IPM-S604 Series

MULTIFUNCTION & ROGOWSKI POWER METERS

MULTI-FUNCTION POWER METERS - IPM-S604 SERIES

Three phase multifunction power meters with CTs, direct measurement, Rogowski Coils

The IPM-S604 series includes innovative three-phase network analyzers for the measurement and storage of electrical parameters. All versions for TA standard 1/5 A, for direct link up to 80 A or for Rogowski coils input, enclose the ideal functions for energy management applications. Depending on the model, the device can communicate through the RS485 serial port with ModBUS RTU / ASCII or through the Ethernet port with ModBUS protocol TCP-IP. Onboard Ethernt models is very useful the Web server interface to remotely manage surveys and export logged data for energy audits. The top features of the advanced versions ENERGY Plus are 8 MB for data logs, the recording of harmonics up to 15^ and the recording of MIN./AVG/MAX values of all the active and reactive powers.

INSERTION MODE

- Vthree phase 4 wires
- From 3x400 V to 3x415 V threephase 3 wires
- From 230 V to 240 V single phase

POWER SUPPLY

- Self-Powered models
- Auxiliary supply models

DIGITAL I/O'S

I/O

#1/2 alarm/pulse output
#1 average values calculation (DMD)

DATA STORAGE

- Active/Reactive Power average values recording (IPM-S604B – Basic versions) or All Power MIN/AVG/MAX values di tutte le potenze (IPM-S604E Energy Plus versions)
- Up to 8 MB memory for data recording

TYPICAL APPLICATION

- Monitoring system and energy control
- Individual machine load monitoring.
- Power peak control
- Switchboards, gensets, motor control centers etc.
- Remote metering and cost allocation

SETTINGS

- ENERGY POWER PACK (software)
- Web Server
- Front Key buttons

OPTIONAL COMMUNICATION

- ModbBUS RTU/ASCCI (RS85 port)
- ModBUS TCP-IP (LAN port)

ENERGY COUNTERS AND MEASUREMENS

- Total counters
- Inductive / capacitive independent counters
- Bidirectional measurement on 4 quadrants for all powers and energies
- Energy efficiency parameters measurement

THD & HARMONICS

- Current / Voltage THD Values
- Current / Voltage THD Values uo tp 15th harmonics

CURRENT INPUT

- Version for 1 or 5A CT, for direct connection up to 6A or 80A
- 3 current measurement scales for Rogowski model

ROGOWSKI COILS - Working principle

An air-cored toroidal winding is placed around the conductor, the magnetic field produced by the current induces in the coil a voltage proportional to the rate of change of current. Integrating this voltage the output become proportional to the current (as for a current transformer).

Flexible coil
From 25 to 300 cm (length)
Very thin cross section down to approx. 8 mm

TECHNOLOGY

- The junction point is insensitive to both the position of the internal conductor and to currents carried by external contuctors
- Coil and cable shielded against electromagnetic noise

ENGINEERING

- Cross section reduced up to approx. 8mm
- High flexibility
- Easy installation
- Low weight

CALIBRATION

- Better than 1% accuracy, even close to the junction point
- Accessible calibration point for easy recalibration, if required

OPTIMAL LOCK

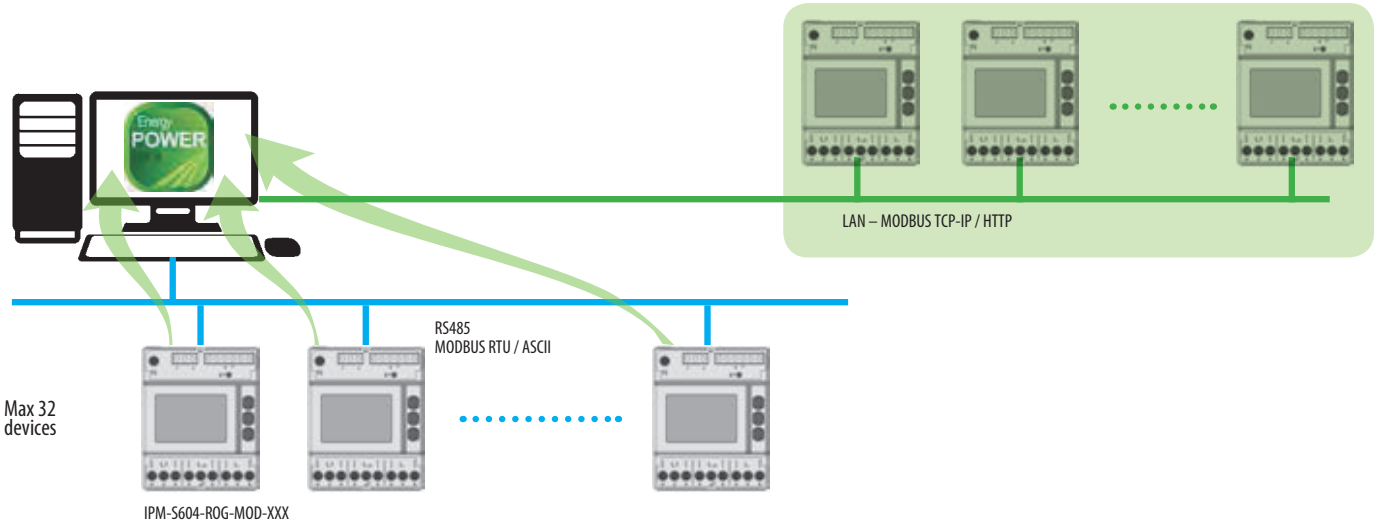
- Secure lock even in pr esence of vibration and/or pull-ups
- Stable lock ensuring repeatability in measurement

