

PM-ADVANCED



Multifunction power metering

- LCD Display
- Real time measurement data : U, I, P, Q, S, cos, F, kWh, kVAR
- More than 60 parameters
- 2 RS-485 port, Modbus RTU communication protocol
- 2 energy pulse output
- Max/min data record
- Numerous options available: programmable digital signal inputs, data storage, harmonic analysis, programmable relay outputs ...



PM-Advanced is a powerful multifunction power meter that can measure more than 60 parameters (U, I, P, Q, cos,F, kWh, kvarh, etc).

The standard PM-Advanced has RS-485 communication protocol, 2 energy pulse outputs (active and reactive each) functions.

REQUIREMENTS


To ensure to our customers a high level of performance and quality, PM-Advanced fulfills all the important requirement of:




- IEC61000-4-2:1995 (GB/T17626.2-1998)
- IEC61000-4-4:1995 (GB/T17626.4-1998)
- IEC61000-4-8:1995 (GB/T17626.8-1998)
- IEC61010-1:1990 (GB/T4793.1-1995)
- IEC60687(GB/T17883-1999)
- C1268(GB/T17882-1999)
- IEC61000-4-30 (GB/T 14549-1993)
- IEC688-1992 (GB/T13850-1998)

PM-A MODULE

TECHNICAL DESCRIPTION

 <p>Basic Module</p>	Real Time Measurement	Phase Voltage	Phase Voltage, average phase Voltage
		Line Voltage	Line Voltage, average line Voltage
		Current	Phase Current, average phase Current, zero sequence Current
		Active Power	Phase active Power, 3 phase active total Power
		Reactive Power	Phase reactive Power, 3 phase reactive total Power
		Apparent Power	Phase apparent Power, 3 phase apparent total Power
		Power 4 quadrant	Power 4 quadrant
		Frequency	System frequency
		Power Factor	Phase Power factor, 3 phase total Power factor
	Demand Statistic	Demand	3 phase active/reactive demand power, demand apparent power
	Energy Reading	Active energy	Imported, exported and net active energy, 1 active energy pulse output
		Reactive energy	Imported, exported and net reactive energy, 1 reactive energy pulse output
		Multi tariff billing	Multi tariff setup
	Time display	Real time display	Year/month/day/hour/minute/second
Data communication	RS-485 communication	1 Modbus-RTU protocol	

FUNCTIONS DESCRIPTION - OPTIONAL MODULES

PM-A MODULE		TECHNICAL DESCRIPTION		
 <p>Optional Modules</p>	Digital input module	8 channels	Status detection, Sequence of events (SOE), event record	
	Relay output module	4 channels programmable overlimit/underlimit alarm	Programmable over/under limit value for real time measurement, Voltage/Current unbalanced ratio, demand value, harmonics, remote signal. The overlimit/underlimit command can be read thru com. Port.	
	Analog output module	4 channels programmable	4-20mA or 0-5V	
	Data storage module		Store real time measured value in cycle, Voltage/Current unbalanced ratio, demand value, harmonics, remote signal. Storage capacity: 8GB	
	Harmonic analysis module	Total harmonic distortion for Voltage/Current		3 phase, single phase, neutral line
		Even/odd harmonic distortion		Harmonic distortion (2nd to 63rd)
		Fundermental Voltage / Current		Magnitude, phase angle
		Fundermental active/reactive power		
		Harmonics, individual		Magnitude, phase angle
		Current K factor		
Profibus communication module	1 channel		Profibus protocol	
Ethernet networking communication module	1 channel		10M/100M adaptable	
			TCP/IP com. protocol	
			Visit Webpage, send email periodically, and send event record information	

MEASUREMENT ACCURACY

PARAMETERS	DISPLAY	DIRECTION	ACCURACY
Voltage	0 ~ 9999.9 KV		Class 0.2
Current	0 ~ 9999.9 KVA		Class 0.2
Power factor	-1 ~ +1	Directional	Class 1
Frequency	45 ~ 65 Hz		0.01 Hz
Active Power	-999999 ~ 999999 MW	Directional	Class 0.5
Reactive Power	-999999 ~ 999999 MVar	Directional	Class 0.5
Apparent Power	-999999 ~ 999999 MVA		Class 0.5
Active Demand	-999999 ~ 999999 MW		Class 1
Reactive Demand	-999999 ~ 999999 MVar		Class 1
Active Energy	0 ~ 999999 MWh	Directional	Class 0.5
Reactive Energy	0 ~ 999999 Mvarh	Directional	Class 1
Phase Angle	0.0° ~ 359.9°	Directional	Class 2
Current total harmonic %	0 ~ 100%		Class 2
Voltage total harmonic %	0 ~ 100%		Class 2

