	**Wifi_STA_PASSWORD_target_26** WI-FI STA Access point Password 26	WO	\0
40352	**Wifi_STA_PASSWORD_target_27** WI-FI STA Access point Password 27	WO	\0
40353	**Wifi_STA_PASSWORD_target_28** WI-FI STA Access point Password 28	WO	\0
40354	**Wifi_STA_PASSWORD_target_29** WI-FI STA Access point Password 29	WO	\0
40355	**Wifi_STA_PASSWORD_target_30** WI-FI STA Access point Password 30	WO	\0
40356	**Wifi_STA_PASSWORD_target_31** WI-FI STA Access point Password 31	WO	\0
40357	**Wifi_STA_HOSTNAME_0** WI-FI STA HOSTNAME set 0	R/W	E
40358	**Wifi_STA_HOSTNAME_1** WI-FI STA HOSTNAME set 1	R/W	M
40359	**Wifi_STA_HOSTNAME_2** WI-FI STA HOSTNAME set 2	R/W	T
40360	**Wifi_STA_HOSTNAME_3** WI-FI STA HOSTNAME set 3	R/W	4
40361	**Wifi_STA_HOSTNAME_4** WI-FI STA HOSTNAME set 4	R/W	3
40362	**Wifi_STA_HOSTNAME_5** WI-FI STA HOSTNAME set 5	R/W	0
40363	**Wifi_STA_HOSTNAME_6** WI-FI STA HOSTNAME set 6	R/W	_
40364	**Wifi_STA_HOSTNAME_7** WI-FI STA HOSTNAME set 7	R/W	W
40365	**Wifi_STA_HOSTNAME_8** WI-FI STA HOSTNAME set 8	R/W	I
40366	**Wifi_STA_HOSTNAME_9** WI-FI STA HOSTNAME set 9	R/W	F
40367	**Wifi_STA_HOSTNAME_10** WI-FI STA HOSTNAME set 10	R/W	I
40368	**Wifi_STA_HOSTNAME_11** WI-FI STA HOSTNAME set 11	R/W	_
40369	**Wifi_STA_HOSTNAME_12** WI-FI STA HOSTNAME set 12	R/W	S
40370	**Wifi_STA_HOSTNAME_13** WI-FI STA HOSTNAME set 13	R/W	T
40371	**Wifi_STA_HOSTNAME_14** WI-FI STA HOSTNAME set 14	R/W	A
40372	**Wifi_STA_HOSTNAME_15** WI-FI STA HOSTNAME set 15	R/W	_
40373	**Wifi_STA_HOSTNAME_16** WI-FI STA HOSTNAME set 16	R/W	\0
40374	**Wifi_STA_HOSTNAME_17** WI-FI STA HOSTNAME set 17	R/W	\0

Modbus address	Register name Description	R/W	Default
40375	**Wifi_STA_HOSTNAME_18** WI-FI STA HOSTNAME set 18	R/W	\0
40376	**Wifi_STA_HOSTNAME_19** WI-FI STA HOSTNAME set 19	R/W	\0
40377	**Wifi_STA_HOSTNAME_20** WI-FI STA HOSTNAME set 20	R/W	\0
40378	**Wifi_STA_HOSTNAME_21** WI-FI STA HOSTNAME set 21	R/W	\0
40379	**Wifi_STA_HOSTNAME_22** WI-FI STA HOSTNAME set 22	R/W	\0
40380	**Wifi_STA_HOSTNAME_23** WI-FI STA HOSTNAME set 23	R/W	\0
40381	**Wifi_STA_HOSTNAME_24** WI-FI STA HOSTNAME set 24	R/W	\0
40382	**Wifi_STA_HOSTNAME_25** WI-FI STA HOSTNAME set 25	R/W	\0
40383	**Wifi_STA_HOSTNAME_26** WI-FI STA HOSTNAME set 26	R/W	\0
40384	**Wifi_STA_HOSTNAME_27** WI-FI STA HOSTNAME set 27	R/W	\0
40385	**Wifi_STA_HOSTNAME_28** WI-FI STA HOSTNAME set 28	R/W	\0
40386	**Wifi_STA_HOSTNAME_29** WI-FI STA HOSTNAME set 29	R/W	\0
40387	**Wifi_STA_HOSTNAME_30** WI-FI STA HOSTNAME set 30	R/W	\0
40388	**Wifi_STA_HOSTNAME_31** WI-FI STA HOSTNAME set 31	R/W	\0
40389	**Wifi_STA_IP_0** WI-FI STA IP static (DHCP off) 0	R/W	192
40390	**Wifi_STA_IP_1** WI-FI STA IP static (DHCP off) 1	R/W	168
40391	**Wifi_STA_IP_2** WI-FI STA IP static (DHCP off) 2	R/W	178
40392	**Wifi_STA_IP_3** WI-FI STA IP static (DHCP off) 3	R/W	200
40393	**Wifi_STA_Netmask_0** WI-FI STA NETMASK static (DHCP off) 0	R/W	255
40394	**Wifi_STA_Netmask_1** WI-FI STA NETMASK static (DHCP off) 1	R/W	255
40395	**Wifi_STA_Netmask_2** WI-FI STA NETMASK static (DHCP off) 2	R/W	255
40396	**Wifi_STA_Netmask_3** WI-FI STA NETMASK static (DHCP off) 3	R/W	0
40397	**Wifi_STA_Gateway_0** WI-FI STA GATEWAY static (DHCP off) 0	R/W	192
40398	**Wifi_STA_Gateway_1** WI-FI STA GATEWAY static (DHCP off) 1	R/W	168
40399	**Wifi_STA_Gateway_2** WI-FI STA GATEWAY static (DHCP off) 2	R/W	178
40400	**Wifi_STA_Gateway_3** WI-FI STA GATEWAY static (DHCP off) 3	R/W	200

Modbus address	Register name Description	R/W	Default
40401	**Wifi_STA_IP_assigned_by_dhcp_0** WI-FI STA IP SET (DHCP on) 0	R/W	0
40402	**Wifi_STA_IP_assigned_by_dhcp_1** WI-FI STA IP SET (DHCP on) 1	R/W	0
40403	**Wifi_STA_IP_assigned_by_dhcp_2** WI-FI STA IP SET (DHCP on) 2	R/W	0
40404	**Wifi_STA_IP_assigned_by_dhcp_3** WI-FI STA IP SET (DHCP on) 3	R/W	0
40405	**Wifi_STA_Netmask_assigned_by_dhcp_0** WI-FI STA NETMASK SET (DHCP on) 0	R/W	0
40406	**Wifi_STA_Netmask_assigned_by_dhcp_1** WI-FI STA NETMASK SET (DHCP on) 1	R/W	0
40407	**Wifi_STA_Netmask_assigned_by_dhcp_2** WI-FI STA NETMASK SET (DHCP on) 2	R/W	0
40408	**Wifi_STA_Netmask_assigned_by_dhcp_3** WI-FI STA NETMASK SET (DHCP on) 3	R/W	0
40409	**Wifi_STA_Gateway_assigned_by_dhcp_0** WI-FI STA GATEWAY SET (DHCP on) 0	R/W	0
40410	**Wifi_STA_Gateway_assigned_by_dhcp_1** WI-FI STA GATEWAY SET (DHCP on) 1	R/W	0
40411	**Wifi_STA_Gateway_assigned_by_dhcp_2** WI-FI STA GATEWAY SET (DHCP on) 2	R/W	0
40412	**Wifi_STA_Gateway_assigned_by_dhcp_3** WI-FI STA GATEWAY SET (DHCP on) 3	R/W	0
40413	**Wifi_AP_SSID_0** WI-FI AP SSID 0	R/W	M
40414	**Wifi_AP_SSID_1** WI-FI AP SSID 1	R/W	Y
40415	**Wifi_AP_SSID_2** WI-FI AP SSID 2	R/W	_
40416	**Wifi_AP_SSID_3** WI-FI AP SSID 3	R/W	E
40417	**Wifi_AP_SSID_4** WI-FI AP SSID 4	R/W	M
40418	**Wifi_AP_SSID_5** WI-FI AP SSID 5	R/W	T
40419	**Wifi_AP_SSID_6** WI-FI AP SSID 6	R/W	_
40420	**Wifi_AP_SSID_7** WI-FI AP SSID 7	R/W	4
40421	**Wifi_AP_SSID_8** WI-FI AP SSID 8	R/W	3
40422	**Wifi_AP_SSID_9** WI-FI AP SSID 9	R/W	0
40423	**Wifi_AP_SSID_10** WI-FI AP SSID 10	R/W	\0
40424	**Wifi_AP_SSID_11** WI-FI AP SSID 11	R/W	\0
40425	**Wifi_AP_SSID_12** WI-FI AP SSID 12	R/W	\0
40426	**Wifi_AP_SSID_13** WI-FI AP SSID 13	R/W	\0

Modbus address	Register name Description	R/W	Default
40427	**Wifi_AP_SSID_14** WI-FI AP SSID 14	R/W	\0
40428	**Wifi_AP_SSID_15** WI-FI AP SSID 15	R/W	\0
40429	**Wifi_AP_SSID_16** WI-FI AP SSID 16	R/W	\0
40430	**Wifi_AP_SSID_17** WI-FI AP SSID 17	R/W	\0
40431	**Wifi_AP_SSID_18** WI-FI AP SSID 18	R/W	\0
40432	**Wifi_AP_SSID_19** WI-FI AP SSID 19	R/W	\0
40433	**Wifi_AP_SSID_20** WI-FI AP SSID 20	R/W	\0
40435	**Wifi_AP_SSID_22** WI-FI AP SSID 22	R/W	\0
40436	**Wifi_AP_SSID_23** WI-FI AP SSID 23	R/W	\0
40437	**Wifi_AP_SSID_24** WI-FI AP SSID 24	R/W	\0
40438	**Wifi_AP_SSID_25** WI-FI AP SSID 25	R/W	\0
40439	**Wifi_AP_SSID_26** WI-FI AP SSID 26	R/W	\0
40440	**Wifi_AP_SSID_27** WI-FI AP SSID 27	R/W	\0
40441	**Wifi_AP_SSID_28** WI-FI AP SSID 28	R/W	\0
40442	**Wifi_AP_SSID_29** WI-FI AP SSID 29	R/W	\0
40443	**Wifi_AP_SSID_30** WI-FI AP SSID 30	R/W	\0
40444	**Wifi_AP_SSID_31** WI-FI AP SSID 31	R/W	\0
40445	**Wifi_AP_PASSWORD_0** WI-FI AP PASSWORD 0	WO	1
40446	**Wifi_AP_PASSWORD_1** WI-FI AP PASSWORD 1	WO	2
40447	**Wifi_AP_PASSWORD_2** WI-FI AP PASSWORD 2	WO	3
40448	**Wifi_AP_PASSWORD_3** WI-FI AP PASSWORD 3	WO	4
40449	**Wifi_AP_PASSWORD_4** WI-FI AP PASSWORD 4	WO	5
40450	**Wifi_AP_PASSWORD_5** WI-FI AP PASSWORD 5	WO	6
40451	**Wifi_AP_PASSWORD_6** WI-FI AP PASSWORD 6	WO	7
40452	**Wifi_AP_PASSWORD_7** WI-FI AP PASSWORD 7	WO	8
40453	**Wifi_AP_PASSWORD_8** WI-FI AP PASSWORD 8	WO	9

Modbus address	Register name Description	R/W	Default
40454	**Wifi_AP_PASSWORD_9** WI-FI AP PASSWORD 9	WO	\0
40455	**Wifi_AP_PASSWORD_10** WI-FI AP PASSWORD 10	WO	\0
40456	**Wifi_AP_PASSWORD_11** WI-FI AP PASSWORD 11	WO	\0
40457	**Wifi_AP_PASSWORD_12** WI-FI AP PASSWORD 12	WO	\0
40458	**Wifi_AP_PASSWORD_13** WI-FI AP PASSWORD 13	WO	\0
40459	**Wifi_AP_PASSWORD_14** WI-FI AP PASSWORD 14	WO	\0
40460	**Wifi_AP_PASSWORD_15** WI-FI AP PASSWORD 15	WO	\0
40461	**Wifi_AP_PASSWORD_16** WI-FI AP PASSWORD 16	WO	\0
40462	**Wifi_AP_PASSWORD_17** WI-FI AP PASSWORD 17	WO	\0
40463	**Wifi_AP_PASSWORD_18** WI-FI AP PASSWORD 18	WO	\0
40464	**Wifi_AP_PASSWORD_19** WI-FI AP PASSWORD 19	WO	\0
40465	**Wifi_AP_PASSWORD_20** WI-FI AP PASSWORD 20	WO	\0
40466	**Wifi_AP_PASSWORD_21** WI-FI AP PASSWORD 21	WO	\0
40467	**Wifi_AP_PASSWORD_22** WI-FI AP PASSWORD 22	WO	\0
40468	**Wifi_AP_PASSWORD_23** WI-FI AP PASSWORD 23	WO	\0
40469	**Wifi_AP_PASSWORD_24** WI-FI AP PASSWORD 24	WO	\0
40470	**Wifi_AP_PASSWORD_25** WI-FI AP PASSWORD 25	WO	\0
40471	**Wifi_AP_PASSWORD_26** WI-FI AP PASSWORD 26	WO	\0
40472	**Wifi_AP_PASSWORD_27** WI-FI AP PASSWORD 27	WO	\0
40473	**Wifi_AP_PASSWORD_28** WI-FI AP PASSWORD 28	WO	\0
40474	**Wifi_AP_PASSWORD_29** WI-FI AP PASSWORD 29	WO	\0
40475	**Wifi_AP_PASSWORD_30** WI-FI AP PASSWORD 30	WO	\0
40476	**Wifi_AP_PASSWORD_31** WI-FI AP PASSWORD 31	WO	\0
40477	**Wifi_AP_HOSTNAME_0** WI-FI AP HOSTNAME set 0	R/W	E
40478	**Wifi_AP_HOSTNAME_1** WI-FI AP HOSTNAME set 1	R/W	M
40479	**Wifi_AP_HOSTNAME_2** WI-FI AP HOSTNAME set 2	R/W	T

Modbus address	Register name Description	R/W	Default
40480	**Wifi_AP_HOSTNAME_3** WI-FI AP HOSTNAME set 3	R/W	4
40481	**Wifi_AP_HOSTNAME_4** WI-FI AP HOSTNAME set 4	R/W	3
40482	**Wifi_AP_HOSTNAME_5** WI-FI AP HOSTNAME set 5	R/W	0
40483	**Wifi_AP_HOSTNAME_6** WI-FI AP HOSTNAME set 6	R/W	_
40484	**Wifi_AP_HOSTNAME_7** WI-FI AP HOSTNAME set 7	R/W	W
40485	**Wifi_AP_HOSTNAME_8** WI-FI AP HOSTNAME set 8	R/W	I
40486	**Wifi_AP_HOSTNAME_9** WI-FI AP HOSTNAME set 9	R/W	F
40487	**Wifi_AP_HOSTNAME_10** WI-FI AP HOSTNAME set 10	R/W	I
40488	**Wifi_AP_HOSTNAME_11** WI-FI AP HOSTNAME set 11	R/W	_
40489	**Wifi_AP_HOSTNAME_12** WI-FI AP HOSTNAME set 12	R/W	A
40490	**Wifi_AP_HOSTNAME_13** WI-FI AP HOSTNAME set 13	R/W	P
40491	**Wifi_AP_HOSTNAME_14** WI-FI AP HOSTNAME set 14	R/W	_
40492	**Wifi_AP_HOSTNAME_15** WI-FI AP HOSTNAME set 15	R/W	\0
40493	**Wifi_AP_HOSTNAME_16** WI-FI AP HOSTNAME set 16	R/W	\0
40494	**Wifi_AP_HOSTNAME_17** WI-FI AP HOSTNAME set 17	R/W	\0
40495	**Wifi_AP_HOSTNAME_18** WI-FI AP HOSTNAME set 18	R/W	\0
40496	**Wifi_AP_HOSTNAME_19** WI-FI AP HOSTNAME set 19	R/W	\0
40497	**Wifi_AP_HOSTNAME_20** WI-FI AP HOSTNAME set 20	R/W	\0
40498	**Wifi_AP_HOSTNAME_21** WI-FI AP HOSTNAME set 21	R/W	\0
40499	**Wifi_AP_HOSTNAME_22** WI-FI AP HOSTNAME set 22	R/W	\0
40500	**Wifi_AP_HOSTNAME_23** WI-FI AP HOSTNAME set 23	R/W	\0
40501	**Wifi_AP_HOSTNAME_24** WI-FI AP HOSTNAME set 24	R/W	\0
40502	**Wifi_AP_HOSTNAME_25** WI-FI AP HOSTNAME set 25	R/W	\0
40503	**Wifi_AP_HOSTNAME_26** WI-FI AP HOSTNAME set 26	R/W	\0
40504	**Wifi_AP_HOSTNAME_27** WI-FI AP HOSTNAME set 27	R/W	\0
40505	**Wifi_AP_HOSTNAME_28** WI-FI AP HOSTNAME set 28	R/W	\0

Modbus address	Register name Description	R/W	Default
40506	**Wifi_AP_HOSTNAME_29** WI-FI AP HOSTNAME set 29	R/W	\0
40507	**Wifi_AP_HOSTNAME_30** WI-FI AP HOSTNAME set 30	R/W	\0
40508	**Wifi_AP_HOSTNAME_31** WI-FI AP HOSTNAME set 31	R/W	\0
40509	**Wifi_AP_IP_0** WI-FI AP IP 0	R/W	192
40510	**Wifi_AP_IP_1** WI-FI AP IP 1	R/W	168
40511	**Wifi_AP_IP_2** WI-FI AP IP 2	R/W	4
40512	**Wifi_AP_IP_3** WI-FI AP IP 3	R/W	1
40513	**Wifi_AP_Netmask_0** WI-FI AP NETMASK 0	R/W	255
40514	**Wifi_AP_Netmask_1** WI-FI AP NETMASK 1	R/W	255
40515	**Wifi_AP_Netmask_2** WI-FI AP NETMASK 2	R/W	255
40516	**Wifi_AP_Netmask_3** WI-FI AP NETMASK 3	R/W	0
40517	**Wifi_AP_Gateway_0** WI-FI AP GATEWAY 0	R/W	192
40518	**Wifi_AP_Gateway_1** WI-FI AP GATEWAY 1	R/W	168
40519	**Wifi_AP_Gateway_2** WI-FI AP GATEWAY 2	R/W	4
40520	**Wifi_AP_Gateway_3** WI-FI AP GATEWAY 3	R/W	1
40521	**Ethernet_HOSTNAME_0** Ethernet_HOSTNAME_0 set 0	R/W	E
40522	**Ethernet_HOSTNAME_1** Ethernet_HOSTNAME_0 set 1	R/W	M
40523	**Ethernet_HOSTNAME_2** Ethernet_HOSTNAME_0 set 2	R/W	T
40524	**Ethernet_HOSTNAME_3** Ethernet_HOSTNAME_0 set 3	R/W	4
40525	**Ethernet_HOSTNAME_4** Ethernet_HOSTNAME_0 set 4	R/W	3
40526	**Ethernet_HOSTNAME_5** Ethernet_HOSTNAME_0 set 5	R/W	0
40527	**Ethernet_HOSTNAME_6** Ethernet_HOSTNAME_0 set 6	R/W	_
40528	**Ethernet_HOSTNAME_7** Ethernet_HOSTNAME_0 set 7	R/W	E
40529	**Ethernet_HOSTNAME_8** Ethernet_HOSTNAME_0 set 8	R/W	T
40530	**Ethernet_HOSTNAME_9** Ethernet_HOSTNAME_0 set 9	R/W	H
40531	**Ethernet_HOSTNAME_10** Ethernet_HOSTNAME_0 set 10	R/W	E

Modbus address	Register name Description	R/W	Default
40532	**Ethernet_HOSTNAME_11** Ethernet_HOSTNAME_0 set 11	R/W	R
40533	**Ethernet_HOSTNAME_12** Ethernet_HOSTNAME_0 set 12	R/W	N
40534	**Ethernet_HOSTNAME_13** Ethernet_HOSTNAME_0 set 13	R/W	E
40535	**Ethernet_HOSTNAME_14** Ethernet_HOSTNAME_0 set 14	R/W	T
40536	**Ethernet_HOSTNAME_15** Ethernet_HOSTNAME_0 set 15	R/W	_
40537	**Ethernet_HOSTNAME_16** Ethernet_HOSTNAME_0 set 16	R/W	\0
40538	**Ethernet_HOSTNAME_17** Ethernet_HOSTNAME_0 set 17	R/W	\0
40539	**Ethernet_HOSTNAME_18** Ethernet_HOSTNAME_0 set 18	R/W	\0
40540	**Ethernet_HOSTNAME_19** Ethernet_HOSTNAME_0 set 19	R/W	\0
40541	**Ethernet_HOSTNAME_20** Ethernet_HOSTNAME_0 set 20	R/W	\0
40542	**Ethernet_HOSTNAME_21** Ethernet_HOSTNAME_0 set 21	R/W	\0
40543	**Ethernet_HOSTNAME_22** Ethernet_HOSTNAME_0 set 22	R/W	\0
40544	**Ethernet_HOSTNAME_23** Ethernet_HOSTNAME_0 set 23	R/W	\0
40545	**Ethernet_HOSTNAME_24** Ethernet_HOSTNAME_0 set 24	R/W	\0
40546	**Ethernet_HOSTNAME_25** Ethernet_HOSTNAME_0 set 25	R/W	\0
40547	**Ethernet_HOSTNAME_26** Ethernet_HOSTNAME_0 set 26	R/W	\0
40548	**Ethernet_HOSTNAME_27** Ethernet_HOSTNAME_0 set 27	R/W	\0
40549	**Ethernet_HOSTNAME_28** Ethernet_HOSTNAME_0 set 28	R/W	\0
40550	**Ethernet_HOSTNAME_29** Ethernet_HOSTNAME_0 set 29	R/W	\0
40551	**Ethernet_HOSTNAME_30** Ethernet_HOSTNAME_0 set 30	R/W	\0
40552	**Ethernet_HOSTNAME_31** Ethernet_HOSTNAME_0 set 31	R/W	\0
40553	**Ethernet_IP_0** ETHERNET IP static (DHCP off) 0	R/W	192
40554	**Ethernet_IP_1** ETHERNET IP static (DHCP off) 1	R/W	168
40556	**Ethernet_IP_3** ETHERNET IP static (DHCP off) 3	R/W	250
40557	**Ethernet_Netmask_0** ETHERNET NETMASK static (DHCP off) 0	R/W	255
40558	**Ethernet_Netmask_1** ETHERNET NETMASK static (DHCP off) 1	R/W	255