ROGOWSKI MULTI-FUNCTION POWER METERS

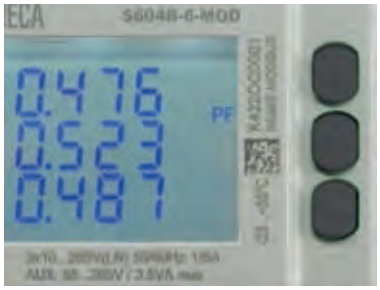
	IPM-S604B	IPM-S604E	IPM-S604E-ROG
			
	Three-phase Power Meter BASIC version	Three-phase Power Meter ENERGY Plus version	Threee-phase power meter kit including nr. 1 IPM-S604E + nr. 3 Rogowski coils
GENERAL DATA			
Power supply	180..285 Vac line-neutral, Cat III (self powered models) 85..265 Vac, Aux, Cat II (auxiliary powered models)	85..265 Vac, Aux, Cat II (auxiliary powered models)	85..265 Vac, Aux, Cat II (auxiliary powered models)
Max consumption	3,5 VA - 1 W each phase (self-powered models) 1,6 VA - 1 W (auxilary powered, RS485 models) 4,5 VA - 1,6 W (auxiliary powered, Ethernet models)	1,6 VA - 1 W (auxilary powered, RS485 models) 4,5 VA - 1,6 W (auxiliary powered, Ethernet models)	1,6 VA - 1 W (auxilary powered, RS485 models) 4,5 VA - 1,6 W (auxiliary powered, Ethernet models)
Display	LCD, backlighted, 43x29 mm, 3 rows, 4 digit+symbols	LCD, backlighted, 43x29 mm, 3 rows, 4 digit+symbols	LCD, backlighted, 43x29 mm, 3 rows, 4 digit+symbols
Keyboard	3 front button, 1 protected button	3 front button, 1 protected button	3 front button, 1 protected button
Operating temperature	-25..+55°C	-25..+55°C	-25..+55°C
Sinusoidal vibration amplitude	50 Hz ± 0.075 mm	50 Hz ± 0.075 mm	50 Hz ± 0.075 mm
Memory (instrument with communicatio port)	1 MB	8 MB	8 MB
Recordings	AGV values for active and reactive powers	Min/ Avg/Max values for all powers, selectable	Min/ Avg/Max values for all powers, selectable
THD & Harmonics	Voltage and current THD values	Voltage and current THD values Voltage and current up to 15th	Voltage and current THD values Voltage and current up to 15th
Apparent Energy Counters	Total counters or separated inductive/ capacitive counters	Total counters or separated inductive/ capacitive counters	Total counters or separated inductive/ capacitive counters
Wiring modes	Three-phase, 4 wires, 3 currents Three-phase, 4 wires, 2 currents (aux models)	Three-phase, 4 wires, 3 currents Three-phase, 4 wires, 2 currents (aux models)	Three-phase, 4 wires, 3 currents Three-phase, 4 wires, 2 currents (aux models)
Front protection degree	IP51	IP51	IP51
Terminals protection degree	IP20	IP20	IP20
Dimension (lxhxw)	72x90x65 mm	72x90x65 mm	72x90x65 mm
Weight	436 g	436 g	436 g
ACCURACY			
Voltage	±0,2% reading 10% FS...FS (FS=full scale value)	±0,2% reading 10% FS...FS (FS=full scale value)	±0,2% reading 10% FS...FS (FS=full scale value)
Current	±0,4% reading in 5% FS...FS	±0,4% reading in 5% FS...FS	±0,4% reading in 5% FS...FS
Power	±0,5% reading ±0,1% FS (PF=1)	±0,5% reading ±0,1% FS (PF=1)	±0,5% reading ±0,1% FS (PF=1)
Frequency	±0,1% reading ±1 digit in 45...65 Hz	±0,1% reading ±1 digit in 45...65 Hz	±0,1% reading ±1 digit in 45...65 Hz
Active Energy	Class 1 according to IEC/EN 62053-21	Class 1 according to IEC/EN 62053-21	Class 1 according to IEC/EN 62053-21
