

# UPM204

## DIN rail LED power meter

- Compact 6 DIN modules size
- 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
- Up to 6 measurement values displayed simultaneously
- Power and current demand calculation during user-definable time period
- No PTs required up to 600 (750) V<sub>AC</sub>
- Programmable CT ratio
- Easy to use



### General description

UPM204 is a digital meter able to measure the electrical parameters on three-phase systems.

It provides accurate measurements even by distorted waveform.

Six high brightness LED displays provides the three-phase quantities simultaneously and ensure maximum visibility even in difficult environment lighting condition.

The working parameters can be easily set up by instrument keypad.

The RS232 or RS485 serial communication port allows to transfer the three-phase electrical parameters from the instrument.

WINTOOL software, available for free on the internet, allows to show on a PC all the measured values and to program the instrument in a fast way.

UPM204 replaces multiple analog meters as well as single function meters such as voltmeters, ammeters, wattmeters, varmeters, frequency-meters, powerfactor-meters, energy-meters, etc.

UPM204 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

- UPM204 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.
- UPM204 being ultra-compact and easy to mount is suitable for replacing conventional meters. The UPM204 provides powerful capabilities not offered by traditional analog meters.
- UPM204 offers 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
- 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 values on serial communication port.
- More than 50 electrical parameters measured (instantaneous, demand, peak values, energies, etc.).
- Direct measurement up to 600 (750) V<sub>AC</sub>.
- Programmable CT ratio.

**Front panel display**

- High contrast bright, easy to read, LED display.
- 6 parameters displayed simultaneously give the complete situation of the electrical line at first sight.
- Password protected setup and resetting operations.

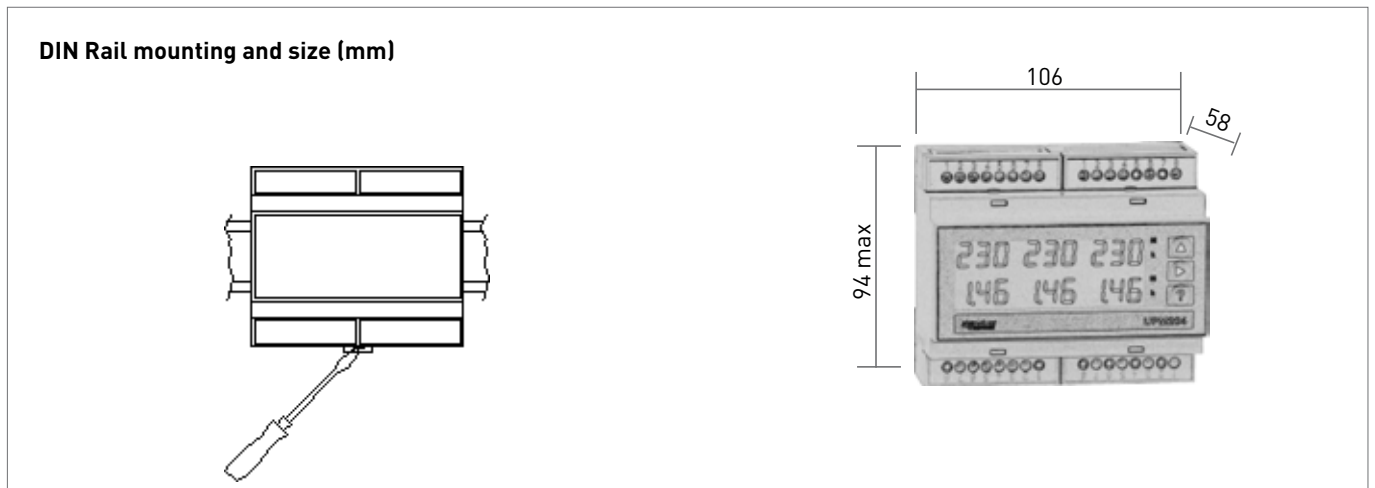
**Communication**

- RS232 or RS485 optoisolated communication port.
- MODBUS or A2 ASCII protocol.
- Communication speed programmable up to 57600 bps.