Modbus address	Register name Description	R/W	Default
40559	**Ethernet_Netmask_2** ETHERNET NETMASK static (DHCP off) 2	R/W	255
40560	**Ethernet_Netmask_3** ETHERNET NETMASK static (DHCP off) 3	R/W	0
40561	**Ethernet_Gateway_0** ETHERNET GATEWAY static (DHCP off) 0	R/W	192
40562	**Ethernet_Gateway_1** ETHERNET GATEWAY static (DHCP off) 1	R/W	168
40563	**Ethernet_Gateway_2** ETHERNET GATEWAY static (DHCP off) 2	R/W	178
40564	**Ethernet_Gateway_3** ETHERNET GATEWAY static (DHCP off) 3	R/W	250
40565	**Ethernet_IP_assigned_by_dhcp_0** ETHERNET IP ASSEGNATO (DHCP on) 0	R/W	0
40566	**Ethernet_IP_assigned_by_dhcp_1** ETHERNET IP ASSEGNATO (DHCP on) 1	R/W	0
40567	**Ethernet_IP_assigned_by_dhcp_2** ETHERNET IP ASSEGNATO (DHCP on) 2	R/W	0
40568	**Ethernet_IP_assigned_by_dhcp_3** ETHERNET IP ASSEGNATO (DHCP on) 3	R/W	0
40569	**Ethernet_Netmask_assigned_by_dhcp_0** ETHERNET NETMASK ASSEGNATO (DHCP on) 0	R/W	0
40570	**Ethernet_Netmask_assigned_by_dhcp_1** ETHERNET NETMASK ASSEGNATO (DHCP on) 1	R/W	0
40571	**Ethernet_Netmask_assigned_by_dhcp_2** ETHERNET NETMASK ASSEGNATO (DHCP on) 2	R/W	0
40572	**Ethernet_Netmask_assigned_by_dhcp_3** ETHERNET NETMASK ASSEGNATO (DHCP on) 3	R/W	0
40573	**Ethernet_Gateway_assigned_by_dhcp_0** ETHERNET GATEWAY ASSEGNATO (DHCP on) 0	R/W	0
40574	**Ethernet_Gateway_assigned_by_dhcp_1** ETHERNET GATEWAY ASSEGNATO (DHCP on) 1	R/W	0
40575	**Ethernet_Gateway_assigned_by_dhcp_2** ETHERNET GATEWAY ASSEGNATO (DHCP on) 2	R/W	0
40576	**Ethernet_Gateway_assigned_by_dhcp_3** ETHERNET GATEWAY ASSEGNATO (DHCP on) 3	R/W	0
40577	**Communications_settings** Bit 0: Ethernet DHCP 0 = Disabled (static address from registers) 1 = Enabled (default) Bit 1: Wi-Fi STA DHCP 0 = Disabled (static address from registers) 1 = Enabled (default)	R/W	3
40579	**UTC_Time_zone_value** The value of this register sets the Time Zone out of a list of 461 elements. The entire list is in the documentation, the default value is 390 which is for 'Europe/Rome'	R/W	390
40674	**webserver_user_psw_0** webserver authentication user password char 0	WO	a
40675	**webserver_user_psw_1** webserver authentication user password char 1	WO	d

Modbus address	Register name Description	R/W	Default
40676	**webserver_user_psw_2** webserver authentication user password char 2	WO	m
40677	**webserver_user_psw_3** webserver authentication user password char 3	WO	i
40678	**webserver_user_psw_4** webserver authentication user password char 4	WO	n
40679	**webserver_user_psw_5** webserver authentication user password char 5	WO	\0
40680	**webserver_user_psw_6** webserver authentication user password char 6	WO	\0
40681	**webserver_user_psw_7** webserver authentication user password char 7	WO	\0
40682	**webserver_user_psw_8** webserver authentication user password char 8	WO	\0
40683	**webserver_user_psw_9** webserver authentication user password char 9	WO	\0
40684	**webserver_user_psw_10** webserver authentication user password char 10	WO	\0
40685	**webserver_user_psw_11** webserver authentication user password char 11	WO	\0
40686	**webserver_user_psw_12** webserver authentication user password char 12	WO	\0
40687	**webserver_user_psw_13** webserver authentication user password char 13	WO	\0
40688	**webserver_user_psw_14** webserver authentication user password char 14	WO	\0
40689	**webserver_user_psw_15** webserver authentication user password char 15	WO	\0
40690	**webserver_inst_psw_0** webserver authentication installator password char 0	WO	a
40691	**webserver_inst_psw_1** webserver authentication installator password char 1	WO	d
40692	**webserver_inst_psw_2** webserver authentication installator password char 2	WO	m
40693	**webserver_inst_psw_3** webserver authentication installator password char 3	WO	i
40694	**webserver_inst_psw_4** webserver authentication installator password char 4	WO	n
40695	**webserver_inst_psw_5** webserver authentication installator password char 5	WO	\0
40696	**webserver_inst_psw_6** webserver authentication installator password char 6	WO	\0
40697	**webserver_inst_psw_7** webserver authentication installator password char 7	WO	\0
40698	**webserver_inst_psw_8** webserver authentication installator password char 8	WO	\0
40699	**webserver_inst_psw_9** webserver authentication installator password char 9	WO	\0
40700	**webserver_inst_psw_10** webserver authentication installator password char 10	WO	\0
40701	**webserver_inst_psw_11** webserver authentication installator password char 11	WO	\0

Modbus address	Register name Description	R/W	Default
40702	**webserver_inst_psw_12** webserver authentication installator password char 12	WO	\0
40703	**webserver_inst_psw_13** webserver authentication installator password char 13	WO	\0
40704	**webserver_inst_psw_14** webserver authentication installator password char 14	WO	\0
40705	**webserver_inst_psw_15** webserver authentication installator password char 15	WO	\0
40709	**totalizer_mode** bit 0: 0 -> Digital in rising 1 -> Digital in falling bit 1: 0 -> Totalizer incremental 1 -> Totalizer decremental	R/W	0
40710	**Filter_Din** Number of samples of the filter (every 157us)	R/W	0
40715	**wifi_tx_power** Wifi Strength of our antenna in dBm	R/W	20
40716	**Pulses_per_kWh** Pulses per kWh impulsive digital output	R/W	1000

9.3 Energies

Modbus address	Register name Description	R/W	Default
40721	**KWh1** Active energy line 1 [Wh tenth]	R/W	0
40725	**KWh2** Active energy line 2 [Wh tenth]	R/W	0
40729	**KWh3** Active energy line 3 [Wh tenth]	R/W	0
40733	**KWh_SUM** Active energy three phase [Wh tenth]	R/W	0
40737	**KWh1_Plus** Positive Active energy line 1 [Wh tenth]	R/W	0
40741	**KWh2_Plus** Positive Active energy line 2 [Wh tenth]	R/W	0
40745	**KWh3_Plus** Positive Active energy line 3 [Wh tenth]	R/W	0
40749	**KWh_SUM_Plus** Positive Active energy three phase [Wh tenth]	R/W	0
40753	**KWh1_Neg** Negative Active energy line 1 [Wh tenth]	R/W	0
40757	**KWh2_Neg** Negative Active energy line 2 [Wh tenth]	R/W	0
40761	**KWh3_Neg** Negative Active energy line 3 [Wh tenth]	R/W	0
40769	**KVARh1** Reactive energy line 1 [VARh tenth]	R/W	0
40773	**KVARh2** Reactive energy line 2 [VARh tenth]	R/W	0

Modbus address	Register name Description	R/W	Default
40777	**KVARh3** Reactive energy line 3 [VARh tenth]	R/W	0
40781	**KVARh_SUM** Reactive energy three phase [VARh tenth]	R/W	0
40785	**KVARh1_Inductive_positive** Inductive (positive P) Reactive energy line 1 [VARh tenth]	R/W	0
40789	**KVARh2_Inductive_positive** Inductive (positive P) Reactive energy line 2 [VARh tenth]	R/W	0
40793	**KVARh3_Inductive_positive** Inductive (positive P) Reactive energy line 3 [VARh tenth]	R/W	0
40797	**KVARh_SUM_Inductive_positive** Inductive (positive P) Reactive energy three phase [VARh tenth]	R/W	0
40801	**KVARh1_Inductive_negative** Inductive (negative P) Reactive energy line 1 [VARh tenth]	R/W	0
40805	**KVARh2_Inductive_negative** Inductive (negative P) Reactive energy line 2 [VARh tenth]	R/W	0
40809	**KVARh3_Inductive_negative** Inductive (negative P) Reactive energy line 3 [VARh tenth]	R/W	0
40813	**KVARh_SUM_Inductive_negative** Inductive (negative P) Reactive energy three phase [VARh tenth]	R/W	0
40817	**KVARh1_Capacitive_positive** Capacitive (positive P) Reactive energy line 1 [VARh tenth]	R/W	0
40821	**KVARh2_Capacitive_positive** Capacitive (positive P) Reactive energy line 2 [VARh tenth]	R/W	0
40825	**KVARh3_Capacitive_positive** Capacitive (positive P) Reactive energy line 3 [VARh tenth]	R/W	0
40829	**KVARh_SUM_Capacitive_positive** Capacitive (positive P) Reactive energy three phase [VARh tenth]	R/W	0
40833	**KVARh1_Capacitive_negative** Capacitive (negative P) Reactive energy line 1 [VARh tenth]	R/W	0
40837	**KVARh2_Capacitive_negative** Capacitive (negative P) Reactive energy line 2 [VARh tenth]	R/W	0
40841	**KVARh3_Capacitive_negative** Capacitive (negative P) Reactive energy line 3 [VARh tenth]	R/W	0
40845	**KVARh_SUM_Capacitive_negative** Capacitive (negative P) Reactive energy three phase [VARh tenth]	R/W	0
40849	**KVAh1** Apparent energy line 1 [VAh tenth]	R/W	0
40853	**KVAh2** Apparent energy line 2 [VAh tenth]	R/W	0
40857	**KVAh3** Apparent energy line 3 [VAh tenth]	R/W	0
40861	**KVAh_SUM** Apparent energy three phase [VAh tenth]	R/W	0
40865	**Wh_storage_count** Number of Wh flash savings (every 1 minute)	RO	0
40869	**Working_time** Working time of the device [mins]	RO	0

9.4 Realtime measurement and commands

Modbus address	Register name Description	R/W	Default
40891	**Communication_status** Bit 0: Wifi Sta Connected 0 = Not Connected (default) 1 = Connected Bit 1: Ethernet Connected 0 = Not Connected (default) 1 = Connected Bit 2: Connected cloud service 0 = Not Connected (default) 1 = Connected Bit 3: SD Card Connected 0 = Not Connected (default) 1 = Connected Bit 4: USB Connected 0 = Not Connected (default) 1 = Connected Bit 5: SD Card Mounted 0 = Yes 1 = No Bit 6: USB Mounted 0 = Yes 1 = No	RO	0
40894	**status_digital_input** Status for digital input. Bit 0: Input 1 0 = Closed 1 = Open Bit 1: Input 2 0 = Closed 1 = Open Bit 2: Input 3 0 = Closed 1 = Open	RO	0

Modbus address	Register name Description	R/W	Default
40897	**Status_1** //STATUS_1 bit #define FLASH_SETTINGS_ERROR 0x00000001 #define FLASH_CALIBRATION_ERROR 0x00000002 #define I1_OVER_RANGE 0x00000004 #define I1_UNDER_RANGE 0x00000008 #define I2_OVER_RANGE 0x00000010 #define I2_UNDER_RANGE 0x00000020 #define I3_OVER_RANGE 0x00000040 #define I3_UNDER_RANGE 0x00000080 #define V1_OVER_RANGE 0x00000100 #define V1_UNDER_RANGE 0x00000200 #define V2_OVER_RANGE 0x00000400 #define V2_UNDER_RANGE 0x00000800 #define V3_OVER_RANGE 0x00001000 #define V3_UNDER_RANGE 0x00002000 #define ZX_DETECTING 0x00004000 #define SWITCH_OPEN 0x00008000 #define WH_STORING_ERROR 0x00010000 #define BUZZER_ON 0x00020000 #define RTC_CLOCK_NOT_UPDATED 0x00040000 #define ALARM_TRIGGER_REQUEST 0x00080000 #define TOTALIZER_STORING_ERROR 0x00100000 #define ZX_SIGNAL_ACQUIRED 0x00200000 #define LOW_IL1_MEASUREMENT 0x00400000 #define LOW_IL2_MEASUREMENT 0x00800000 #define LOW_IL3_MEASUREMENT 0x01000000 #define PF1_INDUCTIVE 0x10000000 #define PF2_INDUCTIVE 0x20000000 #define PF3_INDUCTIVE 0x40000000	RO	0

Modbus address	Register name Description	R/W	Default
40899	**Status_2** //STATUS_2 bit #define EVENT_MONITORING_READY_L1N 0x00000020 #define EVENT_MONITORING_READY_L2N 0x00000040 #define EVENT_MONITORING_READY_L3N 0x00000080 #define EVENT_PRESENT 0x00000800 #define FREQ_COPIED 0x00001000 #define NTP_SET 0x00002000 #define SWITCH_OPEN_L1 0x00008000 #define SWITCH_OPEN_L2 0x00010000 #define SWITCH_OPEN_L3 0x00020000 #define TOUCH_BOTTON_PRESSED 0x00040000 #define ERROR_TEMP_SENSOR 0x00080000 #define ERROR_TOUCH_SENSOR 0x00100000 #define REQUEST_RESET_SETTINGS 0x00200000 #define RTC_WRITING_IN_PROGRESS 0x00400000 #define REQUEST_RSSI 0x00800000 #define MAX_DEMAND_STORING_ERROR 0x01000000 #define POWER_QUALITY_BLANKING 0x02000000 #define POWER_QUALITY_FLASH_ERROR 0X04000000 #define REQUEST_CHANGE_ENERGY_UNIT 0x08000000 #define CERTS_ERROR 0x10000000 #define PQ_BLANKING_LOW_DURATION 0x20000000 #define SWITCH_2_OPEN 0x40000000	RO	0
40904	**pass_installer** password for 'installer' read & write role	R/W	0
40906	**Command** //comandi da scrivere sul registro COMMAND #define COMANDO_SALVATAGGIO_FLASH_SETTAGGI_E_NFC 0xC1C0U #define COMANDO_RESET 0xC1A0U #define COMANDO_SAVE_ENERGY 0xBABAU #define COMANDO_CLOSE_SWITCH 0xDAAAU #define COMANDO_OPEN_SWITCH 0xDAABU #define COMANDO_LEGGI_EVENTI_SAG 0xE000U #define COMANDO_LEGGI_EVENTI_SWELL 0xE100U #define COMANDO_LEGGI_EVENTI_INTERRUPTION 0xE200U #define COMANDO_RESET_EVENTI_SAG 0xE300U #define COMANDO_RESET_EVENTI_SWELL 0xE400U #define COMANDO_RESET_EVENTI_INTERRUPTION 0xE500U #define COMANDO_RESET_MAX_DEMAND 0xF000U #define COMANDO_RESET_ENERGIE 0xAAAAU	R/W	0
40907	**V_L1_N** RMS star voltage L1-N [V]	RO	0
40909	**V_L2_N** RMS star voltage L2-N [V]	RO	0
40911	**V_L3_N** RMS star voltage L3-N [V]	RO	0
40913	**V_STAR_AVG** RMS star avg value voltage [V]	RO	0
40915	**V_L1_L2** RMS line voltage L1-L2 [V]	RO	0

Modbus address	Register name Description	R/W	Default
40917	**V_L2_L3** RMS line voltage L2-L3 [V]	RO	0
40919	**V_L3_L1** RMS line voltage L3-L1 [V]	RO	0
40921	**V_LINE_AVG** RMS line avg value voltage [V]	RO	0
40923	**I_L1** RMS line current L1	RO	0
40925	**I_L2** RMS line current L2	RO	0
40927	**I_L3** RMS line current L3	RO	0
40929	**I_N** RMS line current N (if 1 or 2 TA connection, I_N = 0)	RO	0
40931	**I_AVG** RMS avg value current (excluding neutral current I_N)	RO	0
40933	**P1** RMS active power line 1 [W]	RO	0
40935	**P2** RMS active power line 2 [W]	RO	0
40937	**P3** RMS active power line 3 [W]	RO	0
40939	**P_SUM** RMS sum active power [W]	RO	0
40941	**Q1** RMS reactive power line 1 [VAR]	RO	0
40943	**Q2** RMS reactive power line 2 [VAR]	RO	0
40945	**Q3** RMS reactive power line 3 [VAR]	RO	0
40947	**Q_SUM** RMS sum reactive power [VAR]	RO	0
40949	**S1** RMS apparent power line 1 [VAR]	RO	0
40951	**S2** RMS apparent power line 2 [VAR]	RO	0
40953	**S3** RMS apparent power line 3 [VAR]	RO	0
40955	**S_SUM** RMS sum apparent power [VAR]	RO	0
40957	**PF1** Power Factor line 1	RO	0
40959	**PF2** Power Factor line 2	RO	0
40961	**PF3** Power Factor line 3	RO	0
40963	**PF_3PH** Three Phase Power Factor	RO	0
40965	**CF1** Crest Factor line 1	RO	0
40967	**CF2** Crest Factor line 2	RO	0

Modbus address	Register name Description	R/W	Default
40969	**CF3** Crest Factor line 3	RO	0
40971	**CF_N** Crest Factor Neutral	RO	0
40973	**Frequency** Frequency [Hz]	RO	0
40975	**V_L1_N_peak** Star voltage L1-N peak [V]	R/W	0
40977	**V_L2_N_peak** Star voltage L2-N peak [V]	R/W	0
40979	**V_L3_N_peak** Star voltage L3-N peak [V]	R/W	0
40981	**V_L1_L2_peak** Line voltage L1-L2 peak [V]	R/W	0
40983	**V_L2_L3_peak** Line voltage L2-L3 peak [V]	R/W	0
40985	**V_L3_L1_peak** Line voltage L3-L1 peak [V]	R/W	0
40987	**I_L1_peak** L1 current peak	R/W	0
40989	**I_L2_peak** L2 current peak	R/W	0
40991	**I_L3_peak** L3 current peak	R/W	0
40993	**I_N_peak** N current peak	R/W	0
41045	**totalizer_1** Totalizer stored value for expansion board dig in 1	R/W	0
41049	**totalizer_3** Totalizer stored value for expansion board dig in 3	R/W	0
41057	**TAN_FI_1** Tangentθline 1 (+ inductive, - capacitive)	RO	0
41059	**TAN_FI_2** Tangentθline 2 (+ inductive, - capacitive)	RO	0
41061	**TAN_FI_3** Tangentθline 3 (+ inductive, - capacitive)	RO	0
41063	**TAN_FI_AVG** Average Tangentθ(+ inductive, - capacitive)	RO	0
41065	**Phase_Order** L1, L2, L3 = 0; L1, L3, L2 = 1	RO	0
41067	**Internal_temperature** Internal Temperature [°C]	RO	0

9.5 Average, maximum and minimum value

Modbus address	Register name Description	R/W	Default
41069	**V_L1_N_RMS_AVG** Star voltage L1_N RMS average [V] over seconds_for_mean_RMS	RO	0
41071	**V_L1_N_RMS_MAX** Star voltage L1_N MAX RMS [V] over last seconds_for_MAX_RMS	RO	0
41073	**V_L1_N_RMS_min** Star voltage L1_N Min RMS [V] over lastseconds_for_min_RMS	RO	100000
41075	**V_L2_N_RMS_AVG** Star voltage L2_N RMS average [V] over seconds_for_mean_RMS	RO	0
41077	**V_L2_N_RMS_MAX** Star voltage L2_N MAX RMS [V] over last seconds_for_MAX_RMS	RO	0
41079	**V_L2_N_RMS_min** Star voltage L2_N Min RMS [V] over lastseconds_for_min_RMS	RO	100000
41081	**V_L3_N_RMS_AVG** Star voltage L3_N RMS average [V] over seconds_for_mean_RMS	RO	0
41083	**V_L3_N_RMS_MA**X Star voltage L3_N MAX RMS [V] over last seconds_for_MAX_RMS	RO	0
41085	**V_L3_N_RMS_min** Star voltage L3_N Min RMS [V] over lastseconds_for_min_RMS	RO	100000
41087	**V_STAR_AVG_RMS_AVG** Star voltage AVG RMS average [V] over seconds_for_mean_RMS	RO	0
41089	**V_STAR_AVG_RMS_MAX** Star voltage AVG MAX RMS [V] over last seconds_for_MAX_RMS	RO	0
41091	**V_STAR_AVG_RMS_min** Star voltage AVG Min RMS [V] over lastseconds_for_min_RMS	RO	100000
41093	**V_L1_L2_RMS_AVG** Line voltage L1-Line voltage L2-Line voltage L3-L1 RMS average [V] over seconds_for_mean_RMS	RO	0
41095	**V_L1_L2_RMS_MAX** Line voltage L1-Line voltage L2-Line voltage L3-L1 MAX RMS [V] over last seconds_for_MAX_RMS	RO	0
41097	**V_L1_L2_RMS_min** Line voltage L1-Line voltage L2-Line voltage L3-L1 Min RMS [V] over lastseconds_for_min_RMS	RO	100000
41099	**V_L2_L3_RMS_AVG** Line voltage L2-Line voltage L3-L1 RMS average [V] over seconds_for_mean_RMS	RO	0
41101	**V_L2_L3_RMS_MAX** Line voltage L2-Line voltage L3-L1 MAX RMS [V] over last seconds_for_MAX_RMS	RO	0
41103	**V_L2_L3_RMS_min** Line voltage L2-Line voltage L3-L1 Min RMS [V] over lastseconds_for_min_RMS	RO	100000
41105	**V_L3_L1_RMS_AVG** Line voltage L3-L1 RMS average [V] over seconds_for_mean_RMS	RO	0
41107	V_**L3_L1_RMS_MAX** Line voltage L3-L1 MAX RMS [V] over last seconds_for_MAX_RMS	RO	0
41109	**V_L3_L1_RMS_min** Line voltage L3-L1 Min RMS [V] over lastseconds_for_min_RMS	RO	100000
41111	**V_LINE_AVG_RMS_AVG** Line voltage AVG RMS average [V] over seconds_for_mean_RMS	RO	0