Reactive Energy	Class 2 according to IEC/EN 62053-23	Class 2 according to IEC/EN 62053-23	Class 2 according to IEC/EN 62053-23
COMMUNICATION			
Serial Port	RS485 optoisolated, 300..57.600 bps (optional)	RS485 optoisolated, 300..57.600 bps	RS485 optoisolated, 300..57.600 bps
Ethernet Port	10/100 Mbps, RJ45 connector (optional)	10/100 Mbps, RJ45 connector	10/100 Mbps, RJ45 connector
Supported protocols	ModBUS RTU/ASCII (RS485); http, Ntp, Dhcp, ModBUS TCP-IP (Ethernet)	-	-
I/O			
Voltage Input	3x180/310..3x285/495 Vacm Cat III, 300 V (self powered models) 3x10/17…3x285/495 Vac, Cat III 300 V (auxiliary powered models)	3x180/310..3x285/495 Vacm Cat III, 300 V (self powered models) 3x10/17…3x285/495 Vac, Cat III 300 V (auxiliary powered models)	3x180/310..3x285/495 Vacm Cat III, 300 V (self powered models) 3x10/17…3x285/495 Vac, Cat III 300 V (auxiliary powered models)
Current Input	6A (1/5A CT models); 80 A (80 A models)		3 selectable scales: 500 / 4.000 / 20.000 A by Rogowski Coils
Digital Input	N1 optoisolated active channel (NO COM), DMD synchronization range 80..276 Vac/dc	-	10/100 Mbps, RJ45 connector
Digital Output	Nr 1 (RS485 models) / 2 (NO COM models) optoisolated passive channel, IEC/EN 62053-31	Nr 1 (RS485 models) / 2 (NO COM models) optoisolated passive channel, IEC/EN 62053-31	Nr 1 (RS485 models) / 2 (NO COM models) optoisolated passive channel, IEC/EN 62053-31
PROGRAMMING			
Configuration systems	Front key buttons Energy Power Pack software (ModBUS/ Ethernet models) Webserver (Ethernet models)	Front key buttons Energy Power Pack software (ModBUS/ Ethernet models) Webserver (Ethernet models)	Front key buttons Energy Power Pack software (ModBUS/ Ethernet models) Webserver (Ethernet models)
STANDARD			
Certifications	CE	CE	CE
Directives	2006/95/CE, 2004/108/CE	2006/95/CE, 2004/108/CE	2006/95/CE, 2004/108/CE
Norms	EN 61010-1, EN 61010-2-030, EN 61326-1, EN 55011, EN 61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, EN61000-4-11, EN61000-6-2	EN 61010-1, EN 61010-2-030, EN 61326-1, EN 55011, EN 61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, EN61000-4-11, EN61000-6-2	EN 61010-1, EN 61010-2-030, EN 61326-1, EN 55011, EN 61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, EN61000-4-11, EN61000-6-2

PROGRAMMING SYSTEM

ETHERNET / MODBUS COMMUNICATION / PROGRAMMING



FRONT KEY BUTTONS



Readings, settings and recording are available through tramite front key buttons with 7 display page groups management.

Configuration tool for Energy power meters SERVER IPM-S604B and IPM-S604E. ENERGY POWER PACK assures reading and visualization of all measurements, it also provides a overall setup of parameters, downloading and converting recording and it manages remote connections

By Web Server it's possible visualizing all device values and associate a recording exportabla into a csv file

