INTELLIGENT DIGITAL MULTI POWER METER [DIC-MPM]

Feature

- Suit for LV/ HV voltage system
- Compact design with all real-time measurement
- Consist of basic unit and optional modules
- 10 years back-up of integrated energy data
- Large LCD, high brightness
- High accuracy, V or I is 0.2%, kWh is class 1
- CT and PT programmable
- Pluggable terminals, easy to install
- Panel size: 96 x 96mm
- Password protect
- Standard: IEC62053-21/23, CE

Basic Function

PART	DIC-MPM provide one RS485 communication, measures and display real-time parameters
Voltage	Va, Vb, Vc, Vab, Vbc, Vca,
Voltage	VL-L unbal, VL-N unbal
Current	Ia, Ib, Ic, In
Current unbalance rate	I unbal
Active power	Pa, Pb, Pc, ΣP
Reactive power	Qa, Qb, Qc, ΣQ
Apparent power	Sa, Sb,Sc, ΣS
Power factor	PFa, PFb, PFc, ΣPF
Frequency	Hz
Active energy	kWh (4 quadrant)
Reactive energy	kvarh (4 quadrant)
Demand and Max.	Record or I, P, Q, S / Max./ Min. value

Optional Module

MODEL	DESERIPTION
DIC-MPM-(A)	4 status input + 4 relay output
DIC-MPM-(B)	8 status input + 2 relay output
DIC-MPM-(E)	8 status input + 2 pulse output
DIC-MPM-(P)	Profibus communication module
Characteristics	• Status input apply to monitoring various kinds of switch status • Relay output apply to monitoring over limit alarm with setpoint system • Pulse output apply to exporting pulse signal for active/ reactive energy • Profibus supports high speed bus communication up to 1.5M, and Compatible with SIEMENS Profibus communication system.

Optional Function

MODEL	DESERIPTION
DIC-MPM-(H)	Up to 31st harmonic analysis, K factor, THD
DIC-MPM-(T)	SOE (event log)
DIC-MPM-(AO)	One 4~20mA analog output

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Technical Specification

Metering	True RMS, 1 sec refresh time
Input	Rated current: 1A or 5A Rated voltage: 220/ 380V (direct) 57.7/ 100V (via PT) Frequency: 50/ 60Hz
Overload	120% of rated, continuously Instantaneous current: 10 times/ sec Instantaneous voltage: 2 times/ sec
Status input (optional)	≤8 channels, provides 30VDC power if it is dry contact
Relay output (optional)	≤4 channels, Node capacity: 220VAC/5A, 30VDC/5A
Analog output (optional)	1 channels, 4~20mA, load resistance: 400Ω
Pulse output (optional)	2 channels, 48~50VDC for external connection

Power frequency withstand voltage	AC 2KV/minute
Insulation resistance	≥50MΩ
Impulse withstand voltage	4kV (peak), 1.2/50uS

Power supply	85~265VAC, 80~300VDC
Power loss	<2VA
Communication	RS485 serial, support Modbus-RTU Baud rate: 4800 or 9600bps Address: 1~247
Dimension (L x W x H)	Panel: 96 x 96 x 18 mm Cut-out: 89.5 x 89.5 x 65 mm (+0.5mm)
IP index	IP54 (front panel) and IP20 (case)
Weight	Approx. 500gr.

Parameter	Accuracy	Resolution	Measuring Range
Voltage	0.2%	0.01V	Directly: 300Vph-N, 520Vph-ph PT primary: 0~499,999V PT secondary: 57.7Vph-N, 100Vph-ph (Note: when PT ratio is non-integer, voltage range is 0~49,999V)
Current	0.2%	0.001A	CT primary: 0~49,999A CT secondary: 1 A or 5A
Power	0.5%	0.1W/ var/VA	each phase: 0~100 MW/ Mvar/ MVA
Power factor	0.5%	0.001	-1.000 ~ +1.000
Frequency	0.01	0.01Hz	35 ~ 65 Hz
Active energy	1.0%	0.1kWh	0~ 99,999,999.9 kWh
Reactive energy	2.0%	0.1kvarh	0~ 99,999,999.9 kVarh
THD	1.0%	0.001	0~100.%
Individual harmonic	1.0%	0.001	0~100.%
Un-balance	1.0%	0.001	0~100.%

