UPM304

DIN 96x96 compact LED power meter

- Depth 60 mm only
- True RMS measurement
- More than 50 electrical parameters displayed
- Neutral current monitoring
- Bi-directional, four quadrants values on serial communication port
- High contrast bright LED display
- Power and current demand calculation during user-definable time period
- No PTs required up to 600 (750) VAC
- Programmable CT and PT ratios
- User friendly

» General description

UPM304 is a digital meter able to measure the electrical parameters on three-phase systems.
It provides accurate measurements even by distorted waveform.
The high brightness LED display ensure maximum visibility even in difficult environment lighting condition.
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.
UPM304 replaces multiple analog meters as well as single function meters such as voltmeters, ammeters, wattmeters, varmeters, frequency-meters, powerfactor-meters, energy-meters, etc.
UPM304 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

- UPM304 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.
- UPM304 being ultra-compact and easy to mount is suitable for replacing conventional meters. UPM304 provides powerful capabilities not offered by traditional analog meters.
- UPM304 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 value 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
- Remote metering and cost allocation

» Related Products

- Dedalo Software
- Wintool Software

» Main features

Measurements

- 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 values on serial communication port.
- More than 50 electrical parameters measured (instantaneous, demand, peak values, energies, etc.).
- On request THD calculation on voltage and current.
- 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, LED display.
- Up to three parameters displayed on the same page, with four digits plus sign digit.
- Protection from undesired access to setup and reset.

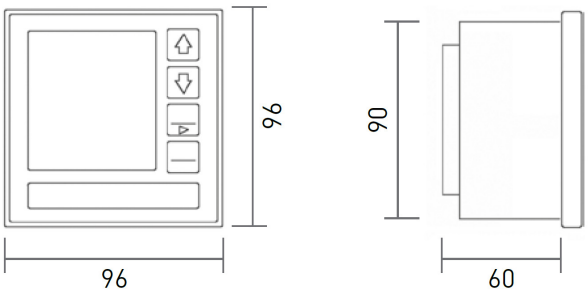
Communication

- RS485 optoisolated communication port.
- MODBUS or A2 ASCII protocol.
- Communication speed programmable up to 57600 bps.

Digital outputs

- Two digital outputs for energy pulsing or for alarm tripping.

» Technical drawing



INSTANTANEOUS MEASUREMENTS		DISPLAY	COM
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		●
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}	●	●
PHASE SEQUENCE	123 / 132	●	●
VOLTAGE THD	THD_{L1} - THD_{L2} - THD_{L3} [%]	○	○
CURRENT THD	THD_{L1} - THD_{L2} - THD_{L3} [%]	○	○

STORED DATA		DISPLAY	COM
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 - S_{AVG} - P_{AVG}	●	●

LEGEND

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

DISPLAY = on display
COM = on communication port

» 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
Min / max measurable current:	20 mA / 7 A
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
TYPICAL ACCURACY	
Voltage:	±0.2% reading ±0.1% full scale
Current:	±0.2% reading ±0.1% full scale
Active power:	±1% reading ±0.2% full scale (PF=1)
Power factor:	±1% reading (0.5 inductive - 0.8 capacitive)
Active energy:	±1% reading (0.5 inductive - 0.8 capacitive)
Frequency:	±0.05% reading ±1 digit from 45 to 65 Hz
DISPLAY AND OPERATING CONTROLS	
Display:	high brightness 14 mm LED display
	three lines, four digits (eight for energies)
Keypad:	4 push-buttons
COMMUNICATION PORT	
Type:	RS485 optoisolated
Baud rate:	programmable from 300 to 57600 bps
Protocol:	A2 ASCII or MODBUS
DIGITAL OUTPUTS	
Type:	2 NPN or PNP optoisolated (50 V - 100 mADC)
ENVIRONMENTAL CONDITIONS	
Operating temperature:	from -15°C to +60°C
Storage temperature:	from -30°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

ORDER CODE	POWER SUPPLY	COM PORT	COMMUNICATION PROTOCOL	MEASUREMENTS	I/O
	Auxiliary	RS485	MODBUS (Sign bit)	THD (V, A)	DO
FOR 1/5A CTs (not included)					
1202.0005.0001	230VAC +15% -20%	●	●		●
1202.0006.0001	230VAC +15% -20%	●	●	●	●

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.
DO: 2 NPN type digital outputs for alarm or pulse emission.

NOTE: Subject to change without notice

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