Modbus address	Register name Description	R/W	Default
41113	**V_LINE_AVG_RMS_MAX** Line voltage AVG MAX RMS [V] over last seconds_for_MAX_RMS	RO	0
41115	**V_LINE_AVG_RMS_min** Line voltage AVG Min RMS [V] over lastseconds_for_min_RMS	RO	100000
41117	**I_L1_RMS_AVG** L1 RMS average over seconds_for_mean_RMS	RO	0
41119	**I_L1_RMS_MAX** L1 MAX RMS over last seconds_for_MAX_RMS	RO	0
41121	**I_L1_RMS_min** L1 Min RMS over lastseconds_for_min_RMS	RO	100000
41123	**I_L2_RMS_AVG** L2 RMS average over seconds_for_mean_RMS	RO	0
41125	**I_L2_RMS_MAX** L2 MAX RMS over last seconds_for_MAX_RMS	RO	0
41127	**I_L2_RMS_min** L2 Min RMS over lastseconds_for_min_RMS	RO	100000
41129	**I_L3_RMS_AV**G L3 RMS average over seconds_for_mean_RMS	RO	0
41131	I_**L3_RMS_MAX** L3 MAX RMS over last seconds_for_MAX_RMS	RO	0
41133	**I_L3_RMS_min** L3 Min RMS over lastseconds_for_min_RMS	RO	100000
41135	**I_N_RMS_AVG** N RMS average over seconds_for_mean_RMS	RO	0
41137	**I_N_RMS_MAX** N MAX RMS over last seconds_for_MAX_RMS	RO	0
41139	**I_N_RMS_min** N Min RMS over lastseconds_for_min_RMS	RO	100000
41141	**I_AVG_RMS_AVG** I_AVG RMS average over seconds_for_mean_RMS	RO	0
41143	**I_AVG_RMS_MAX** I_AVG MAX RMS over last seconds_for_MAX_RMS	RO	0
41145	**I_AVG_RMS_min** I_AVG Min RMS over lastseconds_for_min_RMS	RO	100000
41147	**P1_RMS_AVG** P1 RMS average [W] over seconds_for_mean_RMS	RO	0
41149	**P1_RMS_MAX** P1 MAX RMS [W] over last seconds_for_MAX_RMS	RO	0
41151	**P1_RMS_min** P1 Min RMS [W] over lastseconds_for_min_RMS	RO	100000
41153	**P2_RMS_AVG** P2 RMS average [W] over seconds_for_mean_RMS	RO	0
41155	**P2_RMS_MAX** P2 MAX RMS [W] over last seconds_for_MAX_RMS	RO	0
41157	**P2_RMS_min** P2 Min RMS [W] over lastseconds_for_min_RMS	RO	100000
41159	**P3_RMS_AVG** P3 RMS average [W] over seconds_for_mean_RMS	RO	0
41161	**P3_RMS_MAX** P3 MAX RMS [W] over last seconds_for_MAX_RMS	RO	0
41163	**P3_RMS_min** P3 Min RMS [W] over lastseconds_for_min_RMS	RO	100000

Modbus address	Register name Description	R/W	Default
41165	**P_SUM_RMS_AVG** P_SUM RMS average [W] over seconds_for_mean_RMS	RO	0
41167	**P_SUM_RMS_MAX** P_SUM MAX RMS [W] over last seconds_for_MAX_RMS	RO	0
41169	**P_SUM_RMS_min** P_SUM Min RMS [W] over lastseconds_for_min_RMS	RO	100000
41173	**Q1_RMS_MAX** Q1 MAX RMS [VAR] over last seconds_for_MAX_RMS	RO	0
41175	**Q1_RMS_min** Q1 Min RMS [VAR] over lastseconds_for_min_RMS	RO	100000
41177	**Q2_RMS_AVG** Q2 RMS average [VAR] over seconds_for_mean_RMS	RO	0
41179	**Q2_RMS_MAX** Q2 MAX RMS [VAR] over last seconds_for_MAX_RMS	RO	0
41181	**Q2_RMS_min** Q2 Min RMS [VAR] over lastseconds_for_min_RMS	RO	100000
41183	**Q3_RMS_AVG** Q3 RMS average [VAR] over seconds_for_mean_RMS	RO	0
41185	**Q3_RMS_MAX** Q3 MAX RMS [VAR] over last seconds_for_MAX_RMS	RO	0
41187	**Q3_RMS_min** Q3 Min RMS [VAR] over lastseconds_for_min_RMS	RO	100000
41189	**Q_SUM_RMS_AVG** Q_SUM RMS average [VAR] over seconds_for_mean_RMS	RO	0
41191	**Q_SUM_RMS_MAX** Q_SUM MAX RMS [VAR] over last seconds_for_MAX_RMS	RO	0
41193	**Q_SUM_RMS_min** Q_SUM Min RMS [VAR] over lastseconds_for_min_RMS	RO	100000
41195	**S1_RMS_AVG** S1 RMS average [VA] over seconds_for_mean_RMS	RO	0
41197	**S1_RMS_MAX** S1 MAX RMS [VA] over last seconds_for_MAX_RMS	RO	0
41199	**S1_RMS_min** S1 Min RMS [VA] over lastseconds_for_min_RMS	RO	100000
41201	**S2_RMS_AVG** S2 RMS average [VA] over seconds_for_mean_RMS	RO	0
41203	**S2_RMS_MAX** S2 MAX RMS [VA] over last seconds_for_MAX_RMS	RO	0
41205	**S2_RMS_min** S2 Min RMS [VA] over lastseconds_for_min_RMS	RO	100000
41207	**S3_RMS_AVG** S3 RMS average [VA] over seconds_for_mean_RMS	RO	0
41209	**S3_RMS_MAX** S3 MAX RMS [VA] over last seconds_for_MAX_RMS	RO	0
41211	**S3_RMS_min** S3 Min RMS [VA] over lastseconds_for_min_RMS	RO	100000
41213	**S_SUM_RMS_AVG** S_SUM RMS average [VA] over seconds_for_mean_RMS	RO	0
41215	**S_SUM_RMS_MAX** S_SUM MAX RMS [VA] over last seconds_for_MAX_RMS	RO	0
41217	**S_SUM_RMS_min** S_SUM Min RMS [VA] over lastseconds_for_min_RMS	RO	100000

Modbus address	Register name Description	R/W	Default
41219	**PF1_RMS_AVG** PF1 RMS average over seconds_for_mean_RMS	RO	0
41221	**PF1_RMS_MAX** PF1 MAX RMS over last seconds_for_MAX_RMS	RO	0
41223	**PF1_RMS_min** PF1 Min RMS over lastseconds_for_min_RMS	RO	100000
41225	**PF2_RMS_AVG** PF2 RMS average over seconds_for_mean_RMS	RO	0
41227	**PF2_RMS_MAX** PF2 MAX RMS over last seconds_for_MAX_RMS	RO	0
41229	**PF2_RMS_min** PF2 Min RMS over lastseconds_for_min_RMS	RO	100000
41231	**PF3_RMS_AVG** PF3 RMS average over seconds_for_mean_RMS	RO	0
41233	**PF3_RMS_MAX** PF3 MAX RMS over last seconds_for_MAX_RMS	RO	0
41235	**PF3_RMS_min** PF3 Min RMS over lastseconds_for_min_RMS	RO	100000
41237	**PF_SUM_RMS_AVG** PF_SUM RMS average over seconds_for_mean_RMS	RO	0
41239	**PF_SUM_RMS_MAX** PF_SUM MAX RMS over last seconds_for_MAX_RMS	RO	0
41241	**PF_SUM_RMS_min** PF_SUM Min RMS over lastseconds_for_min_RMS	RO	100000
41243	**CF1_RMS_AVG** CF1 RMS average over seconds_for_mean_RMS	RO	0
41245	**CF1_RMS_MAX** CF1 MAX RMS over last seconds_for_MAX_RMS	RO	0
41247	**CF1_RMS_min** CF1 Min RMS over lastseconds_for_min_RMS	RO	100000
41249	**CF2_RMS_AVG** CF2 RMS average over seconds_for_mean_RMS	RO	0
41251	**CF2_RMS_MAX** CF2 MAX RMS over last seconds_for_MAX_RMS	RO	0
41253	**CF2_RMS_min** CF2 Min RMS over lastseconds_for_min_RMS	RO	100000
41255	**CF3_RMS_AVG** CF3 RMS average over seconds_for_mean_RMS	RO	0
41257	**CF3_RMS_MAX** CF3 MAX RMS over last seconds_for_MAX_RMS	RO	0
41259	**CF3_RMS_min** CF3 Min RMS over lastseconds_for_min_RMS	RO	100000
41261	**CF_N_RMS_AVG** CF_N RMS average over seconds_for_mean_RMS	RO	0
41263	**CF_N_RMS_MAX** CF_N MAX RMS over last seconds_for_MAX_RMS	RO	0
41265	**CF_N_RMS_min** CF_N Min RMS over lastseconds_for_min_RMS	RO	100000
41267	**Frequency_RMS_AVG** Frequency average over seconds_for_mean_RMS	RO	0
41269	**Frequency_RMS_MAX** Frequency MAX over last seconds_for_MAX_RMS	RO	0

Modbus address	Register name Description	R/W	Default
41271	**Frequency_RMS_min** Frequency Min over lastseconds_for_min_RMS	RO	100000
41281	**P1_Tot_AVG** Average total Power over minute_for_Max_and_AVG_demand for P1	RO	0
41283	**P2_Tot_AVG** Average total Power over minute_for_Max_and_AVG_demand for P2	RO	0
41285	**P3_Tot_AVG** Average total Power over minute_for_Max_and_AVG_demand for P3	RO	0
41287	**P_SUM_Tot_AVG** Average total Power over minute_for_Max_and_AVG_demand for P three phase	RO	0
41289	**P1_Plus_AVG** Average positive Power over minute_for_Max_and_AVG_demand for P1	RO	0
41291	**P2_Plus_AVG** Average positive Power over minute_for_Max_and_AVG_demand for P2	RO	0
41293	**P3_Plus_AVG** Average positive Power over minute_for_Max_and_AVG_demand for P3	RO	0
41295	**P_SUM_Plus_AVG** Average positive Power over minute_for_Max_and_AVG_demand for P three phase	RO	0
41297	**P1_Neg_AVG** Average Negative Power over minute_for_Max_and_AVG_demand for P1	RO	0
41299	**P2_Neg_AVG** Average Negative Power over minute_for_Max_and_AVG_demand for P2	RO	0
41301	**P3_Neg_AVG** Average Negative Power over minute_for_Max_and_AVG_demand for P3	RO	0
41303	**P_SUM_Neg_AVG** Average Negative Power over minute_for_Max_and_AVG_demand for P three phase	RO	0
41305	**Q1_Plus_AVG_ind** Average Reactive Inductive Power with positive active power over minute_for_Max_and_AVG_demand for Q1	RO	0
41307	**Q2_Plus_AVG_ind** Average Reactive Inductive Power with positive active power over minute_for_Max_and_AVG_demand for Q2	RO	0
41309	**Q3_Plus_AVG_ind** Average Reactive Inductive Power with positive active power over minute_for_Max_and_AVG_demand for Q3	RO	0
41311	**Q_SUM_Plus_AVG_ind** Average Reactive Inductive Power with positive active power over minute_for_Max_and_AVG_demand for Q three phase	RO	0
41313	**Q1_Neg_AVG_ind** Average Reactive Inductive Power with negative active power over minute_for_Max_and_AVG_demand for Q1	RO	0
41315	**Q2_Neg_AVG_ind** Average Reactive Inductive Power with negative active power over minute_for_Max_and_AVG_demand for Q2	RO	0
41317	**Q3_Neg_AVG_ind** Average Reactive Inductive Power with negative active power over minute_for_Max_and_AVG_demand for Q3	RO	0

Modbus address	Register name Description	R/W	Default
41319	**Q_SUM_Neg_AVG_ind** Average Reactive Inductive Power with negative active power over minute_for_Max_and_AVG_demand for Q three phase	RO	0
41321	**Q1_Plus_AVG_cap** Average Reactive Capacitive Power with positive active power over minute_for_Max_and_AVG_demand for Q1	RO	0
41323	**Q2_Plus_AVG_cap** Average Reactive Capacitive Power with positive active power over minute_for_Max_and_AVG_demand for Q2	RO	0
41325	**Q3_Plus_AVG_cap** Average Reactive Capacitive Power with positive active power over minute_for_Max_and_AVG_demand for Q3	RO	0
41327	**Q_SUM_Plus_AVG_cap** Average Reactive Capacitive Power with positive active power over minute_for_Max_and_AVG_demand for Q three phase	RO	0
41329	**Q1_Neg_AVG_cap** Average Reactive Capacitive Power with negative active power over minute_for_Max_and_AVG_demand for Q1	RO	0
41331	**Q2_Neg_AVG_cap** Average Reactive Capacitive Power with negative active power over minute_for_Max_and_AVG_demand for Q2	RO	0
41333	**Q3_Neg_AVG_cap** Average Reactive Capacitive Power with negative active power over minute_for_Max_and_AVG_demand for Q3	RO	0
41335	**Q_SUM_Neg_AVG_cap** Average Reactive Capacitive Power with negative active power over minute_for_Max_and_AVG_demand for Q three phase	RO	0
41337	**P1_MaxDemand** MAX Demand over minute_for_Max_and_AVG_demand for P1	RO	0
41339	**P2_MaxDemand** MAX Demand over minute_for_Max_and_AVG_demand for P2	RO	0
41341	**P3_MaxDemand** MAX Demand over minute_for_Max_and_AVG_demand for P3	RO	0
41343	**P_SUM_MaxDemand** MAX Demand over minute_for_Max_and_AVG_demand for P three phase	RO	0
41345	**Month_of_P1_MaxDemand** Month at which arises Max Demand over minute_for_Max_and_AVG_ demand for P1 for current month	RO	0
41346	**Day_of_P1_MaxDemand** Day at which arises Max Demand over minute_for_Max_and_AVG_ demand for P1 for current month	RO	0
41347	**Hour_of_P1_MaxDemand** Hour at which arises Max Demand over minute_for_Max_and_AVG_ demand for P1 for current month	RO	0
41348	**Minute_of_P1_MaxDemand** Minute at which arises Max Demand over minute_for_Max_and_AVG_ demand for P1 for current month	RO	0
41349	**Month_of_P2_MaxDemand** Month at which arises Max Demand over minute_for_Max_and_AVG_ demand for P2 for current month	RO	0

Modbus address	Register name Description	R/W	Default
41350	**Day_of_P2_MaxDemand** Day at which arises Max Demand over minute_for_Max_and_AVG_ demand for P2 for current month	RO	0
41351	**Hour_of_P2_MaxDemand** Hour at which arises Max Demand over minute_for_Max_and_AVG_ demand for P2 for current month	RO	0
41352	**Minute_of_P2_MaxDemand** Minute at which arises Max Demand over minute_for_Max_and_AVG_ demand for P2 for current month	RO	0
41353	**Month_of_P3_MaxDemand** Month at which arises Max Demand over minute_for_Max_and_AVG_ demand for P3 for current month	RO	0
41354	**Day_of_P3_MaxDemand** Day at which arises Max Demand over minute_for_Max_and_AVG_ demand for P3 for current month	RO	0
41355	**Hour_of_P3_MaxDemand** Hour at which arises Max Demand over minute_for_Max_and_AVG_ demand for P3 for current month	RO	0
41356	**Minute_of_P3_MaxDemand** Minute at which arises Max Demand over minute_for_Max_and_AVG_ demand for P3 for current month	RO	0
41357	**Month_of_P_SUM_MaxDemand** Month at which arises Max Demand over minute_for_Max_and_AVG_ demand for P_SUM for current month	RO	0
41358	**Day_of_P_SUM_MaxDemand** Day at which arises Max Demand over minute_for_Max_and_AVG_ demand for P_SUM for current month	RO	0
41359	**Hour_of_P_SUM_MaxDemand** Hour at which arises Max Demand over minute_for_Max_and_AVG_ demand for P_SUM for current month	RO	0
41360	**Minute_of_P_SUM_MaxDemand** Minute at which arises Max Demand over minute_for_Max_and_AVG_ demand for P_SUM for current month	RO	0
41361	**Year** RTC : year (2000-2099)	R/W	2025
41362	**Month** RTC : month (1-12)	R/W	10
41363	**Day** RTC : day month (1-31)	R/W	6
41364	**Hour** RTC : hour (0-23)	R/W	11
41365	**Minute** RTC : minute (0-59)	R/W	7
41366	**Seconds** RTC : second (0-59)	R/W	45
41367	**RSSI** Wifi Strength (of the connected AP)	RO	0

10 Support Portals and Technical Documentation

To obtain detailed information, technical assistance and up-to-date resources related to Pixsys products, users are invited to consult the following official portals:

	Forum Pixsys - available at: https://forum.pixsys.net a platform dedicated to user interaction, useful for resolving technical issues and sharing application experiences.
	Technical documentation Pixsys - available at https://docs.pixsys.com the official repository containing operational guides and continuously updated reference materials.

Warranty terms

Pixsys srl warrants its electronic devices for 12 months from Invoice date. Pixsys liability shall be limited to repairing (or replacing at its option) any defective product which is returned with RMA (Return Material Authorization) priorly obtained on Pixsys website and to be clearly marked on documents. Pixsys shall not be responsible for accident, neglect, misuse, damage to objects or people caused using the devices outside their specifications or outside any published performance data, including unauthorized and unqualified repairing or failure to provide proper environmental conditions. In no event shall Pixsys liability exceed the purchase price of the product(s). Warranty does not cover any damage arising from post-sale installation of software applications and specifically any damage caused by malware. Technical assistance by Pixsys which should be required to restore OS will be subject to assistance fee prevailing at time of request

Notes / Updates

Introduzione

I modelli PTA-M-3PH-05A-OT sono analizzatori di rete trifase con alimentazione 10..40VDC o 19..28VAC. Display grafico a colori 160x80 pixel, porta RS485, Wifi, NFC, uscita impulsiva/allarme.
Di seguito le caratteristiche principali del prodotto:

- Equivalente alla classe 0,2S (KWh) della EN62053-22
- Equivalente alla classe 0,2S (KVARh) della EN62053-24
- Precisione ±0,5% RDG
- Contatore di energia bidirezionale
- Misura in TRMS di forme d'onda distorte (tensione/corrente)
- Calcolo della corrente di Neutro
- Una uscita (mosfet) per allarmi o impulsive
- Wifi Station and Access point (Modbus TCP)
- Uscita seriale RS485 (Modbus RTU)
- NFC
- Logging nella flash fino a 1Mb
- Display a colori 16 bit 160x80 pixel con pulsante touch
- Frequenza di campionamento: 6400 campioni @ 50 Hz
- Dimensione 1 modulo DIN
- Analisi armonica completa (ampiezze e fasi)
- Integratore interno per sonde di Rogowski

1 Norme di sicurezza

Prima di utilizzare il dispositivo, leggere con attenzione le istruzioni e le misure di sicurezza contenute in questo manuale.
Disconnettere l'alimentazione prima di qualsiasi intervento sulle connessioni elettriche o sui settaggi hardware, al fine di prevenire il rischio di scosse elettriche, incendi o malfunzionamenti.
Non installare e non mettere in funzione lo strumento in ambienti con sostanze infiammabili, gas o materiali esplosivi.
Questo strumento è stato progettato e realizzato per l'utilizzo convenzionale in ambienti industriali e per applicazioni che prevedano condizioni di sicurezza conformi alla normativa nazionale e internazionale sulla tutela delle persone e sulla sicurezza dei luoghi di lavoro.
Deve essere evitata qualsiasi applicazione che comporti gravi rischi per l'incolumità delle persone o che sia correlata a dispositivi medici salvavita. Lo strumento non è progettato né realizzato per l'installazione in centrali nucleari, armamenti, sistemi di controllo del traffico aereo o della sicurezza in volo e sistemi di trasporto di massa.
L'utilizzo e la manutenzione sono riservati a personale qualificato e devono avvenire unicamente nel rispetto delle specifiche tecniche dichiarate in questo manuale.
Non smontare, modificare o riparare il prodotto, né toccare alcuna delle parti interne.
Lo strumento va installato e utilizzato esclusivamente entro i limiti delle condizioni ambientali dichiarate. Un eventuale surriscaldamento può comportare rischi di incendio e ridurre il ciclo di vita dei componenti elettronici.

1.1 Organizzazione delle note di sicurezza

Le note sulla sicurezza in questo manuale sono organizzate come segue:

Note di sicurezza	Descrizione
Danger!	La mancata osservanza di queste linee guida e avvisi di sicurezza può essere potenzialmente mortale.
Warning!	La mancata osservanza di queste linee guida e avvisi di sicurezza può comportare lesioni gravi o danni sostanziali alla proprietà.
Information!	Tali informazioni sono importanti per prevenire errori.

1.2 Note di sicurezza

Warning!	I dispositivi devono essere alimentati a energia limitata secondo UL 61010-1 3rd Ed, sezione 9.4 o LPS in conformità con UL 60950-1 o SELV in conformità con UL 60950-1 o Classe 2 in conformità con UL 1310 o UL 1585.
Warning!	Occasionalmente le viti troppo allentate possono provocare un incendio. Per i morsetti a vite, serrare le viti alla coppia di serraggio di 0,22 Nm
Warning!	Un malfunzionamento nel controllore digitale può occasionalmente rendere impossibili le operazioni di controllo o bloccare le uscite di allarme, con conseguenti danni materiali. Per mantenere la sicurezza, in caso di malfunzionamento, adottare misure di sicurezza appropriate; ad esempio con l'installazione di un dispositivo di monitoraggio indipendente e su una linea separata.