ORDER CODE

Code	Description
IPM-S604B-6	Three phase power meter, BASIC version, for CT/5A, self powered
IPM-S604B-6-MOD	Three phase power meter, BASIC version, for CT/5A, RS485 Modbus, 1MB mem.log.
IPM-S604B-6-ETH	Three phase power meter, BASIC version, for CT/5A, Ethernet, 1MB mem. log.
IPM-S604B-80	Three phase power meter, BASIC version, 80A, self-powered
IPM-S604B-80-MOD	Three phase power meter, BASIC version, 80A-RS485 Modbus, 1MB mem. log.
IPM-S604B-80-ETH	Three phase power meter, BASIC version, 80A- Ethernet, 1MB mem. log.
IPM-S604E-6-MOD	Three-phase Power Meter ENERGY Plus version, CT1/5A-RS485 Modbus,8MB log. harmonics
IPM-S604E-6-ETH	Three-phase Power Meter ENERGY Plus version, CT1/5A- Ethernet,8MB log. harmonics
IPM-S604E-80-MOD	Three-phase Power Meter ENERGY Plus version, 80A-RS485 Modbus,8MB log. harmonics
IPM-S604E-80-ETH	Three-phase Power Meter ENERGY Plus version, 80A- Ethernet,8MB log. harmonics
IPM-S604E-ROG-MOD-30	Threee-phase power meter kit including nr.1 IPM-S604E RS485 Modbus, 1MB mem. Log + nr. 3 Rogowski coils RC150 L= 30cm Øint. 9,5 cm
IPM-S604E-ROG-MOD-45	Threee-phase power meter kit including nr.1 IPM-S604B RS485 Modbus, 1MB mem. Log + nr. 3 Rogowski coils RC150 L= 45cm Øint. 14 cm
IPM-S604E-ROG-MOD-70	Threee-phase power meter kit including nr.1 IPM-S604E RS485 Modbus, 1MB mem. Log+ nr. 3 Rogowski coils RC150 L= 70cm Øint. 22 cm
IPM-S604E-ROG-ETH-30	Threee-phase power meter kit including nr.1 IPM-S604E Ethernet, 1MB mem. Log + nr. 3 Rogowski coils RC150 L= 30cm Øint. 9,5 cm
IPM-S604E-ROG-ETH-45	Threee-phase power meter kit including nr.1 IPM-S604E Ethernet, 1MB mem. Log + nr. 3 Rogowski coils RC150 L= 45cm Øint. 14 cm
IPM-S604E-ROG-ETH-70	Threee-phase power meter kit including nr.1 IPM-S604B Ethernet, 1MB mem. Log+ nr. 3 Rogowski coils RC150 L= 70cm Øint. 22 cm

ROGOWSKI COILS	
RC150-025-100-3M	Rogowski Coil L=25cm Øint.8cm,100mV/1KA-50Hz,cable L=3mt.
RC150-035-100-3M	Rogowski Coil L=35cm Øint.11cm,100mV/1KA-50Hz,cable L=3mt.
RC150-040-100-3M	Rogowski Coil L=40cm Øint.12cm,100mV/1KA-50Hz,cable L=3mt.
RC150-060-100-3M	Rogowski Coil L=60cm Øint.19cm,100mV/1KA-50Hz,cable L=3mt.
RC150-090-100-3M	Rogowski Coil L=90cm Øint.28cm,100mV/1KA-50Hz,cable L=3mt.
RC150-120-100-3M	Rogowski Coil L=120cm Øint.38cm,100mV/1KA-50Hz,cable L=3mt.
RC150-180-100-3M	Rogowski Coil L=180cm Øint.57cm,100mV/1KA-50Hz,cable L=3mt.
RC150-RIC-KIT30	Rogowski Coil Kit Spare Parts RC150 L= 30cm Ø int. 9,5 cm, 100mV/1KA-50Hz,cable L=3mt.
RC150-RIC-KIT45	Rogowski Coil Kit Spare Parts RC150 L= 45cm Ø int. 14 cm, 100mV/1KA-50Hz,cable L=3mt.
RC150-RIC-KIT70	Rogowski Coil Kit Spare Parts RC150 L= 70cm Ø int. 22 cm, 100mV/1KA-50Hz,cable L=3mt.
RC150-CAVEX-ROG1	Cable extension beyond 3 mt. for Rogwski Coil connection L.1
RC150-CAVEX-ROG2	Cable extension beyond 3 mt. for Rogwski Coil connection L.2
RC150-CAVEX-ROG3	Cable extension beyond 3 mt. for Rogwski Coil connection L.3
RC190-030-333-3M	Rogowski Coil L=30cm Øint.9,5cm,333mV/1KA-50H,cable L=3mt.
RC190-035-333-3M	Rogowski Coil L=35cm Øint.11cm,333mV/1KA-50H,cable L=3mt.
RC190-060-333-3M	Rogowski Coil L=60cm Øint.19cm,333mV/1KA-50H,cable L=3mt.
RC190-090-333-3M	Rogowski Coil L=90cm Øint.28cm,333mV/1KA-50H,cable L=3mt.
RC190-120-333-3M	Rogowski Coil L=120cm Øint.38cm,333mV/1KA-50H,cable L=3mt.
RC190-180-333-3M	Rogowski Coil L=180cm Øint.57cm,333mV/1KA-50H,cable L=3mt.
RC190-180-333-3M	Rogowski Coil L=180cm Øint.57cm,333mV/1KA-50H,cable L=3mt.

ACCESSORIES	
IPM-S107USB	RS485/USB serial converter, portable version