100% Made & Designed in Italy

T203PM SERIES

SINGLE PHASE POWER METERS WITH DIRECT CURRENT AND ENERGY MEASUREMENT



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T203PM

SINGLE PHASE POWER METERS WITH DIRECT CURRENT AND ENERGY MEASUREMENT



T203PM is a series of single-phase AC/DC TRMS power meter, ModBUS interface, analog and digital output, inputs with 3 current measurement ranges: 100, 300 or 600 Aac/dc depending on the version (T203PM100-MU, T203PM300-MU, T203PM600-MU) and for voltage 290 Vac. 1000 Vdc. The instruments carry out the direct measurement of current and energy without using external CTs. T203PMs measure voltage values, AC/DC current, active/reactive/apparent power, power factor, frequency, voltage, current, current, reactive apparent power, power factor, frequency, harmonic distortion (THD), transmitting them on a 0-10V analog voltage output. 0-10V analog voltage output. T203PM analyzers are particularly robust as they can rely on a wide operating temperature range, - 25..+65 C, insulation up to 3 kVac (on bare conductors), safety class CAT. III 600V (bare conductors) and 1kV (isolated conductors).

DIRECT MEASUREMENT OF CURRENT AND ENERGY

The following measurements are available without external CTs the following measurements: TRMS voltage and current AC voltage, DC voltage, bipolar DC current, instantaneous power, active power, active energy, reactive energy, apparent energy, power factor, THD, mains frequency.

ANALOG VOLTAGE OUTPUT

The analog output can replicate any of the of the input measurements.

HARMONIC ANALYSIS

The input measurement bandwidth of 1.4 kHz guarantees the measurement of voltage and current with harmonic components up to the 21st (at a mains frequency of 60 Hz).

DIGITAL OUTPUT

The digital output is used for signaling alarms signaling of alarms that may occur for a given measurement

MODBUS RTU INTERFACE

ModBUS RTU (Slave) protocol supported both via RS485 communication port up to 115.200 bps and via USB port for programming operations.

MICRO USB PORT

The front USB port allows easy connection connection for configuring the device device via software. Through the USB port to update the firmware.

CONFIGURATION VIA EASY SETUP2

T203PM are configurable through EASY SETUP2 software EASY SETUP2 software and connection via frontal front USB port easily accessible.

ENERGY METER

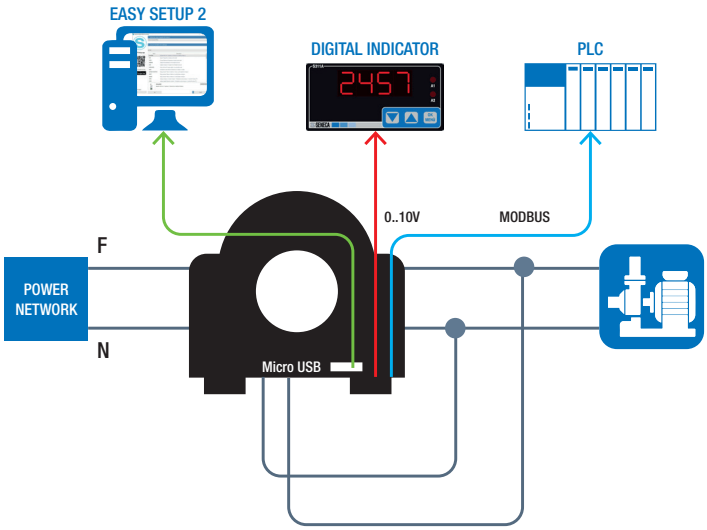
The analyzers have 64-bit integer counters counters whose energy values (active, reactive, apparent) are saved on “Non volatile” memory.

