

UPM3080

DIN 144x144 LCD power meter

- Fully bi-directional four quadrant readings
- Neutral current measurement
- Large graphic LCD display with excellent visibility
- Up to two plug-in options
- Infrared communication port
- THD and FFT harmonic analysis up to 31st order
- Power and current demand calculation
- On-board memory up to 128 kB
- Programmable Min/Avg/Max and energy data logging



» General description

UPM3080 is a multifunction metering device with advanced functionality features, suitable for electrical parameters measurement and power quality analysis. It provides accurate True RMS values on graphic LCD display, or via communication port. Six or more parameters displayed simultaneously give the complete situation of the electrical line at first sight. 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 instrument includes RS232 / RS485 switchable communication port and one front panel infrared port. UPM3080 performs clear graphical functions such as waveforms of voltage and current and harmonic spectrum. UPM3080 stores minimum, average and maximum values on eight selectable parameters and daily energy consumption values. A simple menu structure makes the instrument easy-to-use and allows a quick check of the instrument set-up and memory status. Five languages can be selected easily: English, German, Italian, French and Spanish. The backlit LCD display is highly efficient therefore it guarantees perfect visibility in all light conditions. The power meter replaces multiple existing analog meters as well as all single function meters or transducers. The powerful capabilities offered by the instrument make it ideal for stand-alone metering or energy management systems.

» Benefits

- UPM3080 provides hundreds of accurate True RMS metering values at low cost.
- It provides peak average current and power demand information that allow to work out proper strategies aimed at avoiding uncontrolled power peaks and consequent penalties.
- UPM3080 offers complete and accurate information about circuit loading; it calculates neutral current and performs load trending. This data is essential for network overloads detection and circuit optimization.
- UPM3080 offers time and cost saving on mounting, compared to many individual single-function instruments.
- Via communication port it is possible to read, set and log on a PC all the readings and download the stored data.
- The recorded data allows to generate on a PC consumption profiles, 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
- Power demand analysis and management
- Harmonics monitoring
- Remote metering and cost allocation

» Related Products

- Dedalo Software
- Wintool Software
- AO plug-in board (2 Analog Outputs)

» Main features

Measurements

- Single-phase and three-phase 3-wire or 4-wire unbalanced load operation.
- Direct measurement up to 600 (750) VAC.
- Programmable 1A / 5A current full scale.
- True rms metering provides accurate measurement even for distorted waveform.
- Fully bidirectional, four-quadrant readings, 8 energy counters available.
- Total harmonic distortion for voltage and current up to the 31st order.

Modularity

- Two slots for optional AO plug-in boards (up to no. 2 analog outputs 0-20 or 4-20 mA).

Graphics

- The excellent graphical display performs clear graphical representations allowing an immediate comprehension of the measured parameters.

On-board memory

- 128 kB non-volatile memory for data storage.
- Programmable start/stop time of recordings.
- Wraparound or Fill (FIFO/Stack) selectable recording mode.
- Min/Avg/Max logging every 1, 5, 10, 15, 30, 60 minutes, programmable up to 8 selectable parameters.
- Total and daily energy consumption recording. The consumption of more than 300 days is recorded.
- In case of more than one electricity supplier, it is possible to start from the recorded demand values instead of the daily ones. Each value is recorded with date and time and can be exported for example, in .xls format. This allows to create a flexible map that considers the different electricity suppliers. The DMD value is the AVG value (see programmable recordings).

Communication

- Both RS232 and RS485 selectable by dip-switches.
- Selectable MODBUS or A2 ASCII protocol.
- Communication speed programmable up to 57600 bps.

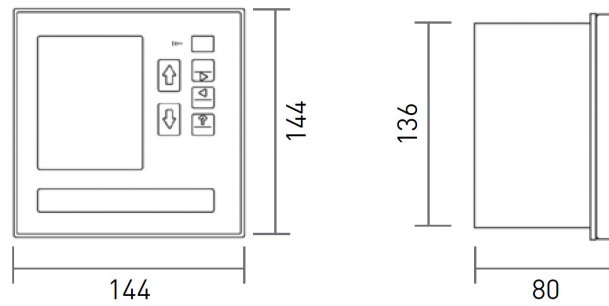
Digital & analog outputs

- Two digital outputs for energy pulsing or for alarm tripping.
- Up to 2 analog outputs 0-20 or 4-20 mA.

Other

- Real time clock with battery backup.
- Calculation of capacitor bank value for PF compensation.
- No. 1 programmable user page with 6 parameters selected among measured values.
- Five alphanumeric character password to avoid unauthorized setup access.
- Downloadable firmware via serial port.