1.3 Precauzioni per l'uso sicuro

Assicurarsi di osservare le seguenti precauzioni per evitare errori, malfunzionamenti o effetti negativi sulle prestazioni e le funzioni del prodotto. In caso contrario, occasionalmente potrebbero verificarsi eventi imprevisti. Non utilizzare il controller digitale oltre i valori nominali.

- Il prodotto è progettato solo per uso interno. Non utilizzare o conservare il prodotto all'aperto o in nessuno dei seguenti posti:
  - Luoghi direttamente soggetti a calore irradiato da apparecchiature di riscaldamento.
  - Luoghi soggetti a spruzzi di liquido o atmosfera di petrolio.
  - Luoghi soggetti alla luce solare diretta.
  - Luoghi soggetti a polvere o gas corrosivi (in particolare gas di solfuro e gas di ammoniaca).
  - Luoghi soggetti a forti sbalzi di temperatura.
  - Luoghi soggetti a formazione di ghiaccio e condensa.
  - Luoghi soggetti a vibrazioni e forti urti.
- L'utilizzo di due o più controller affiancati o uno sopra l'altro possono causare un incremento di calore interno che ne riduce il ciclo di vita. In questo caso si raccomanda l'uso di ventole per il raffreddamento forzato o altri dispositivi di condizionamento della temperatura interno quadro.
- Controllare sempre i nomi dei terminali e la polarità e assicurarsi di effettuare una cablatura corretta. Non collegare i terminali non utilizzati.
- Per evitare disturbi induttivi, mantenere il cablaggio dello strumento lontano da cavi di potenza con tensioni o corren ti elevate. Inoltre, non collegare linee di potenza insieme o in parallelo al cablaggio del controller digitale. Si consiglia l'uso di cavi schermati e condotti separati. Collegare un limitatore di sovratensione o un filtro antirumore ai dispositivi che generano rumore (in particolare motori, trasformatori, solenoidi, bobine o altre apparecchiature con componenti induttivi). Quando si utilizzano filtri antidisturbo sull'alimentazione, controllare tensione e corrente e collegare il filtro il più vicino possibile allo strumento. Lasciare più spazio possibile tra il controller e dispositivi di potenza che generano alte frequenze (saldatrici ad alta frequenza, macchine per cucire ad alta frequenza, ecc.) o sovratensioni.
- Un interruttore o un sezionatore deve essere posizionato vicino al regolatore. L'interruttore o il sezionatore deve essere facilmente raggiungibile dall'operatore e deve essere contrassegnato come mezzo di disconnessione per il controller.
- Rimuovere lo sporco dallo strumento con un panno morbido e asciutto. Non usare mai diluenti, benzina, alcool o detergenti che contengano questi o altri solventi organici. Possono verificarsi deformazioni o scolorimento.
- Il numero di operazioni di scrittura della memoria non volatile è limitato. Tenere conto di questo quando si utilizza la modalità di scrittura in EEprom ad esempio nella variazione dei dati durante le comunicazioni seriali.

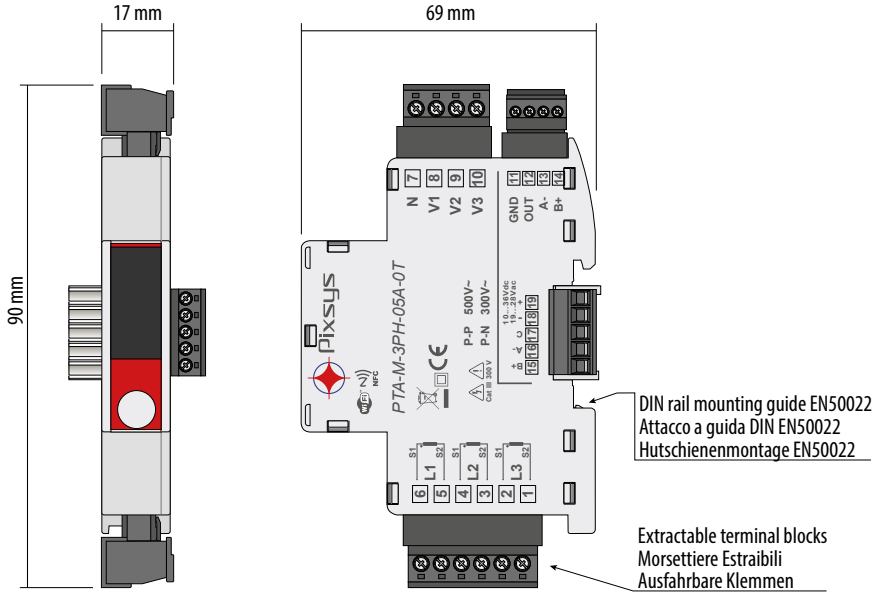
1.4 Tutela ambientale e smaltimento dei rifiuti / Direttiva WEEE

Non smaltire le apparecchiature elettriche ed elettroniche tra i rifiuti domestici.
Secondo la Direttiva Europea 2012/19/EU le apparecchiature esauste devono essere raccolte separatamente al fine di essere reimpiegate o riciclate in modo eco-compatibile.

2 Identificazione del modello

PTA-M-3PH-05A-OT	ANALIZZATORE DI RETE 3PH 1 DIN MODBUS TCP ALIM.10..40VDC, TA 5A

3 Dimensioni e installazione



4 Dati tecnici

4.1 Caratteristiche generali

Tipo	Alimentazione SELV
Tipo di alimentazione	Monofase dal morsetto T-BUS
Tensione AC/DC	10..40 VDC / 19..28 VAC
Consumo	< 1,5W
Condizioni operative	-25°C..65°C, HR 10..90% senza condensa, < 2000m s.l.m.
Tenperatura di stoccaggio	-40°C..+85°C
Connessioni	1x terminale estraibile passo 3,5 mm 4 poli 1x terminale estraibile passo 5 mm 4 poli 1x terminale estraibile passo 5 mm 6 poli 1x terminale T-BUS
Categoria di installazione	III
Isolamenti	4 kVRMS tra alimentazione e ingressi di misura 4 kVRMS tra RS485 e ingressi di misura 1,5 kVRMS tra alimentazione e RS485
Dimensioni	90 x 69 x 17 mm

Materiale e Grado di protezione	PBT - IP20
Display	Display a colori 16 bit 160x80px, con pulsante touch
Configurazione	via webserver integrato

4.2 Normative

Scariche elettrostatiche (EN 61000-4-2)	8 kV a contatto, 15 kV in aria
Immunità irradiata (EN 61000-4-3)	10 V/m
Immunità transitori veloci EFT (EN 61000-4-4)	2 kV
Immunità ai surge (EN 61000-4-5)	2 kV sull'alimentazione; 1 kV sugli ingressi di misura amperometrica, RS485 e uscita digitale
Immunità disturbi condotti (EN 61000-4-6)	10 V
Emissioni condotte e irradiate (EN 55032)	Classe B
Sicurezza	EN 61010-1; EN 61010-2-030
Certificazioni	CE, UKCA

4.3 Specifiche ingressi

Range di tensione nominale L-N	85 - 265 Vac
Range di tensione nominale L-L	150 - 450 Vac
Frequenza di lavoro	DC / 1 - 65 Hz
Connessione	con TA in corrente 5A
Corrente di avviamento (Ist)	5 mA
Corrente minima (In)	50 mA
Corrente nominale (In)	5 AAC
Corrente Massima (IMAX)	6 AAC
Fattore di cresta	< 4 (20 APK MAX)
Impedenza	< 1 VA per fase
Sovraccarico per 500 ms	40 AAC

4.4 Precisioni (secondo EN50470-3 e EN62053-24)

Precisioni (@25 ± 5°C; frequenza = 50 Hz)		Tempi di aggiornamento
Frequenza	± 0,008 Hz (45..65 Hz)	100ms
Tensione	± 0,2% rdg	Configurabile da 1 a 65535 periodi (da 20 ms a 21,8 minuti se frequenza = 50Hz)
Corrente	± 0,3% rdg	
Potenza attiva e apparente	± 0,3% rdg (In o Vn da 5% a 100%)	
(PF = 0.5L ..0.5C)	± 0,4% rdg (In o Vn da 1% a 5%)	
Potenza reattiva (	± 0,3% rdg (In o Vn da 5% a 100%)	
sinφ = 0.5L .. 0.5C)	± 0,4% rdg (In o Vn da 1% a 5%)	
Energia attiva	classe C secondo EN50470-1/3 classe 0,5 S secondo EN62053-22	
Energia reattiva (quando misurata, vedi oltre)	classe 0,5 S secondo EN62053-24	
Fattore di potenza	± (0,001 +1%(1.00-PF))	
Banda passante (-3dB)	> 2KHz	non applicabile
Deriva termica	<100 ppm/°C	
THD	±0.3%	100ms
Armoniche	±3% ampiezza fino alla 16 armonica ±5% ampiezza dalla 17 armonica alla 63 armonica ±5° sfasamento fino alla 16 armonica ±10° sfasamento dalla 17 armonica alla 63 armonica	

Nota: la precisione della potenza reattiva è garantita qualora lo strumento sia impostato per il calcolo di Q tramite formula di Budeanu.

4.5 Misure effettuate

Misure Realtime	VRMS LL e VRMS LN[V]; IRMS [A]; Potenza attiva P [W]; Potenza Reattiva Q [VAR]; Potenza Apparente S [VA]; Cos φ; Tan φ; Fattore di cresta; Frequenza [Hz]; Temperatura interna [°C]; Sequenza fasi; RSSI Wifi;
Contatori	Energia Attiva [Wh] (pos, neg, totale), Energia Reattiva [VARh] (pos, neg, totale), Energia Apparente [Vah] (pos, neg, totale), Tempo di installazione [h]
Valori medi, massimi e minimi	VRMS LL media, massima e minima; VRMS LN media, massima e minima; IRMS media, massima e minima; Potenza attiva P media, massima e minima; Potenza Reattiva Q media, massima e minima; Potenza Apparente S media, massima e minima; Cos φ medio, massimo e minimo; Crest factor medio, massimo e minimo; Frequenza media, massima e minima; Picchi su Tensione VLL; Picchi su Tensione VLN; Picchi su Correnti I; MAX demand; Media mobile impostabile su P, P_Plus, P_neg, Q_plus_ind, Q_plus_cap, Q_neg_ind, Q_neg_cap

4.6 Porta RS485

Protocollo	Modbus RTU
Numero indirizzi	Fino a 247 (**Default** 1)
Baudrate	Da 1200 a 115200 Baud (**Default** 9600)
Parametri di configurazione	Indirizzo Baudrate Parità Stop bit
Connessione	Via T-BUS oppure morsetto 4 poli, passo 3.5mm

4.7 Porta Wifi

Protocollo	Modbus TCP HTTP MQTT
Numero client	Fino a 10
Frequenza	2.4 Ghz 802.11 b/g/n
Funzionalità associate	Webserver Aggiornamento firmware Comunicazione Logging
Parametri di configurazione	Indirizzo IP subnet mask Indirizzo gateway Porta TCP DHCP MQTT

4.8 Uscita digitale

Impiego	Allarme o impulsi/kWh
Numero	1
Tipo	A stato solido
Portata	< 40V, < 100mA
Connessione	Tramite morsetto estraibile 4 poli passo 3.5mm

4.9 Funzionalità software

Tipo di misura	TRMS
Tempo di campionamento	6400 campioni/s @ 50 Hz; 7280 campioni/s @ 60 Hz
Aggiornamento della misura	programmabile da software; default ogni 50 cicli (AC); max 65535 cicli
Rapporti di trasformazione	TA e TV default 1,0; impostabili da software
Ritardi di trasformazione	0,0° @ 50 Hz default; impostabile da software
Soglia minima di visualizzazione	impostabile su tensione, corrente e potenza
Durata batteria interna	min 4 anni

5 Interfaccia grafica



Pressione breve del pulsante: s
corrimento pagine dei dati energetici

Pressione lunga:
configurazione modalità Wifi, password ecc.

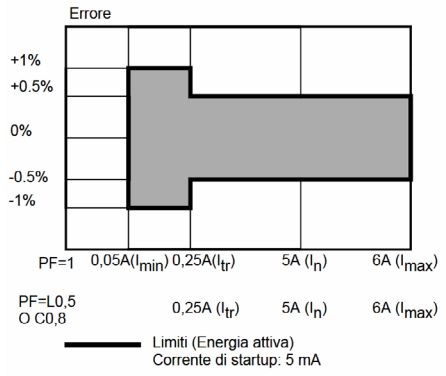
6 Informazioni supplementari

6.1 Isolamenti tra ingressi e uscite

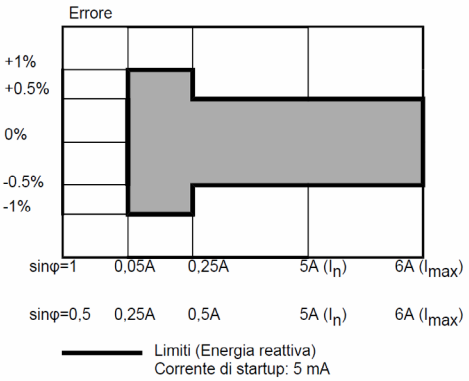
	Alimentazione	Ingr.misura	RS485	Ethernet	Usc.digitale
Alimentazione	-	4kV	1,5kV	1,5kV	1,5kV
Ingressi misura	4kV	-	4kV	4kV	4kV
RS485	1,5kV	4kV	-	1,5kV	1,5kV
Ethernet	1,5kV	4kV	1,5kV	-	1,5kV
Uscita digitale	1,5kV	4kV	1,5kV	1,5kV	-

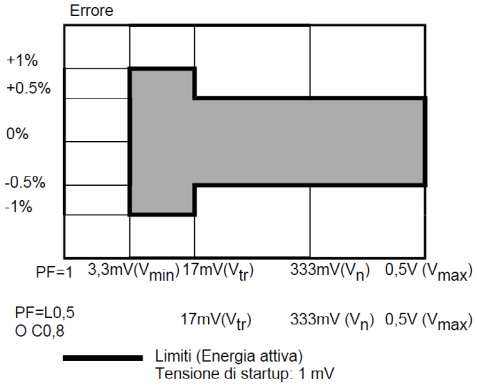
6.2 Precisione

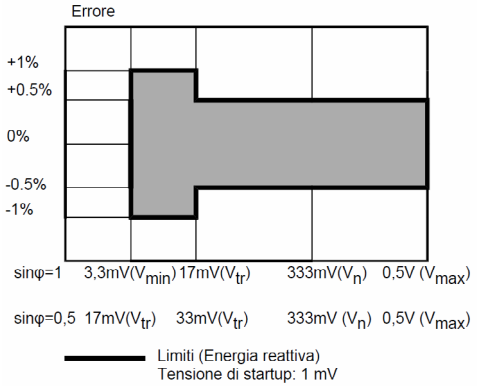
Wh, precisione in funzione del carico (TA con uscita in corrente)



VARh, precisione in funzione del carico (TA con uscita in corrente)





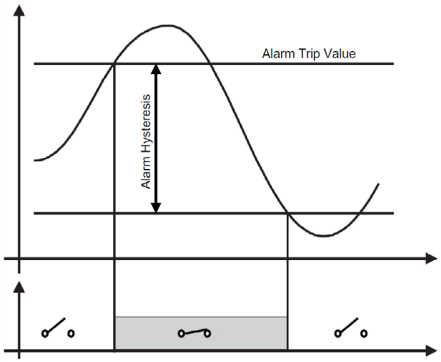


6.3 Uscita digitale

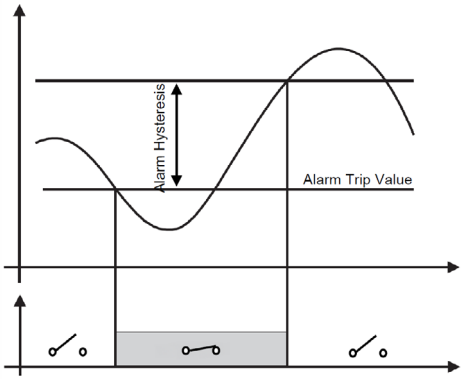
Si può settare l'uscita digitale per funzionare come allarme o uscita impulsiva.
Agli allarmi è possibile associare il buzzer per avere una segnalazione acustica dell'allarme.

ALLARMI

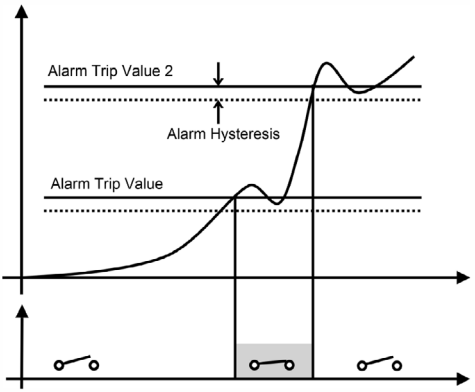
In salita: contatto Normalmente aperto



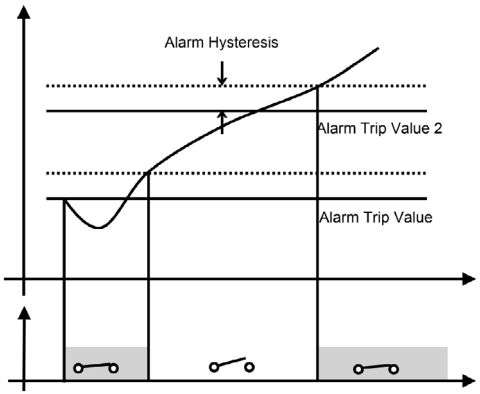
In discesa: contatto Normalmente chiuso



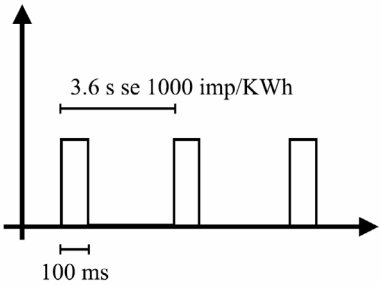
A finestra: contatto chiuso tra le soglie



A finestra: contatto chiuso al di fuori delle soglie



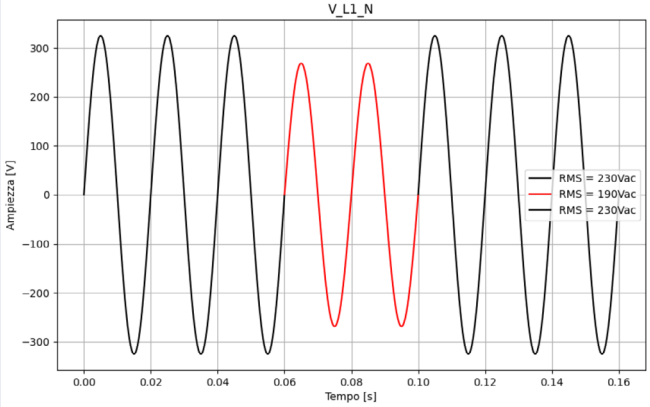
USCITA IMPULSIVA



Uscita impulsiva in alternativa a uscita digitale per allarmi.

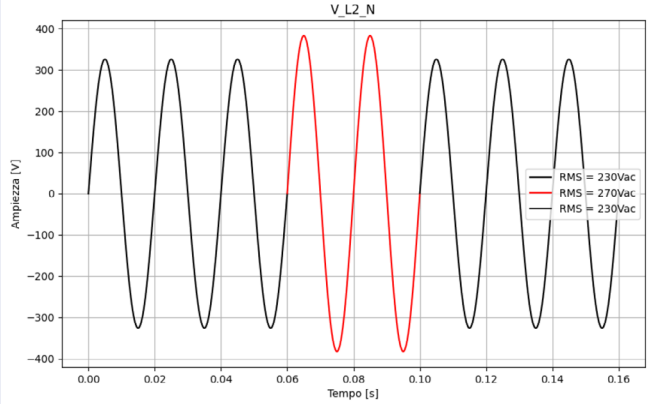
6.4 Power quality

SAG



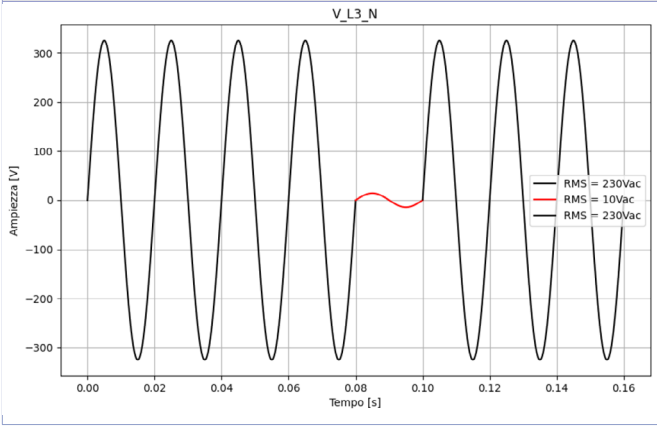
- Type: Sag
- Value: 190 V
- Query: 1 (V_L2_N)
- Duration: 40 ms

SWELL



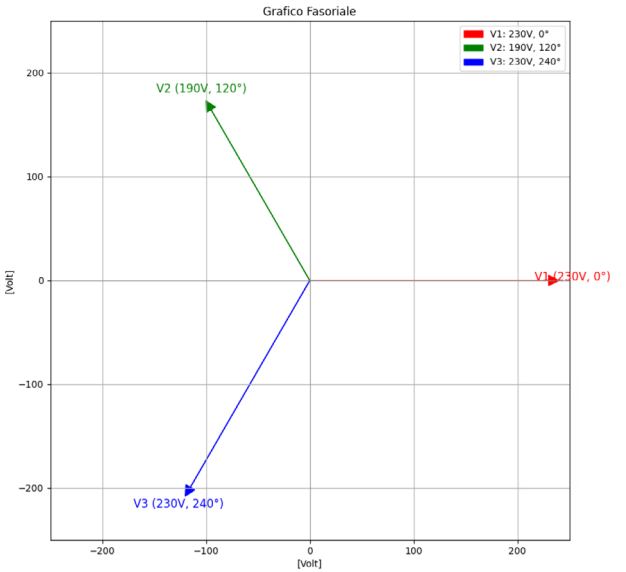
- Type: Swell
- Value: 270 V
- Query: 2 (V_L2_N)
- Duration: 40 ms

INTERRUPTION



- Type: Interruption
- Value: 10 V
- Query: 3 (V_L3_N)
- Duration: 20 ms

UNBALANCE



- Unbalance: 6.15%

6.5 Forme d'onda realtime

L'analizzatore può registrare fino a 10 forme d'onda (3 canali di tensione stellati, 3 concatenati, 4 correnti di linea).
Vengono acquisiti 128 campioni per ogni periodo. Il campionamento avviene a 6400 sps @ 50 Hz. Attraverso il webserver è visualizzabile direttamente. E' inoltre possibile accedere ai valori tramite registri Modbus, sia attraverso la RS485 (Modbus RTU), sia attraverso il Wifi (Modbus TCP, consigliato).

