

UPM3060

DIN 144x144 LED power meter

- Fully bi-directional four quadrants readings
- Neutral current monitoring
- Up to two plug-in option boards
- Large and bright LED alphanumeric display
- UL recognized under UL61010B-1 and CAN/CSA-C22.2 no.1010.1-92, file #E231725
- Power and current demand calculation during user-definable time period
- THD and individual FFT harmonic analysis up to 50th order
- On-board memory up to 2 MB
- Programmable Min/Avg/Max & energy data logging
- Event and alarm recording



General description

UPM3060 is a multifunction metering device suitable to measure the electrical parameters.

It provides accurate True RMS measurements on bright LED display, or via serial communication port.

Four parameters displayed simultaneously give the complete situation of the electrical line at first sight.

The basic unit includes RS232 / RS485 switchable communication port and one front panel infrared port.

The UPM3060 stores minimum, average and maximum values on eight selectable parameters and daily energy consumption values.

The power meter replaces multiple existing analog meters as well as all single function meters or transducers. The powerful capabilities offered by the instruments make it ideal for stand-alone metering or energy management systems.

UPM3060 offers a good configuration flexibility: in the rear side of the instrument it is possible to plug in up to two add-on option boards. The modularity and the upgrade path allow a low initial investment, but as well, to meet future needs. These features allow to build specific meter configurations as required.

Benefits

- UPM3060 provides hundreds of accurate True RMS metering values at low cost.
- UPM3060 offers complete and accurate information about circuit loading; it calculates neutral current and performs load trending memorization. This data is essential for network overloads detection and circuit optimization.
- 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.
- UPM3060 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 and download the stored data.
- The recorded data allows to generate on a PC consumption profiles, logged values trends, event and alarm reporting, 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
- Harmonics monitoring
- Remote metering and cost allocation

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 readings.
- Volts, Amps, Power, PF, Frequency, Energy, Min/Max values, Demand and more.
- Individual & total harmonic distortion for voltage and current up to the 50th order.
- Direct measurement up to 600 (750) V_{AC}.
- Programmable 1A / 5A current full scale.

Modularity

- Two slots for plug-in option boards.
- Various mounting combinations to fit the requirements of new installations as well as retrofit applications.

On-board memory

- 128 kB or 2 MB 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 eight selectable parameters.
- Total and daily energy consumption recording. Are stored the individual consumptions of more than 300 days.
- Event, alarm and digital outputs ON/OFF recording.

Communication

- Both RS232 and RS485 included in the basic unit. The selection is made by dip-switches.
- Selectable MODBUS or A2 ASCII protocol.
- Communication speed programmable up to 57600 bps.
- Optional 10/100 Ethernet, Profibus or Lonbus interfaces.

Inputs & outputs

- Up to 6 digital outputs for energy pulsing or for alarm tripping. Two digital optomos ML outputs are included in the basic unit.
- Up to 4 analog outputs 0-20 or 4-20 mA.
- Optional four digital inputs for pulse counting.

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.
- Direct communication through Ethernet / Internet network using MODBUS or A2 ASCII protocol.
- Real Time Clock with battery backup.

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 ●
COS Ø	$DPF_{L1} - DPF_{L2} - DPF_{L3}$ ○
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)	$P_{AV} - S_{AV} - Q_{AV} - I_{AV}$ ●
THERMAL CURRENT	$I_{L1} - I_{L2} - I_{L3}$ [A ² s] □
VOLTAGE THD	$THD_{L1} - THD_{L2} - THD_{L3}$ [%] ○
CURRENT THD	$THD_{L1} - THD_{L2} - THD_{L3}$ [%] ○
FFT ANALYSIS 31 ST	$V_{L1-N} - V_{L2-N} - V_{L3-N} - I_{L1} - I_{L2} - I_{L3}$ [%] [V, A] ○
UNBALANCE	V, I [%] □
PHASE REVERSAL	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] ■
MIN / MAX VALUES WITH TIME REFERENCE ⁽¹⁾	<small>7xV, 5xI, f, 4xPF, 6xTHD</small> □
PEAK VALUES	$P_{AV} - S_{AV} - Q_{AV} - I_{AV}$ ●
PROGRAMMABLE RECORDINGS	
DAILY CONSUMPTION (More than 300 days)	[Wh, VAh, varh] ■
ALARM / EVENT LOG	<small>4 Set Points, Outputs ON/OFF, Instrument ON/OFF</small> □
MIN / AVG / MAX VALUES ⁽²⁾	[⁽²⁾] ●
● = Standard ■ = Bi-directional values ○ = Optional □ = ENH version	
(1) Time reference information (date and hour) is available only via serial port.	
(2) Programmable every 1, 5, 10, 15, 30, 60 min - Maximum 8 parameters selected among voltage, current, power, THD, frequency, PF, unbalance (□), thermal current (□).	