**Inputs & outputs**

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

INSTANTANEOUS MEASUREMENTS			DISPLAY	COMM
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)	$3 \times I_{AVG} - S_{AVG} - P_{AVG}$	●	●	
PHASE REVERSAL	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	$3 \times V_{L-N} - 3 \times V_{L-L} - 3 \times I_L - 3 \times I_{AVG} - I_N - P_{AVG} - S_{AVG}$	●	●	
● = Standard    ■ = Bi-directional value    ○ = Optional DISPLAY = on the display    COMM = on communication port				



**Specifications**

**Power supply**

Rated voltage: 115 V<sub>AC</sub> / 230 V<sub>AC</sub> +15% -20%  
 Consumption: 2 VA max

**Voltage inputs**

Maximum measurable voltage: 600 (750) V<sub>AC</sub> max L-L  
 Input impedance: >1.3 MΩ  
 Burden: max 0.15 VA per phase  
 Frequency: 45 - 65 Hz

**Current inputs**

Rated current (I<sub>b</sub>): 5 A<sub>RMS</sub>  
 Min / max measurable current: 20 mA / 7 A<sub>RMS</sub>  
 Maximum overload: 10 A<sub>RMS</sub> continuous - 100 A<sub>RMS</sub> for 1 sec.  
 Input impedance: 0.02 Ω approximately  
 Burden: max 0.5 VA per phase  
 Insulation voltage: 150 V<sub>AC</sub> max between phases  
 Rogowski input: 200 ÷ 49995 A on request

**Typical accuracy**

Voltage: ±0.3% reading ±0.05% full scale  
 Current: ±0.5% reading ±0.05% full scale (5 A<sub>RMS</sub>)  
 Active power: ±1% reading ±0.2% full scale (PF=1)  
 Power factor: ±1.5% reading (0.5 inductive - 0.8 capacitive)  
 Active energy: ±1.5% reading (0.5 inductive - 0.8 capacitive)  
 Frequency: ±0.05% reading ±1 digits from 45 to 65 Hz

**Display and operating controls**

Display: high brightness 10 mm LED display  
 6 lines, 3 digits  
 Keypad: 3 push-buttons

**Communication port**

Type: RS232 or RS485 on request, optoisolated  
 Baud rate: 300 to 57600 bps

**Digital outputs**

Type: 2 optoisolated (50V-100mA<sub>AC-DC</sub>)

**Environmental conditions**

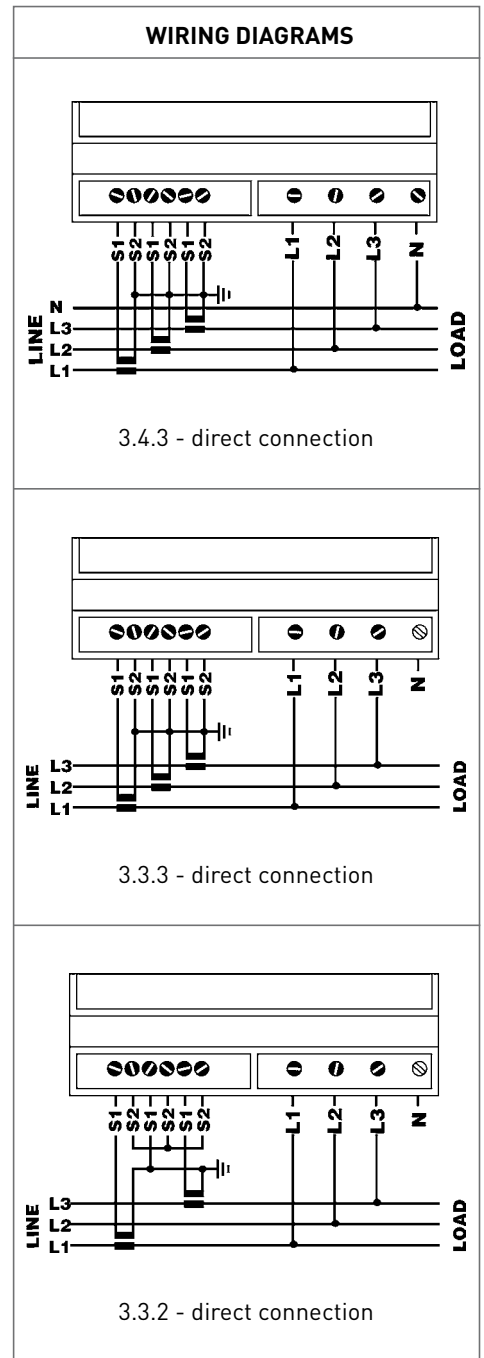
Operating temperature: from -20°C to +60°C  
 Storage temperature: from -30°C to +75°C  
 Relative humidity: 80% max. without condensation