7 Prima connessione

Per connettersi allo strumento in Wifi, seguire i seguenti passi:

1. Connettersi all'AP esposto (di default PTA-M-3PH-05A-OT_SerialNumber) con uno smartphone. Password indicata nell'etichetta come PW AP
2. Disabilitare la connessione dati
3. Aprire un browser tipo Chrome e inserire l'indirizzo https://192.168.4.1
4. Inserisci nome utente e password: *"admin"* e PW WEB (indicata nell'etichetta)
5. All'interno del webserver integrato, nella pagina relativa alle connessioni wifi inserire SSID target e Password target della rete Wifi usata.
6. Riavviare lo strumento, che sarà visibile direttamente dalla rete locale. La verifica del corretto funzionamento avviene effettuando l'accesso al webserver interno dove si potranno monitorare le principali grandezze elettriche, che dovrebbero risultare analoghe ai valori attesi.

8 Collegamenti elettrici

Warning! Poiché l'oggetto appartiene alla classe II, come da norma EN 61140:2004-05 Protezione contro i contatti elettrici - Aspetti comuni per gli impianti e le apparecchiature - Collegamento equipotenziale, **è vietata la messa a terra dello strumento**, onde evitare di danneggiare il dispositivo e ridurre la sicurezza dell'impianto. L'eventuale messa a terra deve garantire che non ci sia passaggio di corrente tra il morsetto 7 (N) e la terra PE. Apparecchio destinato esclusivamente ad installazione interna in quadro elettrico (grado di protezione garantito dal quadro). L'apparecchio deve essere collegato a valle di un interruttore automatico o sezionatore facilmente raggiungibile e marchiato come dispositivo di sezionamento dell'apparecchio.

Per l'installazione in ambienti industriali è buona norma seguire la seguenti precauzioni:

- Distinguere la linea di alimentazioni da quelle di potenza.
- Evitare la vicinanza di gruppi di teleruttori, contattori elettromagnetici, motori di grossa potenza e comunque usare appositi filtri.
- Evitare la vicinanza di gruppi di potenza, in particolare se a controllo di fase.
- Si raccomanda l'impiego di filtri di rete sull'alimentazione della macchina in cui lo strumento verrà installato, in particolare nel caso di alimentazione 230Vac.
  Si evidenzia che il regolatore è concepito per essere assemblato ad altre macchine e dunque la marcatura CE del regolatore non esime il costruttore dell'impianto dagli obblighi di sicurezza e conformità previsti per la macchina nel suo complesso.
- **Cablaggio della morsettiera da 3,5 mm:** utilizzare puntalini a tubetto crimpati o filo di rame flessibile o rigido con diametro fino a 1.5 mm^2 / 16 AWG. La lunghezza di spelatura è 7 mm. Condizioni operative: -40°C..+130°C.
- **Cablaggio della morsettiera da 5 mm**: utilizzare puntalini a tubetto crimpati o filo di rame flessibile o rigido con diametro fino a 2.5 mm^2 / 14 AWG. La lunghezza di spelatura è 9 mm.
- E' possibile collegare su un unico morsetto, due conduttori di uguale diametro compreso tra 0.14 e 0.75 mm^2.

8.1 Diagrammi di collegamento

8.1.a Alimentazione



Alimentazione 10..40VDC oppure 19..28VAC ±15%

- 19: +VDC
- 18: -VDC

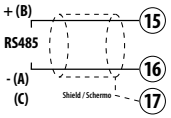
8.1.b Uscita digitale



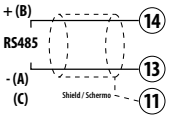
Uscita digitale mosfet (40 V max, 100 mA max)

8.1.c Porta seriale RS485

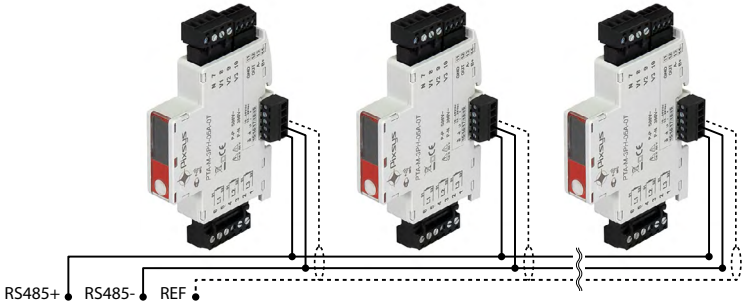
Seriale Modbus RTU slave disponibile nel morsetto T-BUS e nel morsetto 4 poli passo 3.5mm:



T-BUS:
15: RS485+
16: RS485-
17: C GND

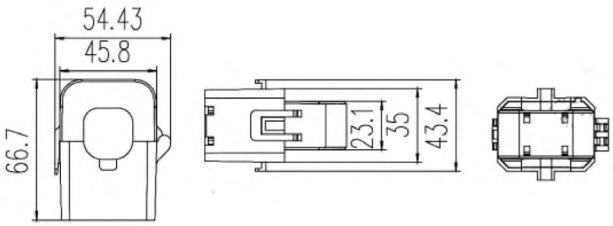


Morsetto 4 poli:
14: RS485+
13: RS485-
11: C GND



8.1.d Trasformatori amperometrici

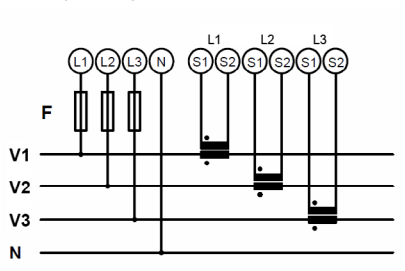




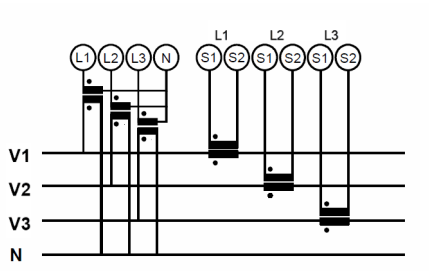
Codice d'ordine	Diam.Foro	Corrente nominale	Uscita
2000.35.045	24mm	100A	5A
2000.35.046	24mm	200A	5A
2000.35.047	24mm	400A	5A

8.1.e Esempi di collegamento

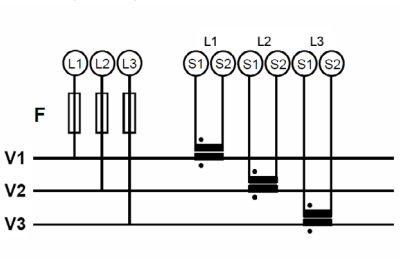
Trifase, 4 fili, connessione con 3 TA



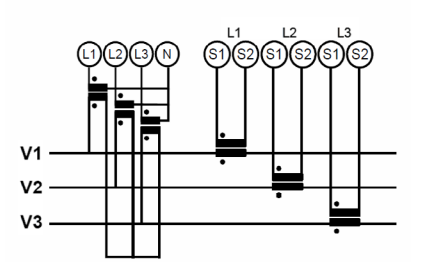
Trifase, 4 fili, connessione con 3 TA e 3 TV



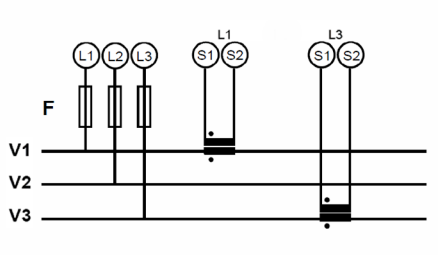
Trifase, 3 fili, connessione con 3 TA



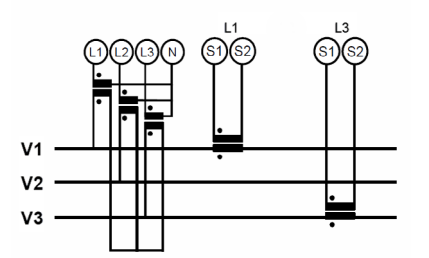
Trifase, 3 fili, connessione con 3 TA e 3 TV



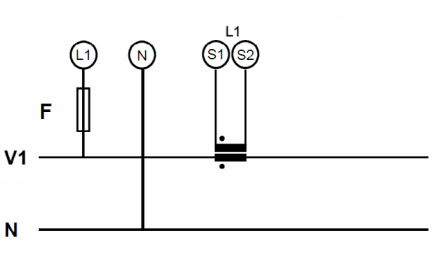
Trifase, 3 fili, connessione con 2 TA (Aron)



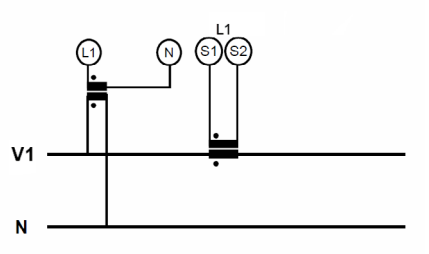
Trifase, 3 fili, connessione con 2 TA e 3 TV (Aron)



Monofase, 2 fili, connessione con 1 TA



Monofase, 2 fili, connessione con 1 TA e 1 TV



9 Mappatura registri Modbus
9.1 Device Information

Indirizzo Modbus	Nome registro Descrizione	R/W	Default
40001	**machine_id_1** Machine ID. 1 char per register	RO	E
40002	**machine_id_2** Machine ID. 1 char per register	RO	M
40003	**machine_id_3** Machine ID. 1 char per register	RO	T
40004	**machine_id_4** Machine ID. 1 char per register	RO	4
40005	**machine_id_5** Machine ID. 1 char per register	RO	3
40006	**machine_id_6** Machine ID. 1 char per register	RO	2
40007	**machine_id_7** Machine ID. 1 char per register	RO	\0
40008	**machine_id_8** Machine ID. 1 char per register	RO	\0
40009	**hw_version** Hardware version.	RO	1
40010	**fw_version** Firmware version.	RO	1
40011	**mounted_version** 0 -> 5A 1 -> Rogowski, 333 mV	RO	0
40012	**year_month** calibration year and month	RO	2510
40013	**day_Hour** calibration day and hour	RO	610
40014	**minute_second** calibration minute and second	RO	835
40015	**feature_version** 0 -> Base version 1 -> Full version	RO	0
40016	**Mac_address_Wifi_STA_1** Mac address Wifi Station MSB	RO	11
40017	**Mac_address_Wifi_STA_2** Mac address Wifi Station	RO	22
40018	**Mac_address_Wifi_STA_3** Mac address Wifi Station	RO	33
40019	**Mac_address_Wifi_STA_4** Mac address Wifi Station	RO	44
40020	**Mac_address_Wifi_STA_5** Mac address Wifi Station	RO	55
40021	**Mac_address_Wifi_STA_6** Mac address Wifi Station LSB	RO	66
40022	**Mac_address_Wifi_SOFT_AP_1** Mac address Wifi software enabled access point MSB	RO	11
40023	**Mac_address_Wifi_SOFT_AP_2** Mac address Wifi software enabled access point	RO	22

Indirizzo Modbus	Nome registro Descrizione	R/W	Default
40024	**Mac_address_Wifi_SOFT_AP_3** Mac address Wifi software enabled access point	RO	33
40025	**Mac_address_Wifi_SOFT_AP_4** Mac address Wifi software enabled access point	RO	44
40026	**Mac_address_Wifi_SOFT_AP_5** Mac address Wifi software enabled access point	RO	55
40027	**Mac_address_Wifi_SOFT_AP_6** Mac address Wifi software enabled access point LSB	RO	66
40028	**Mac_address_Ethernet_1** Mac address Ethernet MSB	RO	31
40029	**Mac_address_Ethernet_2** Mac address Ethernet	RO	32
40030	**Mac_address_Ethernet_3** Mac address Ethernet	RO	33
40031	**Mac_address_Ethernet_4** Mac address Ethernet	RO	34
40032	**Mac_address_Ethernet_5** Mac address Ethernet	RO	35
40033	**Mac_address_Ethernet_6** Mac address Ethernet LSB	RO	36
40034	**Mac_address_Bluetooth_1** Mac address Bluetooth MSB	RO	96
40035	**Mac_address_Bluetooth_2** Mac address Bluetooth	RO	95
40036	**Mac_address_Bluetooth_3** Mac address Bluetooth	RO	94
40037	**Mac_address_Bluetooth_4** Mac address Bluetooth	RO	93
40038	**Mac_address_Bluetooth_5** Mac address Bluetooth	RO	92
40039	**Mac_address_Bluetooth_6** Mac address Bluetooth LSB	RO	91
40041	**plugin_board** 0: nessun plugin 1: Digital input plugin 2: Lora plugin	RO	0

9.2 Device Settings

Indirizzo Modbus	Nome registro Descrizione	R/W	Default
40227	**modbus_RTU_address** Modbus address	R/W	1
40228	**modbus_RTU_delay** Delay Modbus answer (in ms)	R/W	0

Indirizzo Modbus	Nome registro Descrizione	R/W	Default
40229	**modbus_RTU_baudrate** 0 = 1200 1 = 2400 2 = 4800 3 = 9600 4 = 19200 5 = 38400 6 = 57600 7 = 115200	R/W	3
40230	**modbus_RTU_parity** 0 = NONE 1 = EVEN	R/W	0
40231	**modbus_RTU_Stop_bit** 0 = 1 Bit 1 = 1,5 Bit 2 = 2 Bit	R/W	0
40232	**Measurement_Configuration_Register** Bit 0: Don't care Bit 1..2: Connection 0 = Single phase 1 = Three phase: 3 wires, 2 TA (Aron) 2 = Three phase: 3 wires, 3 TA 3 = Three phase: 4 wires, 3 TA (with neutral) Bit 3: FFT representation 0 = Absolute 1 = Relative to the I_1 value Bit 4: HPF filter 0 = Enabled 1 = Disabled Bit 5: Reactive power calculation method 0 = Triangle method 1 = Budeanu Bit 6: Digital output behaviour 0 = Alarm 1 = Pulsed output for KWh Bit 7: Frequency detection Channel 0 = Voltage 1 = Current Bit 9: Energy saving 0 = Disabled 1 = Enabled Bit 10..11: Output switch condition 0 = Normally Opened condition 1 = Normally Closed condition 2 = Within Threshold 3 = Outside Threshold Bit 13: Integrator condition 0 = Integrator disabled 1 = Integrator enabled (Rogowski input) Bit 15: Filtered measurement 0 = Filtering disabled 1 = Filtering enabled	R/W	518

Indirizzo Modbus	Nome registro Descrizione	R/W	Default
40233	**Machine_Configuration_Register** Bit 0: Not Used 0 = Disabled 1 = Enabled Bit 1: Buzzer in touch pad 0 = Disabled 1 = Enabled Bit 2: Buzzer during alarm condition 0 = Disabled 1 = Enabled Bit 3: Wifi STA 0 = Disabled 1 = Enabled Bit 4: Wifi AP 0 = Disabled 1 = Enabled Bit 5: MQTT 0 = Disabled 1 = Enabled	R/W	59
40235	**TA_Transducer_ratio** If Input 1A/5A, 20mA/100 mA = Current transformer ratio M/N - **Default** 1.0 (Ex: 600:5 = transducer_ratio = 120) If Input Rogowski = Sensitivity [V/A]	R/W	1
40237	**TA_Transducer_delay** Current transformer delay in [°] @ 50 Hz for accurate power calculation	R/W	0
40239	**TV_Transducer_ratio** Voltage transformer ratio M/N - **Default** 1.0 (Ex: 1000:100 = transducer_ratio = 10)	R/W	1
40241	**TV_Transducer_delay** Voltage transformer delay in [°] @ 50 Hz for accurate power calculation	R/W	0
40243	**minimum_voltage_ripple** Minimum threshold under which the instrument reads 0 independent from the input value	R/W	0
40245	**minimum_current_ripple** Minimum threshold under which the instrument reads 0 independent from the input value	R/W	0
40247	**minimum_power_ripple** Minimum threshold under which the instrument reads 0 independent from the input value (P, Q, and S)	R/W	0
40249	**DC_Filter** Update rate when no Zero crossing is detected [tenth of second]; lower => faster; higher => more accurate	R/W	10
40250	**AC_Filter** Update rate when Zero crossing is detected [number of periods]; lower => faster; higher => more accurate	R/W	50
40251	**minute_for_Max_and_AVG_demand** Minute for Max demand and Average power calculation (0..45)	R/W	15
40253	**seconds_for_mean_RMS** Register in seconds (0..60) for RMS average	R/W	15
40254	**seconds_for_MAX_RMS** Seconds 1..60 for MAX RMS value. If the register is 0, then the absolute MAX RMS is given	R/W	15

Indirizzo Modbus	Nome registro Descrizione	R/W	Default
40255	**seconds_for_min_RMS** Seconds 1..60 for min RMS value. If the register is 0, then the absolute min RMS is given	R/W	15
40256	**Energy_unit_factor** Variable for changing Energy measurement unit: 0 -> [Wh/10] 1 -> [Wh] .. 4 -> [KWh] 7 -> [MWh] 10 -> [GWh]	R/W	4
40258	**MQTT_broker** 0 -> Chronos Broker 1 -> Custom Broker	R/W	0
40261	**MQTT_port** porta broker MQTT	R/W	8883
40271	**Alarm_Register_start_address** DIGITAL OUTPUT 1: Modbus address address for alarm (starting from the modbus address of V_L1_N, V_L2_N, V_L3_N, ecc)	R/W	40000
40272	**Alarm_delay** DIGITAL OUTPUT 1: Delay in ms for Alarm trigger	R/W	0
40273	**Alarm_trip_value** DIGITAL OUTPUT 1: Alarm Threshold for closed and open condition OR first alarm Threshold for Within threshold and Outside threshold	R/W	0
40275	**Alarm_hysteresis** DIGITAL OUTPUT 1: Alarm Hysteresis	R/W	0
40277	**Alarm_trip_value_2** DIGITAL OUTPUT 1: Second alarm Threshold for within threshold and Outside threshold condition	R/W	0
40281	**Nominal_Star_Voltage** Nominal Star Voltage for Sag, Swell, Interruption monitoring [V]	R/W	230
40283	**Sag_percentage_level** Percentage over Nominal_Star_Voltage under which a Sag event is generated (default 0.9 = 90 %); must be over Interruption_percentage_ level	R/W	0,8
40285	**Swell_percentage_level** Percentage over Nominal_Star_Voltage over which a Swell event is generated (default 1.1 = 110 %)	R/W	1,2
40287	**Interruption_percentage_level** Percentage over Nominal_Star_Voltage under which an Interruption event is generated (default 0.1 = 10 %)	R/W	0,1
40291	**Minimum_duration_cutoff** Sag, Swell or Interruption events must be above this cutoff to be displayed and saved [ms]	R/W	0
40292	**Modbus_TCP_port** Porta server modbus TCP	R/W	502
40293	**Wifi_STA_SSID_target_0** WI-FI STA Access point SSID 0	R/W	F
40294	**Wifi_STA_SSID_target_1** WI-FI STA Access point SSID 1	R/W	R
40295	**Wifi_STA_SSID_target_2** WI-FI STA Access point SSID 2	R/W	I

Indirizzo Modbus	Nome registro Descrizione	R/W	Default
40296	**Wifi_STA_SSID_target_3** WI-FI STA Access point SSID 3	R/W	T
40297	**Wifi_STA_SSID_target_4** WI-FI STA Access point SSID 4	R/W	Z
40298	**Wifi_STA_SSID_target_5** WI-FI STA Access point SSID 5	R/W	!
40299	**Wifi_STA_SSID_target_6** WI-FI STA Access point SSID 6	R/W	B
40300	**Wifi_STA_SSID_target_7** WI-FI STA Access point SSID 7	R/W	o
40301	**Wifi_STA_SSID_target_8** WI-FI STA Access point SSID 8	R/W	x
40302	**Wifi_STA_SSID_target_9** WI-FI STA Access point SSID 9	R/W	
40303	**Wifi_STA_SSID_target_10** WI-FI STA Access point SSID 10	R/W	7
40304	**Wifi_STA_SSID_target_11** WI-FI STA Access point SSID 11	R/W	5
40305	**Wifi_STA_SSID_target_12** WI-FI STA Access point SSID 12	R/W	3
40306	**Wifi_STA_SSID_target_13** WI-FI STA Access point SSID 13	R/W	0
40307	**Wifi_STA_SSID_target_14** WI-FI STA Access point SSID 14	R/W	
40308	**Wifi_STA_SSID_target_15** WI-FI STA Access point SSID 15	R/W	P
40309	**Wifi_STA_SSID_target_16** WI-FI STA Access point SSID 16	R/W	U
40310	**Wifi_STA_SSID_target_17** WI-FI STA Access point SSID 17	R/W	\0
40311	**Wifi_STA_SSID_target_18** WI-FI STA Access point SSID 18	R/W	\0
40312	**Wifi_STA_SSID_target_19** WI-FI STA Access point SSID 19	R/W	\0
40313	**Wifi_STA_SSID_target_20** WI-FI STA Access point SSID 20	R/W	\0
40314	**Wifi_STA_SSID_target_21** WI-FI STA Access point SSID 21	R/W	\0
40315	**Wifi_STA_SSID_target_22** WI-FI STA Access point SSID 22	R/W	\0
40316	**Wifi_STA_SSID_target_23** WI-FI STA Access point SSID 23	R/W	\0
40317	**Wifi_STA_SSID_target_24** WI-FI STA Access point SSID 24	R/W	\0
40318	**Wifi_STA_SSID_target_25** WI-FI STA Access point SSID 25	R/W	\0
40319	**Wifi_STA_SSID_target_26** WI-FI STA Access point SSID 26	R/W	\0
40320	**Wifi_STA_SSID_target_27** WI-FI STA Access point SSID 27	R/W	\0
40322	**Wifi_STA_SSID_target_29** WI-FI STA Access point SSID 29	R/W	\0