TECHNICAL DATA

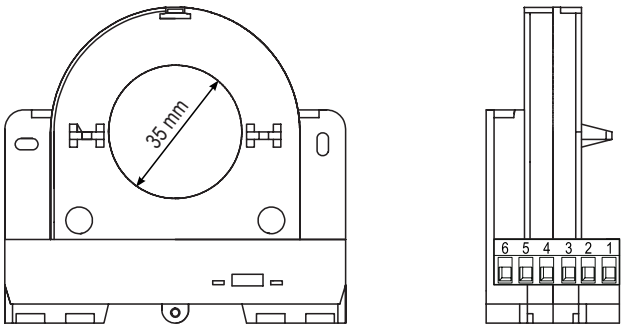
	T203PM100-MU	T203PM300-MU	T203PM600-MU
			
	Single-phase AC/DC TRMS power meter, inputs up to 100 A, ModBUS, analog and digital output	Single-phase AC/DC TRMS power meter, inputs up to 300 A, ModBUS, analog and digital output	Single-phase AC/DC TRMS power meter, inputs up to 600 A, ModBUS, analog and digital output
GENERAL DATA			
Power supply	11.5 - 28 Vdc	11.5 - 28 Vdc	11.5 - 28 Vdc
Power consumption	Typical: < 70 mA @ 24 Vdc	Typical: < 70 mA @ 24 Vdc	Typical: < 70 mA @ 24 Vdc
Isolation	3 kVac (on bare conductors)	3 kVac (on bare conductors)	3 kVac (on bare conductors)
Led status indicators	Power supply, USB communication, digital output	Power supply, USB communication, digital output	Power supply, USB communication, digital output
Installation / Overvoltage Category	CAT. III 600V (bare conductor) CAT. III 1kV (insulated conductor)	CAT. III 600V (bare conductor) CAT. III 1kV (insulated conductor)	CAT. III 600V (bare conductor) CAT. III 1kV (insulated conductor)
Frontal protection degree	IP20	IP20	IP20
Accuracy class	0.5% f.s.at 50/60 Hz, 23 °C (> 2% f.s.) 1% f.s.a. 50/60 Hz, 23 °C (< 2% f.s.)	1% of full scale at 50/60 Hz, 23 °C	1% of full scale at 50/60 Hz, 23 °C
Programming	EASY SETUP 2 software	EASY SETUP 2 software	EASY SETUP 2 software
Mounting	35mm DIN rail IEC EN60715, wall mounting by plugs, suspension by clamps	35mm DIN rail IEC EN60715, wall mounting by plugs, suspension by clamps	35mm DIN rail IEC EN60715, wall mounting by plugs, suspension by clamps
Connections	Removable 6-way screw terminals, pitch 5 mm for cables up to 2.5 mm^2 Micro USB for programming and fw update	Removable 6-way screw terminals, pitch 5 mm for cables up to 2.5 mm^2 Micro USB for programming and fw update	Removable 6-way screw terminals, pitch 5 mm for cables up to 2.5 mm^2 Micro USB for programming and fw update
Operating temperature	-25..+70°C	-25..+70°C	-25..+70°C
Dimension	95 x 75 x 35 mm	95 x 75 x 35 mm	95 x 75 x 35 mm
Weight	150 g	150 g	150 g
Case	PA6, black color	PA6, black color	PA6, black color
MEASUREMENT AND CALCULATION TIMES			
Sampling time	47.000 sps	47.000 sps	47.000 sps
RMS values settling time	500..1000 ms	500..1000 ms	500..1000 ms
MEASURED PARAMETERS			
nstantaneous values	Voltage, AC/DC Current, Active / Reactive / Apparent Power, Power Factor, Frequency, THD	Voltage, AC/DC Current, Active / Reactive / Apparent Power, Power Factor, Frequency, THD	Voltage, AC/DC Current, Active / Reactive / Apparent Power, Power Factor, Frequency, THD
Average / max / min values	Voltage, AC/DC Current, Active / Reactive / Apparent Power, Power Factor, Frequency, THD	Voltage, AC/DC Current, Active / Reactive / Apparent Power, Power Factor, Frequency, THD	Voltage, AC/DC Current, Active / Reactive / Apparent Power, Power Factor, Frequency, THD
Harmonics	Up to the 21st	Up to the 21st	Up to the 21st
COMMUNICATION			
SERIAL			
Interfaces	Nr.1 RS485 port	Nr.1 RS485 port	Nr.1 RS485 port
Protocol	ModBUS RTU	ModBUS RTU	ModBUS RTU
Distance	Up to 1,200 m	Up to 1,200 m	Up to 1,200 m
Connectivity	Max 32 nodes	Max 32 nodes	Max 32 nodes
USB			
Ports	Nr.1 Micro USB programming port	Nr.1 Micro USB programming port	Nr.1 Micro USB programming port
MEASUREMENT INPUTS			
Voltage / Current	Up to 0 - 100A or 0 - 290Vac (AC/DC TRMS); ±100A or 0 - +1000Vdc (DC Bipolar TRMS) Crest Factor: 100A = 1.7 / 300A = 1.9 / 600A = 1.9 Bandwidth: 1.4 kHz Overload: 3 x IN continuous	Up to 0 - 300A or 0 - 290Vac (AC/DC TRMS); ±300A or 0 - +1000Vdc (DC Bipolar TRMS) Crest Factor: 100A = 1.7 / 300A = 1.9 / 600A = 1.9 Bandwidth: 1.4 kHz Overload: 3 x IN continuous	Up to 0 - 600A or 0 - 290Vac (AC/DC TRMS); ±600A or 0 - +1000Vdc (DC Bipolar TRMS) Crest Factor: 100A = 1.7 / 300A = 1.9 / 600A = 1.9 Bandwidth: 1.4 kHz Overload: 3 x IN continuous
BUILT-IN IOS			
Channels	1DO, 1 AO	1DO, 1 AO	1DO, 1 AO
Digital Output	ACTIVE 0 - Vdc, 50mA max load	ACTIVE 0 - Vdc, 50mA max load	ACTIVE 0 - Vdc, 50mA max load
Analog Ouput	VOLTAGE: 0..10Vdc, minimum load 2kΩ. Reverse polarity and overvoltage protection Resolution: 13.5 f.s.AC Error for EMI: < 1 % Coeffic. Temperature: < 200 ppm/°C Hysteresis on measurement: 0.2% f.s. Response Speed: < 200 ms	VOLTAGE: 0..10Vdc, minimum load 2kΩ. Reverse polarity and overvoltage protection Resolution: 13.5 f.s.AC Error for EMI: < 1 % Coeffic. Temperature: < 200 ppm/°C Hysteresis on measurement: 0.2% f.s. Response Speed: < 200 ms	VOLTAGE: 0..10Vdc, minimum load 2kΩ. Reverse polarity and overvoltage protection Resolution: 13.5 f.s.AC Error for EMI: < 1 % Coeffic. Temperature: < 200 ppm/°C Hysteresis on measurement: 0.2% f.s. Response Speed: < 200 ms
STANDARD			
Approvals	CE	CE	CE
Norms	EN61000-6-4, EN61000-6-2, EN61010-1	EN61000-6-4, EN61000-6-2, EN61010-1	EN61000-6-4, EN61000-6-2, EN61010-1