» 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)	$I_{AVG} - 3 \times I_{LAVG} - I_{NAV} - S_{AVG} - P_{AVG}$	●
VOLTAGE THD	$THD_{L1} - THD_{L2} - THD_{L3}$ [%]	●
CURRENT THD	$THD_{L1} - THD_{L2} - THD_{L3}$ [%]	●
FFT ANALYSIS 31 st	[% , V, A]	●
PHASE SEQUENCE	123 / 132	●
REAL TIME CLOCK	Date, Time	●

STORED DATA

SYSTEM ACTIVE ENERGY	[Wh]	■
SYSTEM APPARENT ENERGY	[VAh]	■
SYSTEM LAGGING REACTIVE ENERGY	[varh ind]	■
SYSTEM LEADING REACTIVE ENERGY	[varh cap]	■
PEAK VALUES	$I_{AVG} - 3 \times I_{LAVG} - I_{NAV} - S_{AVG} - P_{AVG}$	●
DAILY CONSUMPTION (more than 300 days)	[Wh, VAh, varh]	■

PROGRAMMABLE RECORDINGS

MIN/AVG/MAX VALUES	[max 8 parameters]	●
Programmable every 1, 5, 10, 15, 30, 60 min		

ADVANCED FEATURES

CALCULATION OF PF COMPENSATION	Capacitor bank [kvar]	●
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LEGEND

- = Standard
- = Bi-directional value

» Specifications

POWER SUPPLY	
Rated voltage:	65...250 VAC / 90...250 VDC
	19...60 VDC on request
Consumption:	5 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 / 7A
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:	±0.1% reading ±0.03% full scale
Current:	±0.1% reading ±0.05% full scale
Active power:	±0.5% reading ±0.1% 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 ±2 digits from 45 to 65 Hz
DISPLAY AND OPERATING CONTROLS	
Display:	backlighted graphic LCD display, 160 x 144 dots
Keypad:	5 push-buttons
DATA MEMORY	
Type:	on-board non-volatile FLASH, 128 kB
COMMUNICATION PORT	
Type:	1 selectable RS232 or RS485, optoisolated
Baud rate:	programmable from 300 to 57600 bps
Protocols:	A2 ASCII, MODBUS
REAL TIME CLOCK	
Type:	with battery backup
Accuracy:	±30 ppm
DIGITAL OUTPUTS	
Type:	2 optoisolated (50 V - 300 mADC)
ENVIRONMENTAL CONDITIONS	
Operating temperature:	from -15°C to +60°C
Storage temperature:	from -25°C to +75°C
Relative humidity:	80% max without condensation
MECHANICAL CHARACTERISTICS	
Material:	metal enclosure
Protection degree:	IP54 (front panel); IP20 (terminals)
Terminals:	EU standard pluggable terminals
Size / weight:	144 x 144 x 95 mm / 750 g
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	SELECTABLE COM PROTOCOL		MEASUREMENTS	MEMORY	I/O		REMOTE MANAGEMENT
	Auxiliary	RS232/ RS485	A2 ASCII	MODBUS (Sign bit)	Harmonics, DPF, THD (V,A)	128kB	DO	AO	WINTOOL (only with A2 ASCII)
FOR 1/5A CTs (not included)									
1206.0001.0001	65...250VAC/ 90...250VDC	●	●		up to 31 st	●	●		●
1206.0002.0001	65...250VAC/ 90...250VDC	●	●		up to 31 st	●	● ●		●
1206.0003.0001	19...60VDC	●	●		up to 31 st	●	●		●
1206.0004.0001	19...60VDC	●	●		up to 31 st	●	● ●		●
1206.0005.0001	65...250VAC/ 90...250VDC	●		●	up to 31 st	●	●		●
1206.0006.0001	65...250VAC/ 90...250VDC	●		●	up to 31 st	●	● ●		●
1206.0007.0001	19...60VDC	●		●	up to 31 st	●	●		●
1206.0008.0001	19...60VDC	●		●	up to 31 st	●	● ●		●

LEGEND

SELECTABLE COM PROTOCOL: A2 ASCII/MODBUS user selectable. The instrument is factory preset on the protocol checked in the table.

DO: 2 digital outputs for alarm or pulse emission.

AO: 2 analog outputs for real time parameter variation transmission.

WINTOOL: Software for instrument remote management, downloadable for free at www.algodue.it, in the Client protected area.

NOTE: Subject to change without notice



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