Indirizzo Modbus	Nome registro Descrizione	R/W	Default
40323	**Wifi_STA_SSID_target_30** WI-FI STA Access point SSID 30	R/W	\0
40324	**Wifi_STA_SSID_target_31** WI-FI STA Access point SSID 31	R/W	\0
40325	**Wifi_STA_PASSWORD_target_0** WI-FI STA Access point Password 0	WO	3
40326	**Wifi_STA_PASSWORD_target_1** WI-FI STA Access point Password 1	WO	4
40327	**Wifi_STA_PASSWORD_target_2** WI-FI STA Access point Password 2	WO	7
40328	**Wifi_STA_PASSWORD_target_3** WI-FI STA Access point Password 3	WO	7
40329	**Wifi_STA_PASSWORD_target_4** WI-FI STA Access point Password 4	WO	1
40330	**Wifi_STA_PASSWORD_target_5** WI-FI STA Access point Password 5	WO	2
40331	**Wifi_STA_PASSWORD_target_6** WI-FI STA Access point Password 6	WO	1
40332	**Wifi_STA_PASSWORD_target_7** WI-FI STA Access point Password 7	WO	9
40333	**Wifi_STA_PASSWORD_target_8** WI-FI STA Access point Password 8	WO	3
40334	**Wifi_STA_PASSWORD_target_9** WI-FI STA Access point Password 9	WO	0
40335	**Wifi_STA_PASSWORD_target_10** WI-FI STA Access point Password 10	WO	6
40336	**Wifi_STA_PASSWORD_target_11** WI-FI STA Access point Password 11	WO	5
40337	**Wifi_STA_PASSWORD_target_12** WI-FI STA Access point Password 12	WO	6
40338	**Wifi_STA_PASSWORD_target_13** WI-FI STA Access point Password 13	WO	4
40339	**Wifi_STA_PASSWORD_target_14** WI-FI STA Access point Password 14	WO	7
40340	**Wifi_STA_PASSWORD_target_15** WI-FI STA Access point Password 15	WO	7
40341	**Wifi_STA_PASSWORD_target_16** WI-FI STA Access point Password 16	WO	6
40342	**Wifi_STA_PASSWORD_target_17** WI-FI STA Access point Password 17	WO	0
40343	**Wifi_STA_PASSWORD_target_18** WI-FI STA Access point Password 18	WO	0
40344	**Wifi_STA_PASSWORD_target_19** WI-FI STA Access point Password 19	WO	3
40345	**Wifi_STA_PASSWORD_target_20** WI-FI STA Access point Password 20	WO	\0
40346	**Wifi_STA_PASSWORD_target_21** WI-FI STA Access point Password 21	WO	\0
40347	**Wifi_STA_PASSWORD_target_22** WI-FI STA Access point Password 22	WO	\0
40348	**Wifi_STA_PASSWORD_target_23** WI-FI STA Access point Password 23	WO	\0

Indirizzo Modbus	Nome registro Descrizione	R/W	Default
40349	**Wifi_STA_PASSWORD_target_24** WI-FI STA Access point Password 24	WO	\0
40350	**Wifi_STA_PASSWORD_target_25** WI-FI STA Access point Password 25	WO	\0
40351	**Wifi_STA_PASSWORD_target_26** WI-FI STA Access point Password 26	WO	\0
40352	**Wifi_STA_PASSWORD_target_27** WI-FI STA Access point Password 27	WO	\0
40353	**Wifi_STA_PASSWORD_target_28** WI-FI STA Access point Password 28	WO	\0
40354	**Wifi_STA_PASSWORD_target_29** WI-FI STA Access point Password 29	WO	\0
40355	**Wifi_STA_PASSWORD_target_30** WI-FI STA Access point Password 30	WO	\0
40356	**Wifi_STA_PASSWORD_target_31** WI-FI STA Access point Password 31	WO	\0
40357	**Wifi_STA_HOSTNAME_0** WI-FI STA HOSTNAME set 0	R/W	E
40358	**Wifi_STA_HOSTNAME_1** WI-FI STA HOSTNAME set 1	R/W	M
40359	**Wifi_STA_HOSTNAME_2** WI-FI STA HOSTNAME set 2	R/W	T
40360	**Wifi_STA_HOSTNAME_3** WI-FI STA HOSTNAME set 3	R/W	4
40361	**Wifi_STA_HOSTNAME_4** WI-FI STA HOSTNAME set 4	R/W	3
40362	**Wifi_STA_HOSTNAME_5** WI-FI STA HOSTNAME set 5	R/W	0
40363	**Wifi_STA_HOSTNAME_6** WI-FI STA HOSTNAME set 6	R/W	_
40364	**Wifi_STA_HOSTNAME_7** WI-FI STA HOSTNAME set 7	R/W	W
40365	**Wifi_STA_HOSTNAME_8** WI-FI STA HOSTNAME set 8	R/W	I
40366	**Wifi_STA_HOSTNAME_9** WI-FI STA HOSTNAME set 9	R/W	F
40367	**Wifi_STA_HOSTNAME_10** WI-FI STA HOSTNAME set 10	R/W	I
40368	**Wifi_STA_HOSTNAME_11** WI-FI STA HOSTNAME set 11	R/W	_
40369	**Wifi_STA_HOSTNAME_12** WI-FI STA HOSTNAME set 12	R/W	S
40370	**Wifi_STA_HOSTNAME_13** WI-FI STA HOSTNAME set 13	R/W	T
40371	**Wifi_STA_HOSTNAME_14** WI-FI STA HOSTNAME set 14	R/W	A
40372	**Wifi_STA_HOSTNAME_15** WI-FI STA HOSTNAME set 15	R/W	_
40373	**Wifi_STA_HOSTNAME_16** WI-FI STA HOSTNAME set 16	R/W	\0
40374	**Wifi_STA_HOSTNAME_17** WI-FI STA HOSTNAME set 17	R/W	\0

Indirizzo Modbus	Nome registro Descrizione	R/W	Default
40375	**Wifi_STA_HOSTNAME_18** WI-FI STA HOSTNAME set 18	R/W	\0
40376	**Wifi_STA_HOSTNAME_19** WI-FI STA HOSTNAME set 19	R/W	\0
40377	**Wifi_STA_HOSTNAME_20** WI-FI STA HOSTNAME set 20	R/W	\0
40378	**Wifi_STA_HOSTNAME_21** WI-FI STA HOSTNAME set 21	R/W	\0
40379	**Wifi_STA_HOSTNAME_22** WI-FI STA HOSTNAME set 22	R/W	\0
40380	**Wifi_STA_HOSTNAME_23** WI-FI STA HOSTNAME set 23	R/W	\0
40381	**Wifi_STA_HOSTNAME_24** WI-FI STA HOSTNAME set 24	R/W	\0
40382	**Wifi_STA_HOSTNAME_25** WI-FI STA HOSTNAME set 25	R/W	\0
40383	**Wifi_STA_HOSTNAME_26** WI-FI STA HOSTNAME set 26	R/W	\0
40384	**Wifi_STA_HOSTNAME_27** WI-FI STA HOSTNAME set 27	R/W	\0
40385	**Wifi_STA_HOSTNAME_28** WI-FI STA HOSTNAME set 28	R/W	\0
40386	**Wifi_STA_HOSTNAME_29** WI-FI STA HOSTNAME set 29	R/W	\0
40387	**Wifi_STA_HOSTNAME_30** WI-FI STA HOSTNAME set 30	R/W	\0
40388	**Wifi_STA_HOSTNAME_31** WI-FI STA HOSTNAME set 31	R/W	\0
40389	**Wifi_STA_IP_0** WI-FI STA IP static (DHCP off) 0	R/W	192
40390	**Wifi_STA_IP_1** WI-FI STA IP static (DHCP off) 1	R/W	168
40391	**Wifi_STA_IP_2** WI-FI STA IP static (DHCP off) 2	R/W	178
40392	**Wifi_STA_IP_3** WI-FI STA IP static (DHCP off) 3	R/W	200
40393	**Wifi_STA_Netmask_0** WI-FI STA NETMASK static (DHCP off) 0	R/W	255
40394	**Wifi_STA_Netmask_1** WI-FI STA NETMASK static (DHCP off) 1	R/W	255
40395	**Wifi_STA_Netmask_2** WI-FI STA NETMASK static (DHCP off) 2	R/W	255
40396	**Wifi_STA_Netmask_3** WI-FI STA NETMASK static (DHCP off) 3	R/W	0
40397	**Wifi_STA_Gateway_0** WI-FI STA GATEWAY static (DHCP off) 0	R/W	192
40398	**Wifi_STA_Gateway_1** WI-FI STA GATEWAY static (DHCP off) 1	R/W	168
40399	**Wifi_STA_Gateway_2** WI-FI STA GATEWAY static (DHCP off) 2	R/W	178
40400	**Wifi_STA_Gateway_3** WI-FI STA GATEWAY static (DHCP off) 3	R/W	200

Indirizzo Modbus	Nome registro Descrizione	R/W	Default
40401	**Wifi_STA_IP_assigned_by_dhcp_0** WI-FI STA IP SET (DHCP on) 0	R/W	0
40402	**Wifi_STA_IP_assigned_by_dhcp_1** WI-FI STA IP SET (DHCP on) 1	R/W	0
40403	**Wifi_STA_IP_assigned_by_dhcp_2** WI-FI STA IP SET (DHCP on) 2	R/W	0
40404	**Wifi_STA_IP_assigned_by_dhcp_3** WI-FI STA IP SET (DHCP on) 3	R/W	0
40405	**Wifi_STA_Netmask_assigned_by_dhcp_0** WI-FI STA NETMASK SET (DHCP on) 0	R/W	0
40406	**Wifi_STA_Netmask_assigned_by_dhcp_1** WI-FI STA NETMASK SET (DHCP on) 1	R/W	0
40407	**Wifi_STA_Netmask_assigned_by_dhcp_2** WI-FI STA NETMASK SET (DHCP on) 2	R/W	0
40408	**Wifi_STA_Netmask_assigned_by_dhcp_3** WI-FI STA NETMASK SET (DHCP on) 3	R/W	0
40409	**Wifi_STA_Gateway_assigned_by_dhcp_0** WI-FI STA GATEWAY SET (DHCP on) 0	R/W	0
40410	**Wifi_STA_Gateway_assigned_by_dhcp_1** WI-FI STA GATEWAY SET (DHCP on) 1	R/W	0
40411	**Wifi_STA_Gateway_assigned_by_dhcp_2** WI-FI STA GATEWAY SET (DHCP on) 2	R/W	0
40412	**Wifi_STA_Gateway_assigned_by_dhcp_3** WI-FI STA GATEWAY SET (DHCP on) 3	R/W	0
40413	**Wifi_AP_SSID_0** WI-FI AP SSID 0	R/W	M
40414	**Wifi_AP_SSID_1** WI-FI AP SSID 1	R/W	Y
40415	**Wifi_AP_SSID_2** WI-FI AP SSID 2	R/W	_
40416	**Wifi_AP_SSID_3** WI-FI AP SSID 3	R/W	E
40417	**Wifi_AP_SSID_4** WI-FI AP SSID 4	R/W	M
40418	**Wifi_AP_SSID_5** WI-FI AP SSID 5	R/W	T
40419	**Wifi_AP_SSID_6** WI-FI AP SSID 6	R/W	_
40420	**Wifi_AP_SSID_7** WI-FI AP SSID 7	R/W	4
40421	**Wifi_AP_SSID_8** WI-FI AP SSID 8	R/W	3
40422	**Wifi_AP_SSID_9** WI-FI AP SSID 9	R/W	0
40423	**Wifi_AP_SSID_10** WI-FI AP SSID 10	R/W	\0
40424	**Wifi_AP_SSID_11** WI-FI AP SSID 11	R/W	\0
40425	**Wifi_AP_SSID_12** WI-FI AP SSID 12	R/W	\0
40426	**Wifi_AP_SSID_13** WI-FI AP SSID 13	R/W	\0

Indirizzo Modbus	Nome registro Descrizione	R/W	Default
40427	**Wifi_AP_SSID_14** WI-FI AP SSID 14	R/W	\0
40428	**Wifi_AP_SSID_15** WI-FI AP SSID 15	R/W	\0
40429	**Wifi_AP_SSID_16** WI-FI AP SSID 16	R/W	\0
40430	**Wifi_AP_SSID_17** WI-FI AP SSID 17	R/W	\0
40431	**Wifi_AP_SSID_18** WI-FI AP SSID 18	R/W	\0
40432	**Wifi_AP_SSID_19** WI-FI AP SSID 19	R/W	\0
40433	**Wifi_AP_SSID_20** WI-FI AP SSID 20	R/W	\0
40435	**Wifi_AP_SSID_22** WI-FI AP SSID 22	R/W	\0
40436	**Wifi_AP_SSID_23** WI-FI AP SSID 23	R/W	\0
40437	**Wifi_AP_SSID_24** WI-FI AP SSID 24	R/W	\0
40438	**Wifi_AP_SSID_25** WI-FI AP SSID 25	R/W	\0
40439	**Wifi_AP_SSID_26** WI-FI AP SSID 26	R/W	\0
40440	**Wifi_AP_SSID_27** WI-FI AP SSID 27	R/W	\0
40441	**Wifi_AP_SSID_28** WI-FI AP SSID 28	R/W	\0
40442	**Wifi_AP_SSID_29** WI-FI AP SSID 29	R/W	\0
40443	**Wifi_AP_SSID_30** WI-FI AP SSID 30	R/W	\0
40444	**Wifi_AP_SSID_31** WI-FI AP SSID 31	R/W	\0
40445	**Wifi_AP_PASSWORD_0** WI-FI AP PASSWORD 0	WO	1
40446	**Wifi_AP_PASSWORD_1** WI-FI AP PASSWORD 1	WO	2
40447	**Wifi_AP_PASSWORD_2** WI-FI AP PASSWORD 2	WO	3
40448	**Wifi_AP_PASSWORD_3** WI-FI AP PASSWORD 3	WO	4
40449	**Wifi_AP_PASSWORD_4** WI-FI AP PASSWORD 4	WO	5
40450	**Wifi_AP_PASSWORD_5** WI-FI AP PASSWORD 5	WO	6
40451	**Wifi_AP_PASSWORD_6** WI-FI AP PASSWORD 6	WO	7
40452	**Wifi_AP_PASSWORD_7** WI-FI AP PASSWORD 7	WO	8
40453	**Wifi_AP_PASSWORD_8** WI-FI AP PASSWORD 8	WO	9

Indirizzo Modbus	Nome registro Descrizione	R/W	Default
40454	**Wifi_AP_PASSWORD_9** WI-FI AP PASSWORD 9	WO	\0
40455	**Wifi_AP_PASSWORD_10** WI-FI AP PASSWORD 10	WO	\0
40456	**Wifi_AP_PASSWORD_11** WI-FI AP PASSWORD 11	WO	\0
40457	**Wifi_AP_PASSWORD_12** WI-FI AP PASSWORD 12	WO	\0
40458	**Wifi_AP_PASSWORD_13** WI-FI AP PASSWORD 13	WO	\0
40459	**Wifi_AP_PASSWORD_14** WI-FI AP PASSWORD 14	WO	\0
40460	**Wifi_AP_PASSWORD_15** WI-FI AP PASSWORD 15	WO	\0
40461	**Wifi_AP_PASSWORD_16** WI-FI AP PASSWORD 16	WO	\0
40462	**Wifi_AP_PASSWORD_17** WI-FI AP PASSWORD 17	WO	\0
40463	**Wifi_AP_PASSWORD_18** WI-FI AP PASSWORD 18	WO	\0
40464	**Wifi_AP_PASSWORD_19** WI-FI AP PASSWORD 19	WO	\0
40465	**Wifi_AP_PASSWORD_20** WI-FI AP PASSWORD 20	WO	\0
40466	**Wifi_AP_PASSWORD_21** WI-FI AP PASSWORD 21	WO	\0
40467	**Wifi_AP_PASSWORD_22** WI-FI AP PASSWORD 22	WO	\0
40468	**Wifi_AP_PASSWORD_23** WI-FI AP PASSWORD 23	WO	\0
40469	**Wifi_AP_PASSWORD_24** WI-FI AP PASSWORD 24	WO	\0
40470	**Wifi_AP_PASSWORD_25** WI-FI AP PASSWORD 25	WO	\0
40471	**Wifi_AP_PASSWORD_26** WI-FI AP PASSWORD 26	WO	\0
40472	**Wifi_AP_PASSWORD_27** WI-FI AP PASSWORD 27	WO	\0
40473	**Wifi_AP_PASSWORD_28** WI-FI AP PASSWORD 28	WO	\0
40474	**Wifi_AP_PASSWORD_29** WI-FI AP PASSWORD 29	WO	\0
40475	**Wifi_AP_PASSWORD_30** WI-FI AP PASSWORD 30	WO	\0
40476	**Wifi_AP_PASSWORD_31** WI-FI AP PASSWORD 31	WO	\0
40477	**Wifi_AP_HOSTNAME_0** WI-FI AP HOSTNAME set 0	R/W	E
40478	**Wifi_AP_HOSTNAME_1** WI-FI AP HOSTNAME set 1	R/W	M
40479	**Wifi_AP_HOSTNAME_2** WI-FI AP HOSTNAME set 2	R/W	T

Indirizzo Modbus	Nome registro Descrizione	R/W	Default
40480	**Wifi_AP_HOSTNAME_3** WI-FI AP HOSTNAME set 3	R/W	4
40481	**Wifi_AP_HOSTNAME_4** WI-FI AP HOSTNAME set 4	R/W	3
40482	**Wifi_AP_HOSTNAME_5** WI-FI AP HOSTNAME set 5	R/W	0
40483	**Wifi_AP_HOSTNAME_6** WI-FI AP HOSTNAME set 6	R/W	_
40484	**Wifi_AP_HOSTNAME_7** WI-FI AP HOSTNAME set 7	R/W	W
40485	**Wifi_AP_HOSTNAME_8** WI-FI AP HOSTNAME set 8	R/W	I
40486	**Wifi_AP_HOSTNAME_9** WI-FI AP HOSTNAME set 9	R/W	F
40487	**Wifi_AP_HOSTNAME_10** WI-FI AP HOSTNAME set 10	R/W	I
40488	**Wifi_AP_HOSTNAME_11** WI-FI AP HOSTNAME set 11	R/W	_
40489	**Wifi_AP_HOSTNAME_12** WI-FI AP HOSTNAME set 12	R/W	A
40490	**Wifi_AP_HOSTNAME_13** WI-FI AP HOSTNAME set 13	R/W	P
40491	**Wifi_AP_HOSTNAME_14** WI-FI AP HOSTNAME set 14	R/W	_
40492	**Wifi_AP_HOSTNAME_15** WI-FI AP HOSTNAME set 15	R/W	\0
40493	**Wifi_AP_HOSTNAME_16** WI-FI AP HOSTNAME set 16	R/W	\0
40494	**Wifi_AP_HOSTNAME_17** WI-FI AP HOSTNAME set 17	R/W	\0
40495	**Wifi_AP_HOSTNAME_18** WI-FI AP HOSTNAME set 18	R/W	\0
40496	**Wifi_AP_HOSTNAME_19** WI-FI AP HOSTNAME set 19	R/W	\0
40497	**Wifi_AP_HOSTNAME_20** WI-FI AP HOSTNAME set 20	R/W	\0
40498	**Wifi_AP_HOSTNAME_21** WI-FI AP HOSTNAME set 21	R/W	\0
40499	**Wifi_AP_HOSTNAME_22** WI-FI AP HOSTNAME set 22	R/W	\0
40500	**Wifi_AP_HOSTNAME_23** WI-FI AP HOSTNAME set 23	R/W	\0
40501	**Wifi_AP_HOSTNAME_24** WI-FI AP HOSTNAME set 24	R/W	\0
40502	**Wifi_AP_HOSTNAME_25** WI-FI AP HOSTNAME set 25	R/W	\0
40503	**Wifi_AP_HOSTNAME_26** WI-FI AP HOSTNAME set 26	R/W	\0
40504	**Wifi_AP_HOSTNAME_27** WI-FI AP HOSTNAME set 27	R/W	\0
40505	**Wifi_AP_HOSTNAME_28** WI-FI AP HOSTNAME set 28	R/W	\0

Indirizzo Modbus	Nome registro Descrizione	R/W	Default
40506	**Wifi_AP_HOSTNAME_29** WI-FI AP HOSTNAME set 29	R/W	\0
40507	**Wifi_AP_HOSTNAME_30** WI-FI AP HOSTNAME set 30	R/W	\0
40508	**Wifi_AP_HOSTNAME_31** WI-FI AP HOSTNAME set 31	R/W	\0
40509	**Wifi_AP_IP_0** WI-FI AP IP 0	R/W	192
40510	**Wifi_AP_IP_1** WI-FI AP IP 1	R/W	168
40511	**Wifi_AP_IP_2** WI-FI AP IP 2	R/W	4
40512	**Wifi_AP_IP_3** WI-FI AP IP 3	R/W	1
40513	**Wifi_AP_Netmask_0** WI-FI AP NETMASK 0	R/W	255
40514	**Wifi_AP_Netmask_1** WI-FI AP NETMASK 1	R/W	255
40515	**Wifi_AP_Netmask_2** WI-FI AP NETMASK 2	R/W	255
40516	**Wifi_AP_Netmask_3** WI-FI AP NETMASK 3	R/W	0
40517	**Wifi_AP_Gateway_0** WI-FI AP GATEWAY 0	R/W	192
40518	**Wifi_AP_Gateway_1** WI-FI AP GATEWAY 1	R/W	168
40519	**Wifi_AP_Gateway_2** WI-FI AP GATEWAY 2	R/W	4
40520	**Wifi_AP_Gateway_3** WI-FI AP GATEWAY 3	R/W	1
40521	**Ethernet_HOSTNAME_0** Ethernet_HOSTNAME_0 set 0	R/W	E
40522	**Ethernet_HOSTNAME_1** Ethernet_HOSTNAME_0 set 1	R/W	M
40523	**Ethernet_HOSTNAME_2** Ethernet_HOSTNAME_0 set 2	R/W	T
40524	**Ethernet_HOSTNAME_3** Ethernet_HOSTNAME_0 set 3	R/W	4
40525	**Ethernet_HOSTNAME_4** Ethernet_HOSTNAME_0 set 4	R/W	3
40526	**Ethernet_HOSTNAME_5** Ethernet_HOSTNAME_0 set 5	R/W	0
40527	**Ethernet_HOSTNAME_6** Ethernet_HOSTNAME_0 set 6	R/W	_
40528	**Ethernet_HOSTNAME_7** Ethernet_HOSTNAME_0 set 7	R/W	E
40529	**Ethernet_HOSTNAME_8** Ethernet_HOSTNAME_0 set 8	R/W	T
40530	**Ethernet_HOSTNAME_9** Ethernet_HOSTNAME_0 set 9	R/W	H
40531	**Ethernet_HOSTNAME_10** Ethernet_HOSTNAME_0 set 10	R/W	E