Specifications

Power supply

Rated voltage: 65±250 V_{AC} / 90±250 V_{DC}
 on request 19±60 V_{DC}
 Consumption: 5VA max

Voltage inputs

Maximum measurable voltage: 600 (750) V_{AC} max L-L
 Input impedance: >1.3 MOhm
 Burden: max 0.15 VA per phase
 Frequency: 45 - 65 Hz

Current inputs

Rated current (I_b): 1 / 5 A_{RMS} programmable
 Min / max measurable current: 20 mA / 7 A_{RMS}
 Maximum overload: 10A_{RMS} continuous - 100 A_{RMS} for 1 sec.
 Input impedance: 0.02 Ohm approximately
 Burden: max 0.5 VA per phase
 Insulation voltage: 150 V_{AC} 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: high brightness LED display
 three lines, 4 alphanumeric digits 13.8 mm
 one line, 6 digits 10 mm for energy counting
 4 push-buttons

Keypad:

Data memory

Type: on-board non-volatile FLASH, 128 kB or 2 MB

Communication port

Type: 1 selectable RS232 or RS485, optoisolated
 1 infrared port on the front panel
 1 available for plug-in comm. boards
 programmable from 300 to 57600 bps

Baud Rate:

Real time clock

Type: with battery backup
 Accuracy: ± 30 ppm

Digital outputs

Type: 2 isolated optomos (50V - 300mA_{AC-DC})

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

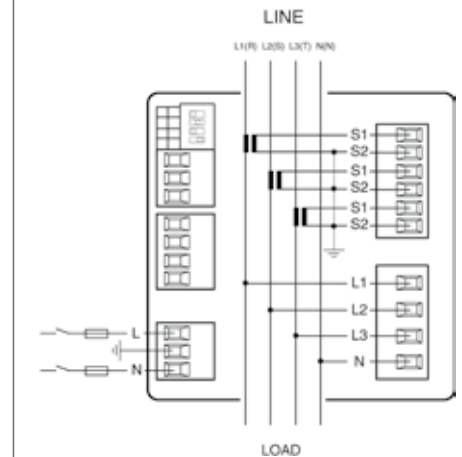
Material: metal enclosure
 Protection degree: IP54 (front panel); IP20 (terminals)
 Terminals: standard pluggable terminals (EU)
 barrier terminal strips (USA)
 Size / Weight: 144x144x95 mm, 750 gr

Standards compliance

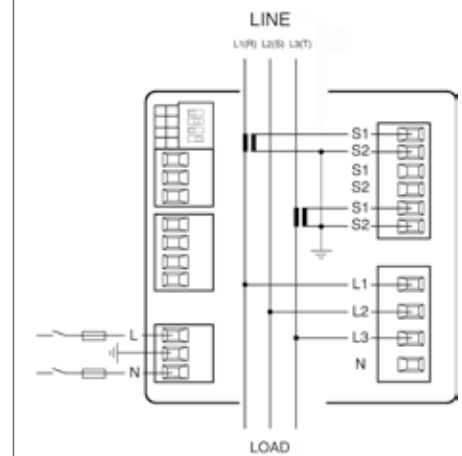
Safety: UL recognized under UL61010B-1 and CAN/CSA-C22.2 No. 1010-1-92 File # E231725, 73/23/EEC, 93/68/EEC directives, EN61010-1 89/366/EEC directive and following modifications 93/31/EEC and 93/68/EEC, EN50081-2, EN50082-2, EN61326/A1

EMC:

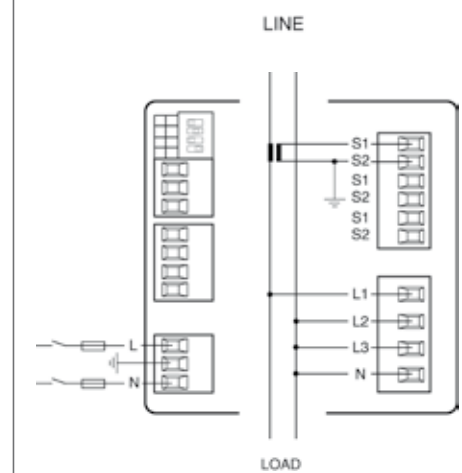
WIRING DIAGRAMS



3.4.3 - direct connection



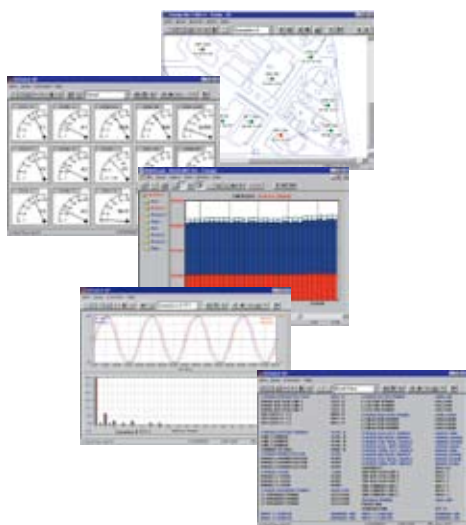
3.3.2 - direct connection



1 phase - direct connection

DEDALO communication software

- For Microsoft Windows environments
- User-friendly
- Single point and network version
- Real time data viewing and trending
- Quick instruments setup
- Up to 5 data logging files