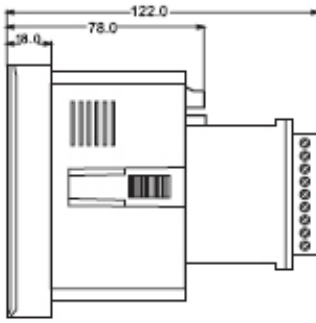
TECHNICAL SPECIFICATION

BASIC MODULE PARAMETERS		
INPUT CURRENT	Input Current	0 ~ 5A (current value can be set up)
	Measurement scope	0.5% ~ 120% In
	Overload capacity	2 X rated continuously, 100A/s non continuous
	Power consumption	< 0.2 VA per phase
VOLTAGE INPUT	Input Voltage	0 ~ 400 VAC (L-N), 0 ~ 690VAC (L-L) (current value can be set up)
	System frequency	45 ~ 65 Hz
	Measurement scope	3% ~ 120% Un
	Overload Capacity	2 X rated continuous, 2500V/s non continuous
PULSE OUTPUT	No. of outputs	2 channels (active/reactive energy each)
	No. of outputs	1 RS-485 port
SERIAL COM. PORT	Communication protocol	Modbus-RTU protocol
	Baud rate	2400/4800/9600/19200/38400 bps

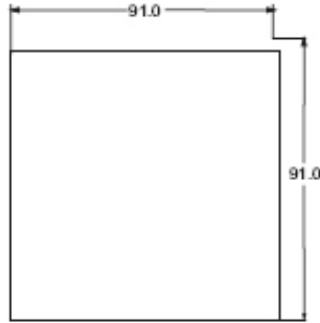
OPTIONAL MODULES PARAMETERS		
SWITCH STATUS	Input Channels	8 channels
	InputType	Dry contact
	Isolated Voltage	2500 VAC
RELAY OUTPUT	Output Channels	4 channels programmable
	OutputType	Mechanic contact, constant on output
	Contact Capacity	5A/250 VAC
ANALOG OUTPUT	No. of outputs	4 channels programmable
	Output signal	4 ~ 20 mA or 0 ~ 5 V
	Response time	< 400ms
PROFIBUS COM. MODULE	No. of channels	1
	Communication protocol	Profibus-DP protocol
ETHERNET NETWORKING MODULE	No. of channels: 1channel	10M/100 M adaptive
	Communication Protocol	TCP/IP protocol

OTHER INFORMATION		
OTHER PARAMETERS	Auxiliary Power	24 ~ 36 VAC/DC 85 ~ 265 VAC/DC
	Display module	LCD Display 76mm x 66mm (luminosity adjustable)
	Storage Capacity	2GB
	Temp. drifting factor	< 100 PPM/°C
	Withstand Voltage (Input against output)	2500 V/min
	Total power consumption	< 8 VA
	Operation temperature	-20°C ~ 60°C
	Storage temperature	-40°C ~ 85°C
	Operation humidity	5 ~ 85 %RH
	Pollution Class	Class 2
	Dimensional Size: Front panel	Basic Module: 96x96x78 mm Basic + Optional module: 96x96x122 mm Installation size: 91x91 mm

DIMENSIONAL SIZE DIAGRAM



Side Elevation Diagram



Installation Diagram

ORDER CODE



Plug up to 4 optional modules in the main unit

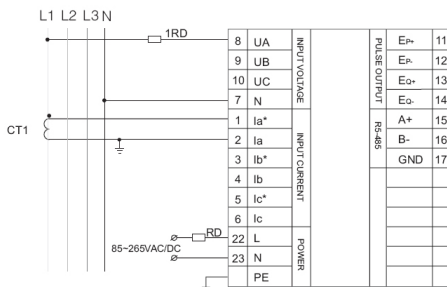


PM-Advanced

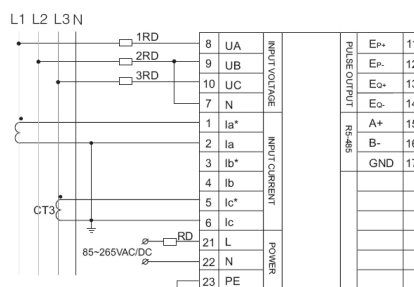
OPTIONAL MODULE	ORDER CODE
8 remote input signals module	PMA - 8DI
4 relay output module	PMA - 4RO
4 analog output module (4~20 mA)	PMA - 4A0 - C
4 analog output module (0~5 V)	PMA - 4A0 - V
Data storage module + Harmonic analysis module	PMA - DS+HA
Profibus communication module	PMA - PB
Ethernet communication module	PMA - ET

BASIC MODULE	ORDER CODE
PM-Advanced : 24 ~ 36 VAC/DC	PMA - 24 VDC
PM-Advanced : 85 ~ 265 VAC/DC	PMA - 230 VAC

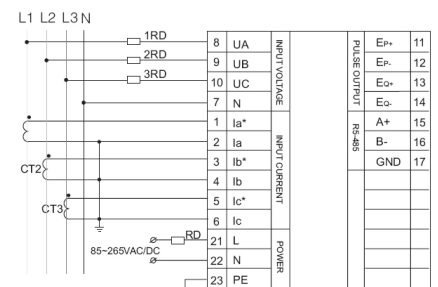
WIRING DIAGRAM



Single phase wiring diagram



3 phase/3wire wiring diagram



3 phase/4wire wiring diagram