UPM307

DIN 96x96 compact LCD power meter

- Depth 60 mm only
- More than 100 electrical parameters displayed
- Neutral current monitoring
- Fully bi-directional four quadrants readings
- High contrast graphic LCD display with a very large viewing area
- Power and current demand calculation during user-definable time period
- THD and individual FFT harmonic analysis up to 31th order
- No PTs required up to 600 (750) VAC
- Programmable CT and PT ratios
- Accuracy 0.5% according to IEC/EN 62053-22 for active energy

» General description

UPM307 is a digital meter able to measure the electrical parameters on three-phase systems. It provides accurate measurements even by distorted waveform. The backlighted LCD display is very large and highly efficient, therefore it guarantees perfect visibility in all light conditions.
A simple menu structure makes the instrument easy to use and allows a quick check of the measured parameters.
The working parameters can be easily set up by instrument keypad. The RS485 serial communication port allows to transfer the three-phase electrical parameters from the instrument.
The WINTOOL software can be downloaded for free from Algodue web site and allows to show on a PC all the measured values and to carry out settings in a faster way.
The EVU model is a version dedicated for 3 phases-2 wires-1CT wiring diagram. It allows to select the line voltage and the phase current to be connected to the instrument.
UPM307 replaces multiple analog meters as well as single function meters such as voltmeters, ammeters, wattmeters, varmeters, frequency-meters, powerfactor-meters, energy-meters, etc.
UPM307 is a compact, cost effective meter operating both as a stand-alone device or as an integral part of a more extensive energy monitoring and management network.

» Benefits

- UPM307 is the low cost solution for monitoring of all the main electrical parameters.
- It provides peak average current and power demand information. This data is essential to work out proper strategies aimed at avoiding uncontrolled power peaks and consequent penalties.
- UPM307 being ultra-compact and easy to mount is suitable for replacing conventional meters. UPM307 provides powerful capabilities not offered by traditional analog meters.
- UPM307 allows time and cost saving on mounting, compared to many individual single-function instruments.
- Via communication port it is possible to read and log on a PC all the readings. The remote connection allows to generate on a PC consumption profiles, logged values trends, cost allocation and reports as well as to identify critical values.

» Applications

- Switchboards, gensets, motor control centers, etc.
- Power monitoring & control systems
- Individual machine load monitoring
- Demand management
- Harmonics monitoring
- Remote metering and cost allocation

» Related Products

- MFC150
- Dedalo Software
- Wintool Software

» Main features

Measurements

- Single-phase and three-phase 3-wire or 4-wire unbalanced load operation.
- True RMS metering provides accurate measurement even for distorted waveform.
- Fully bi-directional, four-quadrant readings.
- More than 100 electrical parameters measured (instantaneous, demand, peak values, energies, etc.).
- THD calculation on voltage and current.
- Optional FFT analysis up to 15th or 31st order according to the accuracy.
- Direct measurement up to 600 (750) VAC.
- Programmable 1A / 5A current full scale.
- Programmable CT & PT ratios.

Front panel display

- High contrast bright, easy to read, graphic LCD display with a very large viewing area of 79x44 mm.
- White LED display backlighting with 100000 hours minimum lifetime.
- Up to four parameters displayed on the same page.

Communication

- RS485 optoisolated communication port.
- MODBUS or A2 ASCII protocol.
- Communication speed programmable up to 57600 bps.
- Optional built-in Profibus interface.

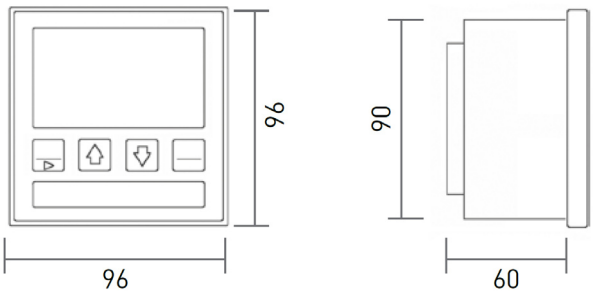
Inputs & outputs

- Two digital outputs for energy pulsing or for alarm tripping.
- On request input for Rogowski coils.

Other

- Real time waveform downloading via communication port. This function allows to represent graphically on the PC the three voltages and the three currents with 128 samples per cycle.
- Available languages: English, German, Italian, French.