**Mechanical characteristics**

Material: plastic enclosure - noryl UL94-V0  
 Protection degree: IP20  
 Terminals: conductors 2.5 mm<sup>2</sup>  
 Size / weight: 106x90x57 mm / 300 gr

**Standards compliance**

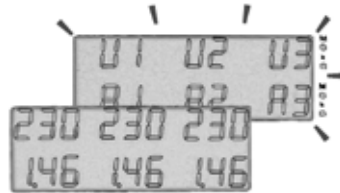
Safety: 73/23/EEC and 93/68/EEC directives,  
 EN61010.1 safety standard  
 EMC: 89/366/EEC directive and following  
 modifications 93/31/EEC and 93/68/EEC,  
 EN50081-2, EN50082-2, EN61326/A1



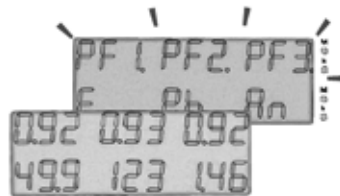
**Measuring Units Indication**

The measuring units are indicated by the display, that switches from the measured value to the units.  
 The advantage is a very good visibility in all light conditions even if the instrument is far away.  
 The display exchange can be made every 10 seconds automatically or pressing the ? key on the instrument keypad.  
 The drawings below show some examples.

Phase 1, 2 and 3 voltage and current



Phase 1, 2 and 3 power factor, frequency, phase reversal and neutral current



**WINTOOL - Communication and monitoring software**

- For Microsoft Windows environments
- User-friendly
- Real time data viewing
- Quick instruments setup
- Parameters verification
- Available for free on the web

WINTOOL software enables the power meters to be connected to a PC for measured data viewing.

It allows an easy and fast way to set the instrument parameters by a desktop or portable PC.

The remote monitoring is carried out through serial communication port (RS232 or RS485) or Ethernet / Internet connection.

It is a multilanguage software, at present the available languages are: English, German, Italian, French, Spanish, Hungarian.

It is the "free-of-charge" solution to configure and display the readings from instruments with or without display.

**Real time data viewing**

WINTOOL displays real-time values from the instruments.

The available information includes:

- Real time values (voltage, current, power, PF)
- Energy consumption values (active, reactive and apparent)

**Quick instrument setup**

User-friendly, the power meters can be configured more quickly by WINTOOL software than by using keypad.

The software shows the hardware configuration of the connected meter.

A SEARCH function allows to automatically detect the connected meter without the need of writing the serial number.



**DOWNLOAD IT FROM OUR WEB SITE**

ORDER CODE													
ALG				A		X	X	X	2	X		X	
<p><b>UPM204</b></p> <p><b>Serie</b> A = Algodue C = Custom</p> <p><b>Language</b> I = Italian U = English D = German</p> <p><b>Communication protocol</b> X = None (without serial port) B = A2 ASCII C = MODBUS</p> <p><b>Aux power supply</b> A = 115V<sub>AC</sub> / 230V<sub>AC</sub>+15% -20%</p> <p><b>Serial port</b> X = None 2 = RS232 5 = RS485</p>				<p><b>Inputs</b> X = None R = Rogowski input 200÷49995A (value to be specified)</p> <p><b>Digital outputs</b> 2 = 2 outputs (50V - 100mA<sub>AC-DC</sub>)</p>									

Subject to change without notice



Innovative Electronic Systems

28010 Fontaneto d'Agogna (NO) - Italy • Via Passerina, 3/A

☎: +39 0322 89307 • 📠: +39 0322 89871

E-mail: sales@algodue.it • <http://www.algodue.com>



ISO 9001:2008