Indirizzo Modbus	Nome registro Descrizione	R/W	Default
40532	**Ethernet_HOSTNAME_11** Ethernet_HOSTNAME_0 set 11	R/W	R
40533	**Ethernet_HOSTNAME_12** Ethernet_HOSTNAME_0 set 12	R/W	N
40534	**Ethernet_HOSTNAME_13** Ethernet_HOSTNAME_0 set 13	R/W	E
40535	**Ethernet_HOSTNAME_14** Ethernet_HOSTNAME_0 set 14	R/W	T
40536	**Ethernet_HOSTNAME_15** Ethernet_HOSTNAME_0 set 15	R/W	_
40537	**Ethernet_HOSTNAME_16** Ethernet_HOSTNAME_0 set 16	R/W	\0
40538	**Ethernet_HOSTNAME_17** Ethernet_HOSTNAME_0 set 17	R/W	\0
40539	**Ethernet_HOSTNAME_18** Ethernet_HOSTNAME_0 set 18	R/W	\0
40540	**Ethernet_HOSTNAME_19** Ethernet_HOSTNAME_0 set 19	R/W	\0
40541	**Ethernet_HOSTNAME_20** Ethernet_HOSTNAME_0 set 20	R/W	\0
40542	**Ethernet_HOSTNAME_21** Ethernet_HOSTNAME_0 set 21	R/W	\0
40543	**Ethernet_HOSTNAME_22** Ethernet_HOSTNAME_0 set 22	R/W	\0
40544	**Ethernet_HOSTNAME_23** Ethernet_HOSTNAME_0 set 23	R/W	\0
40545	**Ethernet_HOSTNAME_24** Ethernet_HOSTNAME_0 set 24	R/W	\0
40546	**Ethernet_HOSTNAME_25** Ethernet_HOSTNAME_0 set 25	R/W	\0
40547	**Ethernet_HOSTNAME_26** Ethernet_HOSTNAME_0 set 26	R/W	\0
40548	**Ethernet_HOSTNAME_27** Ethernet_HOSTNAME_0 set 27	R/W	\0
40549	**Ethernet_HOSTNAME_28** Ethernet_HOSTNAME_0 set 28	R/W	\0
40550	**Ethernet_HOSTNAME_29** Ethernet_HOSTNAME_0 set 29	R/W	\0
40551	**Ethernet_HOSTNAME_30** Ethernet_HOSTNAME_0 set 30	R/W	\0
40552	**Ethernet_HOSTNAME_31** Ethernet_HOSTNAME_0 set 31	R/W	\0
40553	**Ethernet_IP_0** ETHERNET IP static (DHCP off) 0	R/W	192
40554	**Ethernet_IP_1** ETHERNET IP static (DHCP off) 1	R/W	168
40556	**Ethernet_IP_3** ETHERNET IP static (DHCP off) 3	R/W	250
40557	**Ethernet_Netmask_0** ETHERNET NETMASK static (DHCP off) 0	R/W	255
40558	**Ethernet_Netmask_1** ETHERNET NETMASK static (DHCP off) 1	R/W	255

Indirizzo Modbus	Nome registro Descrizione	R/W	Default
40559	**Ethernet_Netmask_2** ETHERNET NETMASK static (DHCP off) 2	R/W	255
40560	**Ethernet_Netmask_3** ETHERNET NETMASK static (DHCP off) 3	R/W	0
40561	**Ethernet_Gateway_0** ETHERNET GATEWAY static (DHCP off) 0	R/W	192
40562	**Ethernet_Gateway_1** ETHERNET GATEWAY static (DHCP off) 1	R/W	168
40563	**Ethernet_Gateway_2** ETHERNET GATEWAY static (DHCP off) 2	R/W	178
40564	**Ethernet_Gateway_3** ETHERNET GATEWAY static (DHCP off) 3	R/W	250
40565	**Ethernet_IP_assigned_by_dhcp_0** ETHERNET IP ASSEGNATO (DHCP on) 0	R/W	0
40566	**Ethernet_IP_assigned_by_dhcp_1** ETHERNET IP ASSEGNATO (DHCP on) 1	R/W	0
40567	**Ethernet_IP_assigned_by_dhcp_2** ETHERNET IP ASSEGNATO (DHCP on) 2	R/W	0
40568	**Ethernet_IP_assigned_by_dhcp_3** ETHERNET IP ASSEGNATO (DHCP on) 3	R/W	0
40569	**Ethernet_Netmask_assigned_by_dhcp_0** ETHERNET NETMASK ASSEGNATO (DHCP on) 0	R/W	0
40570	**Ethernet_Netmask_assigned_by_dhcp_1** ETHERNET NETMASK ASSEGNATO (DHCP on) 1	R/W	0
40571	**Ethernet_Netmask_assigned_by_dhcp_2** ETHERNET NETMASK ASSEGNATO (DHCP on) 2	R/W	0
40572	**Ethernet_Netmask_assigned_by_dhcp_3** ETHERNET NETMASK ASSEGNATO (DHCP on) 3	R/W	0
40573	**Ethernet_Gateway_assigned_by_dhcp_0** ETHERNET GATEWAY ASSEGNATO (DHCP on) 0	R/W	0
40574	**Ethernet_Gateway_assigned_by_dhcp_1** ETHERNET GATEWAY ASSEGNATO (DHCP on) 1	R/W	0
40575	**Ethernet_Gateway_assigned_by_dhcp_2** ETHERNET GATEWAY ASSEGNATO (DHCP on) 2	R/W	0
40576	**Ethernet_Gateway_assigned_by_dhcp_3** ETHERNET GATEWAY ASSEGNATO (DHCP on) 3	R/W	0
40577	**Communications_settings** Bit 0: Ethernet DHCP 0 = Disabled (static address from registers) 1 = Enabled (default) Bit 1: Wi-Fi STA DHCP 0 = Disabled (static address from registers) 1 = Enabled (default)	R/W	3
40579	**UTC_Time_zone_value** The value of this register sets the Time Zone out of a list of 461 elements. The entire list is in the documentation, the default value is 390 which is for 'Europe/Rome'	R/W	390
40674	**webserver_user_psw_0** webserver authentication user password char 0	WO	a
40675	**webserver_user_psw_1** webserver authentication user password char 1	WO	d

Indirizzo Modbus	Nome registro Descrizione	R/W	Default
40676	**webserver_user_psw_2** webserver authentication user password char 2	WO	m
40677	**webserver_user_psw_3** webserver authentication user password char 3	WO	i
40678	**webserver_user_psw_4** webserver authentication user password char 4	WO	n
40679	**webserver_user_psw_5** webserver authentication user password char 5	WO	\0
40680	**webserver_user_psw_6** webserver authentication user password char 6	WO	\0
40681	**webserver_user_psw_7** webserver authentication user password char 7	WO	\0
40682	**webserver_user_psw_8** webserver authentication user password char 8	WO	\0
40683	**webserver_user_psw_9** webserver authentication user password char 9	WO	\0
40684	**webserver_user_psw_10** webserver authentication user password char 10	WO	\0
40685	**webserver_user_psw_11** webserver authentication user password char 11	WO	\0
40686	**webserver_user_psw_12** webserver authentication user password char 12	WO	\0
40687	**webserver_user_psw_13** webserver authentication user password char 13	WO	\0
40688	**webserver_user_psw_14** webserver authentication user password char 14	WO	\0
40689	**webserver_user_psw_15** webserver authentication user password char 15	WO	\0
40690	**webserver_inst_psw_0** webserver authentication installator password char 0	WO	a
40691	**webserver_inst_psw_1** webserver authentication installator password char 1	WO	d
40692	**webserver_inst_psw_2** webserver authentication installator password char 2	WO	m
40693	**webserver_inst_psw_3** webserver authentication installator password char 3	WO	i
40694	**webserver_inst_psw_4** webserver authentication installator password char 4	WO	n
40695	**webserver_inst_psw_5** webserver authentication installator password char 5	WO	\0
40696	**webserver_inst_psw_6** webserver authentication installator password char 6	WO	\0
40697	**webserver_inst_psw_7** webserver authentication installator password char 7	WO	\0
40698	**webserver_inst_psw_8** webserver authentication installator password char 8	WO	\0
40699	**webserver_inst_psw_9** webserver authentication installator password char 9	WO	\0
40700	**webserver_inst_psw_10** webserver authentication installator password char 10	WO	\0
40701	**webserver_inst_psw_11** webserver authentication installator password char 11	WO	\0

Indirizzo Modbus	Nome registro Descrizione	R/W	Default
40702	**webserver_inst_psw_12** webserver authentication installator password char 12	WO	\0
40703	**webserver_inst_psw_13** webserver authentication installator password char 13	WO	\0
40704	**webserver_inst_psw_14** webserver authentication installator password char 14	WO	\0
40705	**webserver_inst_psw_15** webserver authentication installator password char 15	WO	\0
40709	**totalizer_mode** bit 0: 0 -> Digital in rising 1 -> Digital in falling bit 1: 0 -> Totalizer incremental 1 -> Totalizer decremental	R/W	0
40710	**Filter_Din** Number of samples of the filter (every 157us)	R/W	0
40715	**wifi_tx_power** Wifi Strength of our antenna in dBm	R/W	20
40716	**Pulses_per_kWh** Pulses per kWh impulsive digital output	R/W	1000

9.3 Energies

Indirizzo Modbus	Nome registro Descrizione	R/W	Default
40721	**KWh1** Active energy line 1 [Wh tenth]	R/W	0
40725	**KWh2** Active energy line 2 [Wh tenth]	R/W	0
40729	**KWh3** Active energy line 3 [Wh tenth]	R/W	0
40733	**KWh_SUM** Active energy three phase [Wh tenth]	R/W	0
40737	**KWh1_Plus** Positive Active energy line 1 [Wh tenth]	R/W	0
40741	**KWh2_Plus** Positive Active energy line 2 [Wh tenth]	R/W	0
40745	**KWh3_Plus** Positive Active energy line 3 [Wh tenth]	R/W	0
40749	**KWh_SUM_Plus** Positive Active energy three phase [Wh tenth]	R/W	0
40753	**KWh1_Neg** Negative Active energy line 1 [Wh tenth]	R/W	0
40757	**KWh2_Neg** Negative Active energy line 2 [Wh tenth]	R/W	0
40761	**KWh3_Neg** Negative Active energy line 3 [Wh tenth]	R/W	0
40769	**KVARh1** Reactive energy line 1 [VARh tenth]	R/W	0
40773	**KVARh2** Reactive energy line 2 [VARh tenth]	R/W	0

Indirizzo Modbus	Nome registro Descrizione	R/W	Default
40777	**KVARh3** Reactive energy line 3 [VARh tenth]	R/W	0
40781	**KVARh_SUM** Reactive energy three phase [VARh tenth]	R/W	0
40785	**KVARh1_Inductive_positive** Inductive (positive P) Reactive energy line 1 [VARh tenth]	R/W	0
40789	**KVARh2_Inductive_positive** Inductive (positive P) Reactive energy line 2 [VARh tenth]	R/W	0
40793	**KVARh3_Inductive_positive** Inductive (positive P) Reactive energy line 3 [VARh tenth]	R/W	0
40797	**KVARh_SUM_Inductive_positive** Inductive (positive P) Reactive energy three phase [VARh tenth]	R/W	0
40801	**KVARh1_Inductive_negative** Inductive (negative P) Reactive energy line 1 [VARh tenth]	R/W	0
40805	**KVARh2_Inductive_negative** Inductive (negative P) Reactive energy line 2 [VARh tenth]	R/W	0
40809	**KVARh3_Inductive_negative** Inductive (negative P) Reactive energy line 3 [VARh tenth]	R/W	0
40813	**KVARh_SUM_Inductive_negative** Inductive (negative P) Reactive energy three phase [VARh tenth]	R/W	0
40817	**KVARh1_Capacitive_positive** Capacitive (positive P) Reactive energy line 1 [VARh tenth]	R/W	0
40821	**KVARh2_Capacitive_positive** Capacitive (positive P) Reactive energy line 2 [VARh tenth]	R/W	0
40825	**KVARh3_Capacitive_positive** Capacitive (positive P) Reactive energy line 3 [VARh tenth]	R/W	0
40829	**KVARh_SUM_Capacitive_positive** Capacitive (positive P) Reactive energy three phase [VARh tenth]	R/W	0
40833	**KVARh1_Capacitive_negative** Capacitive (negative P) Reactive energy line 1 [VARh tenth]	R/W	0
40837	**KVARh2_Capacitive_negative** Capacitive (negative P) Reactive energy line 2 [VARh tenth]	R/W	0
40841	**KVARh3_Capacitive_negative** Capacitive (negative P) Reactive energy line 3 [VARh tenth]	R/W	0
40845	**KVARh_SUM_Capacitive_negative** Capacitive (negative P) Reactive energy three phase [VARh tenth]	R/W	0
40849	**KVAh1** Apparent energy line 1 [VAh tenth]	R/W	0
40853	**KVAh2** Apparent energy line 2 [VAh tenth]	R/W	0
40857	**KVAh3** Apparent energy line 3 [VAh tenth]	R/W	0
40861	**KVAh_SUM** Apparent energy three phase [VAh tenth]	R/W	0
40865	**Wh_storage_count** Number of Wh flash savings (every 1 minute)	RO	0
40869	**Working_time** Working time of the device [mins]	RO	0

9.4 Realtime measurement and commands

Indirizzo Modbus	Nome registro Descrizione	R/W	Default
40891	**Communication_status** Bit 0: Wifi Sta Connected 0 = Not Connected (default) 1 = Connected Bit 1: Ethernet Connected 0 = Not Connected (default) 1 = Connected Bit 2: Connected cloud service 0 = Not Connected (default) 1 = Connected Bit 3: SD Card Connected 0 = Not Connected (default) 1 = Connected Bit 4: USB Connected 0 = Not Connected (default) 1 = Connected Bit 5: SD Card Mounted 0 = Yes 1 = No Bit 6: USB Mounted 0 = Yes 1 = No	RO	0
40894	**status_digital_input** Status for digital input. Bit 0: Input 1 0 = Closed 1 = Open Bit 1: Input 2 0 = Closed 1 = Open Bit 2: Input 3 0 = Closed 1 = Open	RO	0

Indirizzo Modbus	Nome registro Descrizione	R/W	Default
40897	**Status_1** //STATUS_1 bit #define FLASH_SETTINGS_ERROR 0x00000001 #define FLASH_CALIBRATION_ERROR 0x00000002 #define I1_OVER_RANGE 0x00000004 #define I1_UNDER_RANGE 0x00000008 #define I2_OVER_RANGE 0x00000010 #define I2_UNDER_RANGE 0x00000020 #define I3_OVER_RANGE 0x00000040 #define I3_UNDER_RANGE 0x00000080 #define V1_OVER_RANGE 0x00000100 #define V1_UNDER_RANGE 0x00000200 #define V2_OVER_RANGE 0x00000400 #define V2_UNDER_RANGE 0x00000800 #define V3_OVER_RANGE 0x00001000 #define V3_UNDER_RANGE 0x00002000 #define ZX_DETECTING 0x00004000 #define SWITCH_OPEN 0x00008000 #define WH_STORING_ERROR 0x00010000 #define BUZZER_ON 0x00020000 #define RTC_CLOCK_NOT_UPDATED 0x00040000 #define ALARM_TRIGGER_REQUEST 0x00080000 #define TOTALIZER_STORING_ERROR 0x00100000 #define ZX_SIGNAL_ACQUIRED 0x00200000 #define LOW_IL1_MEASUREMENT 0x00400000 #define LOW_IL2_MEASUREMENT 0x00800000 #define LOW_IL3_MEASUREMENT 0x01000000 #define PF1_INDUCTIVE 0x10000000 #define PF2_INDUCTIVE 0x20000000 #define PF3_INDUCTIVE 0x40000000	RO	0

Indirizzo Modbus	Nome registro Descrizione	R/W	Default
40899	**Status_2** //STATUS_2 bit #define EVENT_MONITORING_READY_L1N 0x00000020 #define EVENT_MONITORING_READY_L2N 0x00000040 #define EVENT_MONITORING_READY_L3N 0x00000080 #define EVENT_PRESENT 0x00000800 #define FREQ_COPIED 0x00001000 #define NTP_SET 0x00002000 #define SWITCH_OPEN_L1 0x00008000 #define SWITCH_OPEN_L2 0x00010000 #define SWITCH_OPEN_L3 0x00020000 #define TOUCH_BOTTON_PRESSED 0x00040000 #define ERROR_TEMP_SENSOR 0x00080000 #define ERROR_TOUCH_SENSOR 0x00100000 #define REQUEST_RESET_SETTINGS 0x00200000 #define RTC_WRITING_IN_PROGRESS 0x00400000 #define REQUEST_RSSI 0x00800000 #define MAX_DEMAND_STORING_ERROR 0x01000000 #define POWER_QUALITY_BLANKING 0x02000000 #define POWER_QUALITY_FLASH_ERROR 0X04000000 #define REQUEST_CHANGE_ENERGY_UNIT 0x08000000 #define CERTS_ERROR 0x10000000 #define PQ_BLANKING_LOW_DURATION 0x20000000 #define SWITCH_2_OPEN 0x40000000	RO	0
40904	**pass_installer** password for 'installer' read & write role	R/W	0
40906	**Command** //comandi da scrivere sul registro COMMAND #define COMANDO_SALVATAGGIO_FLASH_SETTAGGI_E_NFC 0xC1C0U #define COMANDO_RESET 0xC1A0U #define COMANDO_SAVE_ENERGY 0xBABAU #define COMANDO_CLOSE_SWITCH 0xDAAAU #define COMANDO_OPEN_SWITCH 0xDAABU #define COMANDO_LEGGI_EVENTI_SAG 0xE000U #define COMANDO_LEGGI_EVENTI_SWELL 0xE100U #define COMANDO_LEGGI_EVENTI_INTERRUPTION 0xE200U #define COMANDO_RESET_EVENTI_SAG 0xE300U #define COMANDO_RESET_EVENTI_SWELL 0xE400U #define COMANDO_RESET_EVENTI_INTERRUPTION 0xE500U #define COMANDO_RESET_MAX_DEMAND 0xF000U #define COMANDO_RESET_ENERGIE 0xAAAAU	R/W	0
40907	**V_L1_N** RMS star voltage L1-N [V]	RO	0
40909	**V_L2_N** RMS star voltage L2-N [V]	RO	0
40911	**V_L3_N** RMS star voltage L3-N [V]	RO	0
40913	**V_STAR_AVG** RMS star avg value voltage [V]	RO	0
40915	**V_L1_L2** RMS line voltage L1-L2 [V]	RO	0

Indirizzo Modbus	Nome registro Descrizione	R/W	Default
40917	**V_L2_L3** RMS line voltage L2-L3 [V]	RO	0
40919	**V_L3_L1** RMS line voltage L3-L1 [V]	RO	0
40921	**V_LINE_AVG** RMS line avg value voltage [V]	RO	0
40923	**I_L1** RMS line current L1	RO	0
40925	**I_L2** RMS line current L2	RO	0
40927	**I_L3** RMS line current L3	RO	0
40929	**I_N** RMS line current N (if 1 or 2 TA connection, I_N = 0)	RO	0
40931	**I_AVG** RMS avg value current (excluding neutral current I_N)	RO	0
40933	**P1** RMS active power line 1 [W]	RO	0
40935	**P2** RMS active power line 2 [W]	RO	0
40937	**P3** RMS active power line 3 [W]	RO	0
40939	**P_SUM** RMS sum active power [W]	RO	0
40941	**Q1** RMS reactive power line 1 [VAR]	RO	0
40943	**Q2** RMS reactive power line 2 [VAR]	RO	0
40945	**Q3** RMS reactive power line 3 [VAR]	RO	0
40947	**Q_SUM** RMS sum reactive power [VAR]	RO	0
40949	**S1** RMS apparent power line 1 [VAR]	RO	0
40951	**S2** RMS apparent power line 2 [VAR]	RO	0
40953	**S3** RMS apparent power line 3 [VAR]	RO	0
40955	**S_SUM** RMS sum apparent power [VAR]	RO	0
40957	**PF1** Power Factor line 1	RO	0
40959	**PF2** Power Factor line 2	RO	0
40961	**PF3** Power Factor line 3	RO	0
40963	**PF_3PH** Three Phase Power Factor	RO	0
40965	**CF1** Crest Factor line 1	RO	0
40967	**CF2** Crest Factor line 2	RO	0