DEDALO software enables ALGODUE meters to be connected to a PC. It allows to download, to display, to collect and analyse all electrical parameters.

It is also an easy and fast tool for direct or remote connection. It allows to connect to the meters by serial communication port (RS232 or RS485) or by external devices such as telephone line or Ethernet/Internet. This remote monitoring function allows to carry out all the functions from instrument setup to data monitoring or downloading.

The DEDALO software is available in two different versions:

- DEDALO SP: software for single meter connection.
- DEDALO NET: software version for a meter network up to 512 instruments. It is available as workstation package or for multiple user access (LAN version).

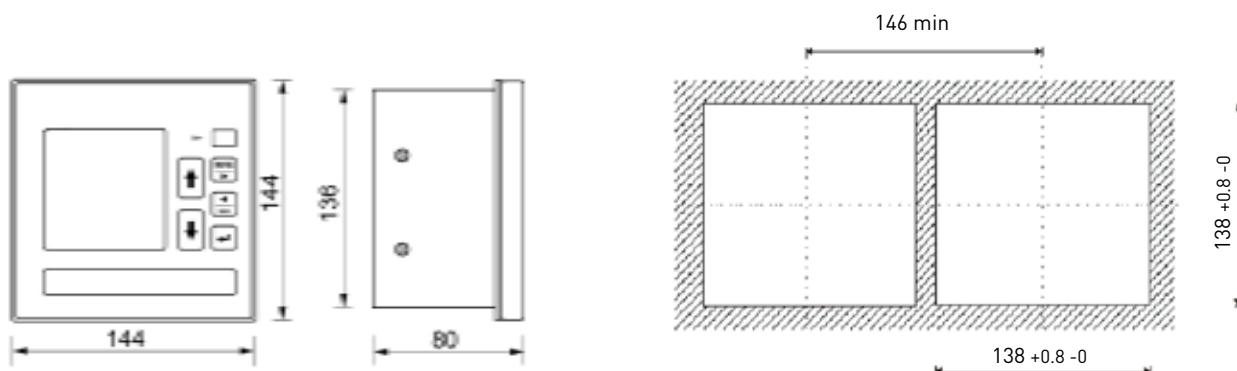
Main Features

DEDALO software performs the following main functions:

- Real time data viewing and trending
- Instrument recordings download
- Quick instrument setup
- Alarms & limits
- Up to 5 data logging files & printouts
- Export data file

Both the software basic versions can grow by additional functions as the requirements change.

Size and panel cutout - mm



ORDER CODE											
ALN					5			X			
<p>UPM3060</p> <p>Series A = Algodue C = Custom</p> <p>Language I = Italian U = English D = German</p> <p>Communication protocol B = A2 ASCI C = MODBUS L = LONBUS P = PROFIBUS E = ETHERNET*</p> <p>Aux power supply A = 65 ÷ 250V_{AC} / 90 ÷ 250V_{DC} R = 19 ÷ 60V_{DC}</p> <p>Serial port 5 = Selectable RS232/485 + infrared port</p> <p>Memory 1 = 128 kB basic version 6 = ENH 2 MB version (only with firmware option 4)</p> <p>Firmware options 2 = Basic version 3 = Version with harmonics up to 31st + DPF 4 = ENH version with harmonics up to 50th + DPF (only with memory 6)</p>						<p>Physical configuration A = Standard pluggable terminals (EU) G = Barrier terminal strips (USA)</p> <p>Inputs** X = None 4 = DI4-TR plug-in board</p> <p>Analog outputs** X = None 2 = A02-0420 plug-in board (2 programmable outputs) 4 = 2 A02-0420 plug-in boards (4 programmable outputs)</p> <p>Digital outputs** 2 = Basic version with 2 outputs (50V - 300mA_{AC-DC}) 4 = DO2-ML plug-in board 6 = DO4-ML plug-in board R = DO2-R plug-in board V = DO2-MH plug-in board W = DO4-MH plug-in board</p>					
<p>* In case of ETHERNET, default protocol is A2 ASCII. For MODBUS protocol specify it in the order.</p> <p>** Max 2 slots for plug-in optional boards.</p>											

Subject to change without notice



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