

# MDM 3100

Multifunction Power Meter



## Product Profile



MDM3100 is a powerful multifunction power meter that measures more than 60 parameters such as U, I, P, Q,  $\cos\Phi$ , F, kWh, kvarh, etc. The standard MDM3100 has RS-485 communication protocol, 2 energy pulse outputs( active and reactive each) functions. With optional module, MDM3100 can perform more functions: harmonic analysis, 8 digital signal inputs, 4 programmable relay outputs, 4 programmable analog outputs (0-5V or 4-20mA), data storage, Profibus communication, Ethernet networking capabilities. MDM3100 fulfills all the important requirement of IEC 60668;IEC61557-12; IEC61000-4-30 and CE standards as LVD EN61010;EMC EN62052-11 and EN62053-21.

## EMC and other safety standard

IEC61326-1  
IEC61000-4-2  
IEC61000-4-2/3/4/5/12  
IEC61010-1



## Functions Description

Item	Description		
<b>Main unit</b> 	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	3 phase active/reactive demand Power, demand apparent Power	
	Energy Reading	Imported, exported and net active energy, 1 channel active energy pulse output	
		Imported, exported and net reactive energy, 1 channel 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	
<b>Optional Module</b> 	Remote signal input module	8 channels	Status detection, 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: 2GB
	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	Magnitude, phase angle
		Harmonics, individual	
	Current K factor		
	Profibus communication module	1channel	Profibus-DP protocol
Ethernet networking communication module		10M/100M adaptable	
		TCP/IP protocol	

## Measurement Accuracy ▾

Parameters	Display	Direction	Accuracy
Voltage	0 ~ 9999.9kV		Class0.2
Current	0 ~ 9999.9kA		Class0.2
Power factor	-1 ~ +1	Directional	Class 1
Frequency	45 ~ 65Hz		0.01Hz
Active Power	-99999 ~ 99999MW	Directional	Class0.5
Reactive Power	-99999 ~ 99999Mvar	Directional	Class0.5
Apparent Power	-99999 ~ 99999MVA		Class0.5
Active Demand	-99999 ~ 99999MW		Class 1
Reactive Demand	-99999 ~ 99999MVar		Class 1
Active Energy	0~9999999.99MWh	Directional	Class 1
Reactive Energy	0~9999999.99Mvarh	Directional	Class 2
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 ▾

### Current Input

Input Current: 0 ~ 5A ( Current value can be set up )  
 Measurement scope: 0.5% ~ 120%In  
 Overload capacity: 2 X rated continuously, 100A/1s non continuously  
 Power consumption: ≤0.2VA per phase

### Voltage Input

Input Voltage: 0 ~ 400VAC ( L-N ), 0 ~ 690VAC ( L-L )  
 ( Voltage value can be set up )  
 System frequency: 45 ~ 65Hz  
 Measurement scope: 3% ~ 120%Un  
 Overload Capacity: 2 X rated continuously, 2500V/1s non continuous  
 Power consumption: ≤0.5VA per phase

### Switch Status (optional)

Input Channels 8 channels  
 Input Type Dry contact  
 Isolated Voltage 2500VAC

### Relay Output (optional)

Output Channels 4 channels programmable  
 Output Type Mechanic contact, constant on output  
 Contact Capacity 5A/250VAC

### Analog Output (optional)

No. of outputs 4 channels programmable  
 Output signal 4 ~ 20mA or 0 ~ 5V  
 Response time ≤400ms

### Pulse Output (standard)

No. of outputs 2 channels ( active/reactive energy each )

## Technical Specification ▾

### Serial com. Port (standard)

No. of outputs 1 RS-485 port  
 Communication protocol Modbus-RTU protocol  
 Baud rate 2400/4800/9600/19200/38400bps