Indirizzo Modbus	Nome registro Descrizione	R/W	Default
40969	**CF3** Crest Factor line 3	RO	0
40971	**CF_N** Crest Factor Neutral	RO	0
40973	**Frequency** Frequency [Hz]	RO	0
40975	**V_L1_N_peak** Star voltage L1-N peak [V]	R/W	0
40977	**V_L2_N_peak** Star voltage L2-N peak [V]	R/W	0
40979	**V_L3_N_peak** Star voltage L3-N peak [V]	R/W	0
40981	**V_L1_L2_peak** Line voltage L1-L2 peak [V]	R/W	0
40983	**V_L2_L3_peak** Line voltage L2-L3 peak [V]	R/W	0
40985	**V_L3_L1_peak** Line voltage L3-L1 peak [V]	R/W	0
40987	**I_L1_peak** L1 current peak	R/W	0
40989	**I_L2_peak** L2 current peak	R/W	0
40991	**I_L3_peak** L3 current peak	R/W	0
40993	**I_N_peak** N current peak	R/W	0
41045	**totalizer_1** Totalizer stored value for expansion board dig in 1	R/W	0
41049	**totalizer_3** Totalizer stored value for expansion board dig in 3	R/W	0
41057	**TAN_FI_1** Tangentθline 1 (+ inductive, - capacitive)	RO	0
41059	**TAN_FI_2** Tangentθline 2 (+ inductive, - capacitive)	RO	0
41061	**TAN_FI_3** Tangentθline 3 (+ inductive, - capacitive)	RO	0
41063	**TAN_FI_AVG** Average Tangentθ(+ inductive, - capacitive)	RO	0
41065	**Phase_Order** L1, L2, L3 = 0; L1, L3, L2 = 1	RO	0
41067	**Internal_temperature** Internal Temperature [°C]	RO	0

9.5 Average, maximum and minimum value

Indirizzo Modbus	Nome registro Descrizione	R/W	Default
41069	**V_L1_N_RMS_AVG** Star voltage L1_N RMS average [V] over seconds_for_mean_RMS	RO	0
41071	**V_L1_N_RMS_MAX** Star voltage L1_N MAX RMS [V] over last seconds_for_MAX_RMS	RO	0
41073	**V_L1_N_RMS_min** Star voltage L1_N Min RMS [V] over lastseconds_for_min_RMS	RO	100000
41075	**V_L2_N_RMS_AVG** Star voltage L2_N RMS average [V] over seconds_for_mean_RMS	RO	0
41077	**V_L2_N_RMS_MAX** Star voltage L2_N MAX RMS [V] over last seconds_for_MAX_RMS	RO	0
41079	**V_L2_N_RMS_min** Star voltage L2_N Min RMS [V] over lastseconds_for_min_RMS	RO	100000
41081	**V_L3_N_RMS_AVG** Star voltage L3_N RMS average [V] over seconds_for_mean_RMS	RO	0
41083	**V_L3_N_RMS_MA**X Star voltage L3_N MAX RMS [V] over last seconds_for_MAX_RMS	RO	0
41085	**V_L3_N_RMS_min** Star voltage L3_N Min RMS [V] over lastseconds_for_min_RMS	RO	100000
41087	**V_STAR_AVG_RMS_AVG** Star voltage AVG RMS average [V] over seconds_for_mean_RMS	RO	0
41089	**V_STAR_AVG_RMS_MAX** Star voltage AVG MAX RMS [V] over last seconds_for_MAX_RMS	RO	0
41091	**V_STAR_AVG_RMS_min** Star voltage AVG Min RMS [V] over lastseconds_for_min_RMS	RO	100000
41093	**V_L1_L2_RMS_AVG** Line voltage L1-Line voltage L2-Line voltage L3-L1 RMS average [V] over seconds_for_mean_RMS	RO	0
41095	**V_L1_L2_RMS_MAX** Line voltage L1-Line voltage L2-Line voltage L3-L1 MAX RMS [V] over last seconds_for_MAX_RMS	RO	0
41097	**V_L1_L2_RMS_min** Line voltage L1-Line voltage L2-Line voltage L3-L1 Min RMS [V] over lastseconds_for_min_RMS	RO	100000
41099	**V_L2_L3_RMS_AVG** Line voltage L2-Line voltage L3-L1 RMS average [V] over seconds_for_mean_RMS	RO	0
41101	**V_L2_L3_RMS_MAX** Line voltage L2-Line voltage L3-L1 MAX RMS [V] over last seconds_for_MAX_RMS	RO	0
41103	**V_L2_L3_RMS_min** Line voltage L2-Line voltage L3-L1 Min RMS [V] over lastseconds_for_min_RMS	RO	100000
41105	**V_L3_L1_RMS_AVG** Line voltage L3-L1 RMS average [V] over seconds_for_mean_RMS	RO	0
41107	V_**L3_L1_RMS_MAX** Line voltage L3-L1 MAX RMS [V] over last seconds_for_MAX_RMS	RO	0
41109	**V_L3_L1_RMS_min** Line voltage L3-L1 Min RMS [V] over lastseconds_for_min_RMS	RO	100000
41111	**V_LINE_AVG_RMS_AVG** Line voltage AVG RMS average [V] over seconds_for_mean_RMS	RO	0

Indirizzo Modbus	Nome registro Descrizione	R/W	Default
41113	**V_LINE_AVG_RMS_MAX** Line voltage AVG MAX RMS [V] over last seconds_for_MAX_RMS	RO	0
41115	**V_LINE_AVG_RMS_min** Line voltage AVG Min RMS [V] over lastseconds_for_min_RMS	RO	100000
41117	**I_L1_RMS_AVG** L1 RMS average over seconds_for_mean_RMS	RO	0
41119	**I_L1_RMS_MAX** L1 MAX RMS over last seconds_for_MAX_RMS	RO	0
41121	**I_L1_RMS_min** L1 Min RMS over lastseconds_for_min_RMS	RO	100000
41123	**I_L2_RMS_AVG** L2 RMS average over seconds_for_mean_RMS	RO	0
41125	**I_L2_RMS_MAX** L2 MAX RMS over last seconds_for_MAX_RMS	RO	0
41127	**I_L2_RMS_min** L2 Min RMS over lastseconds_for_min_RMS	RO	100000
41129	**I_L3_RMS_AV**G L3 RMS average over seconds_for_mean_RMS	RO	0
41131	I_**L3_RMS_MAX** L3 MAX RMS over last seconds_for_MAX_RMS	RO	0
41133	**I_L3_RMS_min** L3 Min RMS over lastseconds_for_min_RMS	RO	100000
41135	**I_N_RMS_AVG** N RMS average over seconds_for_mean_RMS	RO	0
41137	**I_N_RMS_MAX** N MAX RMS over last seconds_for_MAX_RMS	RO	0
41139	**I_N_RMS_min** N Min RMS over lastseconds_for_min_RMS	RO	100000
41141	**I_AVG_RMS_AVG** I_AVG RMS average over seconds_for_mean_RMS	RO	0
41143	**I_AVG_RMS_MAX** I_AVG MAX RMS over last seconds_for_MAX_RMS	RO	0
41145	**I_AVG_RMS_min** I_AVG Min RMS over lastseconds_for_min_RMS	RO	100000
41147	**P1_RMS_AVG** P1 RMS average [W] over seconds_for_mean_RMS	RO	0
41149	**P1_RMS_MAX** P1 MAX RMS [W] over last seconds_for_MAX_RMS	RO	0
41151	**P1_RMS_min** P1 Min RMS [W] over lastseconds_for_min_RMS	RO	100000
41153	**P2_RMS_AVG** P2 RMS average [W] over seconds_for_mean_RMS	RO	0
41155	**P2_RMS_MAX** P2 MAX RMS [W] over last seconds_for_MAX_RMS	RO	0
41157	**P2_RMS_min** P2 Min RMS [W] over lastseconds_for_min_RMS	RO	100000
41159	**P3_RMS_AVG** P3 RMS average [W] over seconds_for_mean_RMS	RO	0
41161	**P3_RMS_MAX** P3 MAX RMS [W] over last seconds_for_MAX_RMS	RO	0
41163	**P3_RMS_min** P3 Min RMS [W] over lastseconds_for_min_RMS	RO	100000

Indirizzo Modbus	Nome registro Descrizione	R/W	Default
41165	**P_SUM_RMS_AVG** P_SUM RMS average [W] over seconds_for_mean_RMS	RO	0
41167	**P_SUM_RMS_MAX** P_SUM MAX RMS [W] over last seconds_for_MAX_RMS	RO	0
41169	**P_SUM_RMS_min** P_SUM Min RMS [W] over lastseconds_for_min_RMS	RO	100000
41173	**Q1_RMS_MAX** Q1 MAX RMS [VAR] over last seconds_for_MAX_RMS	RO	0
41175	**Q1_RMS_min** Q1 Min RMS [VAR] over lastseconds_for_min_RMS	RO	100000
41177	**Q2_RMS_AVG** Q2 RMS average [VAR] over seconds_for_mean_RMS	RO	0
41179	**Q2_RMS_MAX** Q2 MAX RMS [VAR] over last seconds_for_MAX_RMS	RO	0
41181	**Q2_RMS_min** Q2 Min RMS [VAR] over lastseconds_for_min_RMS	RO	100000
41183	**Q3_RMS_AVG** Q3 RMS average [VAR] over seconds_for_mean_RMS	RO	0
41185	**Q3_RMS_MAX** Q3 MAX RMS [VAR] over last seconds_for_MAX_RMS	RO	0
41187	**Q3_RMS_min** Q3 Min RMS [VAR] over lastseconds_for_min_RMS	RO	100000
41189	**Q_SUM_RMS_AVG** Q_SUM RMS average [VAR] over seconds_for_mean_RMS	RO	0
41191	**Q_SUM_RMS_MAX** Q_SUM MAX RMS [VAR] over last seconds_for_MAX_RMS	RO	0
41193	**Q_SUM_RMS_min** Q_SUM Min RMS [VAR] over lastseconds_for_min_RMS	RO	100000
41195	**S1_RMS_AVG** S1 RMS average [VA] over seconds_for_mean_RMS	RO	0
41197	**S1_RMS_MAX** S1 MAX RMS [VA] over last seconds_for_MAX_RMS	RO	0
41199	**S1_RMS_min** S1 Min RMS [VA] over lastseconds_for_min_RMS	RO	100000
41201	**S2_RMS_AVG** S2 RMS average [VA] over seconds_for_mean_RMS	RO	0
41203	**S2_RMS_MAX** S2 MAX RMS [VA] over last seconds_for_MAX_RMS	RO	0
41205	**S2_RMS_min** S2 Min RMS [VA] over lastseconds_for_min_RMS	RO	100000
41207	**S3_RMS_AVG** S3 RMS average [VA] over seconds_for_mean_RMS	RO	0
41209	**S3_RMS_MAX** S3 MAX RMS [VA] over last seconds_for_MAX_RMS	RO	0
41211	**S3_RMS_min** S3 Min RMS [VA] over lastseconds_for_min_RMS	RO	100000
41213	**S_SUM_RMS_AVG** S_SUM RMS average [VA] over seconds_for_mean_RMS	RO	0
41215	**S_SUM_RMS_MAX** S_SUM MAX RMS [VA] over last seconds_for_MAX_RMS	RO	0
41217	**S_SUM_RMS_min** S_SUM Min RMS [VA] over lastseconds_for_min_RMS	RO	100000

Indirizzo Modbus	Nome registro Descrizione	R/W	Default
41219	**PF1_RMS_AVG** PF1 RMS average over seconds_for_mean_RMS	RO	0
41221	**PF1_RMS_MAX** PF1 MAX RMS over last seconds_for_MAX_RMS	RO	0
41223	**PF1_RMS_min** PF1 Min RMS over lastseconds_for_min_RMS	RO	100000
41225	**PF2_RMS_AVG** PF2 RMS average over seconds_for_mean_RMS	RO	0
41227	**PF2_RMS_MAX** PF2 MAX RMS over last seconds_for_MAX_RMS	RO	0
41229	**PF2_RMS_min** PF2 Min RMS over lastseconds_for_min_RMS	RO	100000
41231	**PF3_RMS_AVG** PF3 RMS average over seconds_for_mean_RMS	RO	0
41233	**PF3_RMS_MAX** PF3 MAX RMS over last seconds_for_MAX_RMS	RO	0
41235	**PF3_RMS_min** PF3 Min RMS over lastseconds_for_min_RMS	RO	100000
41237	**PF_SUM_RMS_AVG** PF_SUM RMS average over seconds_for_mean_RMS	RO	0
41239	**PF_SUM_RMS_MAX** PF_SUM MAX RMS over last seconds_for_MAX_RMS	RO	0
41241	**PF_SUM_RMS_min** PF_SUM Min RMS over lastseconds_for_min_RMS	RO	100000
41243	**CF1_RMS_AVG** CF1 RMS average over seconds_for_mean_RMS	RO	0
41245	**CF1_RMS_MAX** CF1 MAX RMS over last seconds_for_MAX_RMS	RO	0
41247	**CF1_RMS_min** CF1 Min RMS over lastseconds_for_min_RMS	RO	100000
41249	**CF2_RMS_AVG** CF2 RMS average over seconds_for_mean_RMS	RO	0
41251	**CF2_RMS_MAX** CF2 MAX RMS over last seconds_for_MAX_RMS	RO	0
41253	**CF2_RMS_min** CF2 Min RMS over lastseconds_for_min_RMS	RO	100000
41255	**CF3_RMS_AVG** CF3 RMS average over seconds_for_mean_RMS	RO	0
41257	**CF3_RMS_MAX** CF3 MAX RMS over last seconds_for_MAX_RMS	RO	0
41259	**CF3_RMS_min** CF3 Min RMS over lastseconds_for_min_RMS	RO	100000
41261	**CF_N_RMS_AVG** CF_N RMS average over seconds_for_mean_RMS	RO	0
41263	**CF_N_RMS_MAX** CF_N MAX RMS over last seconds_for_MAX_RMS	RO	0
41265	**CF_N_RMS_min** CF_N Min RMS over lastseconds_for_min_RMS	RO	100000
41267	**Frequency_RMS_AVG** Frequency average over seconds_for_mean_RMS	RO	0
41269	**Frequency_RMS_MAX** Frequency MAX over last seconds_for_MAX_RMS	RO	0

Indirizzo Modbus	Nome registro Descrizione	R/W	Default
41271	**Frequency_RMS_min** Frequency Min over lastseconds_for_min_RMS	RO	100000
41281	**P1_Tot_AVG** Average total Power over minute_for_Max_and_AVG_demand for P1	RO	0
41283	**P2_Tot_AVG** Average total Power over minute_for_Max_and_AVG_demand for P2	RO	0
41285	**P3_Tot_AVG** Average total Power over minute_for_Max_and_AVG_demand for P3	RO	0
41287	**P_SUM_Tot_AVG** Average total Power over minute_for_Max_and_AVG_demand for P three phase	RO	0
41289	**P1_Plus_AVG** Average positive Power over minute_for_Max_and_AVG_demand for P1	RO	0
41291	**P2_Plus_AVG** Average positive Power over minute_for_Max_and_AVG_demand for P2	RO	0
41293	**P3_Plus_AVG** Average positive Power over minute_for_Max_and_AVG_demand for P3	RO	0
41295	**P_SUM_Plus_AVG** Average positive Power over minute_for_Max_and_AVG_demand for P three phase	RO	0
41297	**P1_Neg_AVG** Average Negative Power over minute_for_Max_and_AVG_demand for P1	RO	0
41299	**P2_Neg_AVG** Average Negative Power over minute_for_Max_and_AVG_demand for P2	RO	0
41301	**P3_Neg_AVG** Average Negative Power over minute_for_Max_and_AVG_demand for P3	RO	0
41303	**P_SUM_Neg_AVG** Average Negative Power over minute_for_Max_and_AVG_demand for P three phase	RO	0
41305	**Q1_Plus_AVG_ind** Average Reactive Inductive Power with positive active power over minute_for_Max_and_AVG_demand for Q1	RO	0
41307	**Q2_Plus_AVG_ind** Average Reactive Inductive Power with positive active power over minute_for_Max_and_AVG_demand for Q2	RO	0
41309	**Q3_Plus_AVG_ind** Average Reactive Inductive Power with positive active power over minute_for_Max_and_AVG_demand for Q3	RO	0
41311	**Q_SUM_Plus_AVG_ind** Average Reactive Inductive Power with positive active power over minute_for_Max_and_AVG_demand for Q three phase	RO	0
41313	**Q1_Neg_AVG_ind** Average Reactive Inductive Power with negative active power over minute_for_Max_and_AVG_demand for Q1	RO	0
41315	**Q2_Neg_AVG_ind** Average Reactive Inductive Power with negative active power over minute_for_Max_and_AVG_demand for Q2	RO	0
41317	**Q3_Neg_AVG_ind** Average Reactive Inductive Power with negative active power over minute_for_Max_and_AVG_demand for Q3	RO	0

Indirizzo Modbus	Nome registro Descrizione	R/W	Default
41319	**Q_SUM_Neg_AVG_ind** Average Reactive Inductive Power with negative active power over minute_for_Max_and_AVG_demand for Q three phase	RO	0
41321	**Q1_Plus_AVG_cap** Average Reactive Capacitive Power with positive active power over minute_for_Max_and_AVG_demand for Q1	RO	0
41323	**Q2_Plus_AVG_cap** Average Reactive Capacitive Power with positive active power over minute_for_Max_and_AVG_demand for Q2	RO	0
41325	**Q3_Plus_AVG_cap** Average Reactive Capacitive Power with positive active power over minute_for_Max_and_AVG_demand for Q3	RO	0
41327	**Q_SUM_Plus_AVG_cap** Average Reactive Capacitive Power with positive active power over minute_for_Max_and_AVG_demand for Q three phase	RO	0
41329	**Q1_Neg_AVG_cap** Average Reactive Capacitive Power with negative active power over minute_for_Max_and_AVG_demand for Q1	RO	0
41331	**Q2_Neg_AVG_cap** Average Reactive Capacitive Power with negative active power over minute_for_Max_and_AVG_demand for Q2	RO	0
41333	**Q3_Neg_AVG_cap** Average Reactive Capacitive Power with negative active power over minute_for_Max_and_AVG_demand for Q3	RO	0
41335	**Q_SUM_Neg_AVG_cap** Average Reactive Capacitive Power with negative active power over minute_for_Max_and_AVG_demand for Q three phase	RO	0
41337	**P1_MaxDemand** MAX Demand over minute_for_Max_and_AVG_demand for P1	RO	0
41339	**P2_MaxDemand** MAX Demand over minute_for_Max_and_AVG_demand for P2	RO	0
41341	**P3_MaxDemand** MAX Demand over minute_for_Max_and_AVG_demand for P3	RO	0
41343	**P_SUM_MaxDemand** MAX Demand over minute_for_Max_and_AVG_demand for P three phase	RO	0
41345	**Month_of_P1_MaxDemand** Month at which arises Max Demand over minute_for_Max_and_AVG_ demand for P1 for current month	RO	0
41346	**Day_of_P1_MaxDemand** Day at which arises Max Demand over minute_for_Max_and_AVG_ demand for P1 for current month	RO	0
41347	**Hour_of_P1_MaxDemand** Hour at which arises Max Demand over minute_for_Max_and_AVG_ demand for P1 for current month	RO	0
41348	**Minute_of_P1_MaxDemand** Minute at which arises Max Demand over minute_for_Max_and_AVG_ demand for P1 for current month	RO	0
41349	**Month_of_P2_MaxDemand** Month at which arises Max Demand over minute_for_Max_and_AVG_ demand for P2 for current month	RO	0

Indirizzo Modbus	Nome registro Descrizione	R/W	Default
41350	**Day_of_P2_MaxDemand** Day at which arises Max Demand over minute_for_Max_and_AVG_ demand for P2 for current month	RO	0
41351	**Hour_of_P2_MaxDemand** Hour at which arises Max Demand over minute_for_Max_and_AVG_ demand for P2 for current month	RO	0
41352	**Minute_of_P2_MaxDemand** Minute at which arises Max Demand over minute_for_Max_and_AVG_ demand for P2 for current month	RO	0
41353	**Month_of_P3_MaxDemand** Month at which arises Max Demand over minute_for_Max_and_AVG_ demand for P3 for current month	RO	0
41354	**Day_of_P3_MaxDemand** Day at which arises Max Demand over minute_for_Max_and_AVG_ demand for P3 for current month	RO	0
41355	**Hour_of_P3_MaxDemand** Hour at which arises Max Demand over minute_for_Max_and_AVG_ demand for P3 for current month	RO	0
41356	**Minute_of_P3_MaxDemand** Minute at which arises Max Demand over minute_for_Max_and_AVG_ demand for P3 for current month	RO	0
41357	**Month_of_P_SUM_MaxDemand** Month at which arises Max Demand over minute_for_Max_and_AVG_ demand for P_SUM for current month	RO	0
41358	**Day_of_P_SUM_MaxDemand** Day at which arises Max Demand over minute_for_Max_and_AVG_ demand for P_SUM for current month	RO	0
41359	**Hour_of_P_SUM_MaxDemand** Hour at which arises Max Demand over minute_for_Max_and_AVG_ demand for P_SUM for current month	RO	0
41360	**Minute_of_P_SUM_MaxDemand** Minute at which arises Max Demand over minute_for_Max_and_AVG_ demand for P_SUM for current month	RO	0
41361	**Year** RTC : year (2000-2099)	R/W	2025
41362	**Month** RTC : month (1-12)	R/W	10
41363	**Day** RTC : day month (1-31)	R/W	6
41364	**Hour** RTC : hour (0-23)	R/W	11
41365	**Minute** RTC : minute (0-59)	R/W	7
41366	**Seconds** RTC : second (0-59)	R/W	45
41367	**RSSI** Wifi Strength (of the connected AP)	RO	0

10 Portali di Supporto e Documentazione Tecnica

Per ottenere informazioni dettagliate, assistenza tecnica e risorse aggiornate relative ai prodotti Pixsys, si invita l'utente a consultare i seguenti portali ufficiali:

	Forum Pixsys - disponibile all'indirizzo: https://forum.pixsys.net Piattaforma dedicata al confronto tra utenti, utile per la risoluzione di problematiche tecniche e lo scambio di esperienze applicative.
	Documentazione tecnica Pixsys - disponibile all'indirizzo https://docs.pixsys.com Archivio ufficiale contenente guide operative e materiale di riferimento costantemente aggiornato.

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Note / Aggiornamenti

Read carefully the safety guidelines and programming instructions contained in this manual before using/connecting the device.

Prima di utilizzare il dispositivo leggere con attenzione le informazioni di sicurezza e settaggio contenute in questo manuale.

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