» Technical drawing



INSTANTANEOUS MEASUREMENTS		
PHASE VOLTAGE	V_{L1-N} - V_{L2-N} - V_{L3-N} [V]	●
LINE VOLTAGE	V_{L1-L2} - V_{L2-L3} - V_{L3-L1} [V]	●
SYSTEM VOLTAGE	V [V]	●
LINE CURRENT	I_{L1} - I_{L2} - I_{L3} - I_N [A]	■
SYSTEM CURRENT	I [A]	■
POWER FACTOR	PF_{L1} - PF_{L2} - PF_{L3}	●
SYSTEM POWER FACTOR	PF	●
DISPLACEMENT POWER FACTOR (COSØ)	DPF_{L1} - DPF_{L2} - DPF_{L3}	○
APPARENT POWER	S_{L1} - S_{L2} - S_{L3} [VA]	■
SYSTEM APPARENT POWER	S [VA]	■
ACTIVE POWER	P_{L1} - P_{L2} - P_{L3} [W]	■
SYSTEM ACTIVE POWER	P [W]	■
REACTIVE POWER	Q_{L1} - Q_{L2} - Q_{L3} [var]	■
SYSTEM REACTIVE POWER	Q [var]	■
FREQUENCY	f [Hz]	●
DEMAND (AVERAGE VALUES)	3 xI_{AVG} - S_{AVG} - P_{AVG}	●

INSTANTANEOUS MEASUREMENTS		
VOLTAGE THD	THD_{L1} - THD_{L2} - THD_{L3} [%]	●
CURRENT THD	THD_{L1} - THD_{L2} - THD_{L3} [%]	●
FFT ANALYSIS	[%, V, A]	○
PHASE SEQUENCE	123 / 132	●

STORED DATA		
SYSTEM ACTIVE ENERGY	[Wh]	■
SYSTEM APPARENT ENERGY	[VAh]	■
SYSTEM LAGGING REACTIVE ENERGY	[varh ind]	■
SYSTEM LEADING REACTIVE ENERGY	[varh cap]	■
PEAK VALUES	3xV_{L-N} - 3xV_{L-L} - 3xI_L - 3xI_{AVG} - I_N - P_{AVG} - S_{AVG}	●

LEGEND

● = Standard
○ = Optional
■ = Bi-directional value

» Specifications

POWER SUPPLY	
Rated voltage:	230 VAC +15% -20%
	65...250 VAC / 90...250 VDC on request
	19...60 VDC on request
Consumption:	2 VA max
VOLTAGE INPUTS	
Maximum measurable voltage:	600 (750) VAC max L-L
Input impedance:	›1.3 MOhm
Burden:	0.15 VA max per phase
Frequency:	45 - 65 Hz
CURRENT INPUTS (TRMS)	
Rated current (Ib):	1 / 5 A programmable
Maximum overload:	10 A continuous - 100 A for 1 sec
Input impedance:	0.02 Ohm approximately
Burden:	0.5 VA max per phase
Insulation voltage:	150 VAC max between phases
Rogowski input:	200...49995 A on request
TYPICAL ACCURACY	
Voltage:	±0.2% reading from 10% to full scale
Current:	±0.4% reading from 0.25A to 6A
Energy:	active: class 0.5 S according to IEC/EN 62053-22
	reactive: class 2 according to IEC/EN 62053-23
	I_n=5A, I_{max}=6A, I_{start}=2mA
Frequency:	±0.02% reading ±1 digit from 45 to 65 Hz
DISPLAY AND OPERATING CONTROLS	
Display:	back-lighted graphic LCD 132x65 dots
Keypad:	4 push-buttons
COMMUNICATION PORT	
Type:	RS485 optoisolated
	PROFIBUS on request
Baud rate:	programmable from 300 to 57600 bps
	up to 12 Mbps in case of PROFIBUS
Protocol:	A2 ASCII or MODBUS or PROFIBUS
REAL TIME CLOCK	
Type:	with battery backup
Accuracy:	±30 ppm
DIGITAL OUTPUTS	
Type:	2 NPN or PNP optoisolated (50 V - 100 mADC)
ENVIRONMENTAL CONDITIONS	
Operating temperature:	from -10°C to +60°C
Storage temperature:	from -25°C to +75°C
Relative humidity:	80% max without condensation
MECHANICAL CHARACTERISTICS	
Material:	plastic enclosure
Protection degree:	IP54 (front panel); IP20 (terminals)
Terminals:	conductors 2.5 mm^2
Size / weight:	96x96x60 mm with power supply 230 VAC +15% -20%
	96x96x100 mm with power supply 65...250 VAC / 90...250 VDC or 19...60 VDC
	500 g max, depending on the configuration
STANDARD COMPLIANCE	
Safety:	73/23/EEC and 93/68/EEC directives, EN 61010.1 safety standard
EMC:	89/366/EEC directive and following modifications
	93/31/EEC and 93/68/EEC, EN50081-2, EN50082-2, EN61326/A1,
	IEC/EN 62053-22, IEC/EN 62053-23