### Profibus com. Module (optional)

No. of Channels 1  
 Communication protocol Profibus-DP protocol

### Ethernet networking Module (optional)

No. of channels: 1channel  
 Communication Protocol 10M/100M adaptive  
 TCP/IP protocol

### Other parameters

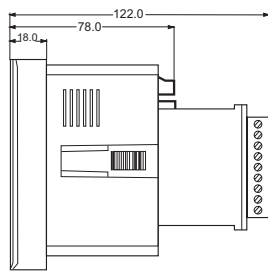
Auxiliary Power 85 ~ 265VAC/DC ( standard )  
 24 ~ 36VAC/DC ( optional )  
 36 ~ 80VAC/DC ( optional )

Display module LCD Display 76mmx66mm  
 luminosity can be adjusted

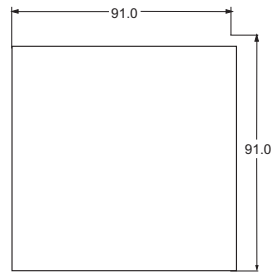
Storage Capacity 2GB  
 Temp. drifting factor < 100PPM/°C  
 Withstand Voltage (Input against output) 2500V/1 min  
 Total power consumption < 8VA  
 Operation temperature -20°C ~ 60°C  
 Storage temperature -40°C ~ 85°C  
 Operation humidity 5 ~ 95% RH  
 Pollution Class Class 2  
 Material of Housing Flammability acc. to UL94V0  
 Dimensional Size: Main unit+ module 96mmx96mmx122mm  
 Main unit 96mmx96mmx78mm  
 Installation Size: 91mmx91mm

## Dimensional size diagram ▾

Unit: mm

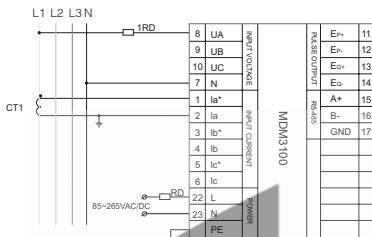


Side Elevation Diagram

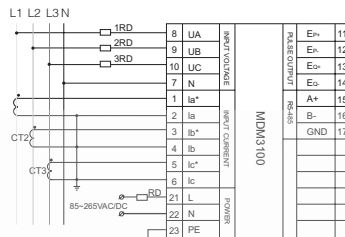


Installation Diagram

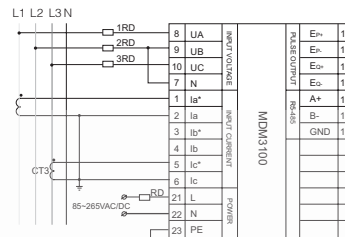
## Wiring Diagram ▾



Single phase wiring diagram



3-ph 4-wire wiring diagram



3-ph 3-wire wiring diagram

## Order code ▾

MDM3100



English code is filled left. Up to 4 optional modules can be selected, null means no optional unit is selected.

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## Module code ▾

English code for ordering module with standard unit

Module Name

Order code for ordering module alone

8 remote input signals module	A	3100-101
4 relay output module	B	3100-102
4 analog output module ( 4 ~ 20mA )	C	3100-103
4 analog output module ( 0 ~ 5V )	D	3100-104
Data storage module	E	3100-105
Harmonic analysis module	F	3100-106
Data storage and harmonics analysis module	G	3100-107
Profibus communication module	H	3100-108
Ethernet communication module	I	3100-109

## Remark:

1. A maximum of 4 modules can be applied in 1 meter, but the same type of module can't be selected at the same time; C and D can't be selected at the same time; G can't be selected with E or F.
2. The Auxiliary Power Supply of standard MDM3100 is 85 ~ 265VAC/DC, if you require 24 ~ 36VAC/DC or 36 ~ 80VAC/DC Auxiliary Power Supply, please specify it.

## Example:

MDM 3100 AFH, which means 8 remote signals input module, harmonics analysis module, Profibus com. module.

## Total Metering Solution Sdn Bhd

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