T203PM SERIES

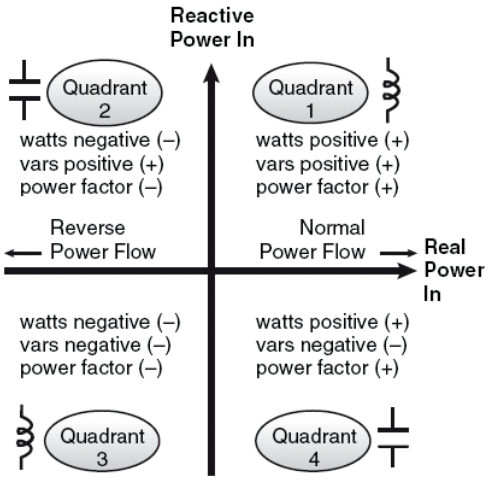
TYPICAL APPLICATION



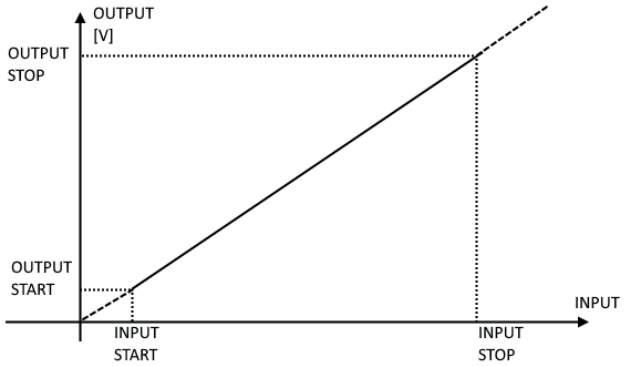
MODULE LAYOUT



AVAILABLE MEASURES VIA SERIAL



ANALOG OUTPUT



INSTANTANEOUS, MINIMUM AND MAXIMUM MEASURED VALUES

Voltage	V
AC / DC Current (+/-)	I
Active Power (+/-)	P
Reactive Power (+/-)	Q
Apparent Power (+/-)	S
Power Factor	PF
Frequency	F (frequency measured on the mains voltage)
THD	% (measured on current)

COUNTERS

ACTIVE ENERGY [Wh/10] (TOTAL (+/-))
REACTIVE ENERGY [VARh/10] (TOTAL (+/-))
APPARENT ENERGY [VAh/10] (TOTAL (+/-))

ORDER CODES

Code	Description
T203PM100-MU	Single-phase power meter AC/DC TRMS, inputs up to 100 A, ModBUS, analog and digital output
T203PM300-MU	Single-phase AC/DC TRMS power meter, inputs up to 300 A, ModBUS, analog and digital output
T203PM600-MU	Single-phase AC/DC TRMS power meter, inputs up to 600 A, ModBUS, analog and digital output
CU-A-MICROB	Micro USB-A USB-B cable 5 P

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