ORDER CODE	POWER SUPPLY	COM PORT	COMMUNICATION PROTOCOL			MEASUREMENTS		SPECIAL WIRING	ACCURACY		I/O	REMOTE MANAGEMENT
	Auxiliary	RS485	A2 ASCII	MODBUS (Sign bit)	PROFIBUS	THD (V, A)	Harmonics, DPF	EVU version	1%	0,5%	DO	WINTOOL
FOR 1/5A CTs (not included)												
1203.0001.0001	230VAC +15% -20%	●	●			●			●		●	●
1203.0002.0001	65...250VAC/ 90...250VDC	●	●			●			●		●	●
1203.0003.0001	19...60VDC	●	●			●			●		●	●
1203.0005.0001	230VAC +15% -20%	●		●		●			●		●	
1203.0006.0001	65...250VAC/ 90...250VDC	●		●		●			●		●	
1203.0007.0001	19...60VDC	●		●		●			●		●	
1203.0008.0001	230VAC +15% -20%	●	●			●	up to 15th		●		●	●
1203.0009.0001	65...250VAC/ 90...250VDC	●	●			●	up to 15th		●		●	●
1203.0010.0001	19...60VDC	●	●			●	up to 15th		●		●	●
1203.0013.0001	230VAC +15% -20%	●		●		●	up to 15th		●		●	
1203.0014.0001	65...250VAC/ 90...250VDC	●		●		●	up to 15th		●		●	
1203.0015.0001	19...60VDC	●		●		●	up to 15th		●		●	
1203.0027.0001	230VAC +15% -20%	●	●			●				●	●	●
1203.0028.0001	230VAC +15% -20%	●		●		●				●	●	
1203.0029.0001	65...250VAC/ 90...250VDC	●		●		●				●	●	
1203.0030.0001	230VAC +15% -20%	●	●			●	up to 31st			●	●	●
1203.0031.0001	230VAC +15% -20%	●		●		●	up to 31st			●	●	
1203.0032.0001	65...250VAC/ 90...250VDC	●		●		●	up to 31st			●	●	
1203.0033.0001	65...250VAC/ 90...250VDC				●	●			●		●	
1203.0034.0001	65...250VAC/ 90...250VDC				●	●	up to 15th		●		●	
1203.0035.0001	230VAC +15% -20%					●	up to 15th	●	●		●	
FOR NO. 3 MFC150 ROGOWSKI COILS (not included) - *Current full scale value to be specified*												
1203.0017.0001	230VAC +15% -20%	●	●			●			●		●	●
1203.0019.0001	230VAC +15% -20%	●		●		●			●		●	
1203.0020.0001	65...250VAC/ 90...250VDC	●		●		●			●		●	
1203.0021.0001	19...60VDC	●		●		●			●		●	
1203.0023.0001	230VAC +15% -20%	●	●			●	up to 15th		●		●	●
1203.0025.0001	230VAC +15% -20%	●		●		●	up to 15th		●		●	

OPTION available only on request (MOQ 30 pcs), to be indicated together with the selected order code from the list above:
- PNP type digital outputs

LEGEND

Auxiliary: With 230VAC, the instrument depth is 60 mm. With other power supplies, the instrument depth is 100 mm.
DO: 2 NPN type digital outputs for alarm or pulse emission.
EVU version: 3phase, 2 wires, 1 CT single wiring mode. Nine possibilities to connect the line voltages and phase currents.
WINTOOL: Software for instrument remote management, downloadable for free at www.algodue.it, in the Client protected area.

NOTE: Subject to change without notice

ISO 9001:2008

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