Standard (EMC)

- Electrostatic discharge immunity test — IEC 61000-4-2,Level 4
- Radiated immunity test — IEC 61000-4-3,Level 3
- Electrical fast transient/burst immunity test — IEC 61000-4-4,Level 4
- Surge immunity test (1, 2/50μ s ~ 8/20μ s) — IEC 61000-4-5,Level 3
- Conducted emissions — EN 55022,Class B
- Radiated emissions — EN 55022,Class B

Environment

- Operating temperature: -20℃ ~ +60 ℃
- Storage temperature: -30℃~ +70 ℃
- Humidity: 5%~95% non-condensing

Order Information

DIC–MPM ① ② ③ ④ ⑤

N	Basic Module
A	Basic Module + 4 Status Inputs (Dry Contact) + 4 Relay Outputs
B	Basic Module + 8 Status Inputs (Dry Contact) + 2 Relay Outputs
E	Basic Module + 8 Status Inputs (Dry Contact) + 2 Pulse Outputs
P	Basic Module + Profibus Module
H	Up to 31st Harmonic Analysis, THD, K Factor
T	SOE (Event Log) Function
AO	One 4–20mA Analog Output
V1	57.7/ 100V (via PT), 5A
V2	57.7/ 100V (via PT), 1A
V3	220/ 380V (direct), 5A
V4	220/ 380V (direct), 1A

EX) : Model No. DIC–MPM–A–H–V1, which indicates the device provides basic function + 4 status input + 4 relay output + harmonic analysis, rated input 57.7/ 100V, 5A

Feature \ Model:DIC–MPM–( )	N	A	B	E	P
• U–LL, U–LN, 3I, In, 3P, ΣP, 3Q, ΣQ, 3S, Σ S, F, 3PF, ΣPF, kWh, kvarh, • Demand& maximum recording, • Unbalance rate, • Build–in clock, • Max./min. recording, • RS485 communication	●	●	●	●	●
4 status input + 4 relay output		●			
8 status input + 2 relay output			●		
8 status input + 2 pulse output				●	
Profibus communication					●
Harmonic analysis, K factor	○	○	○	○	○
SOE		○	○	○	
One 4–20mA analog output	○	○	○	○	○
Remark: ●= standard, ○=optional					

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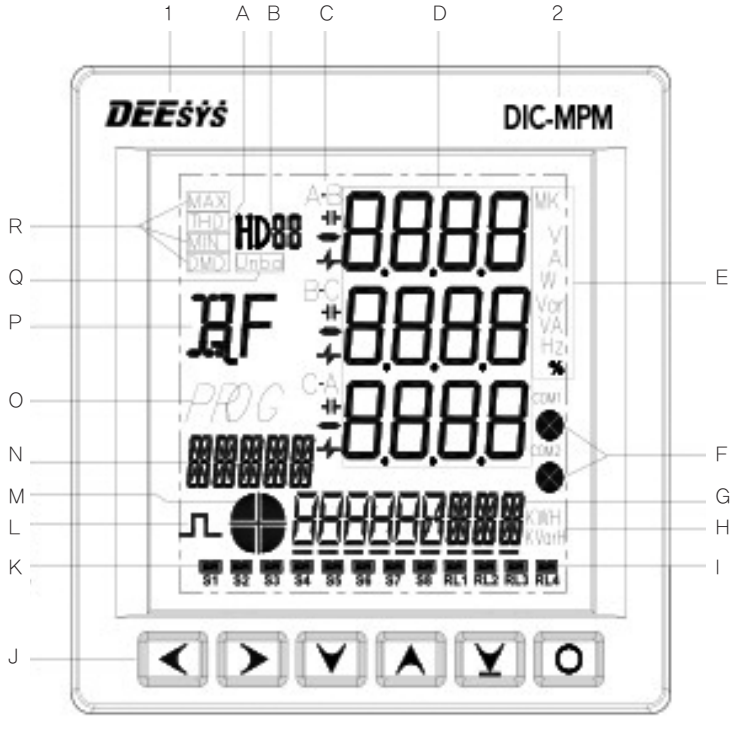
Display and keys



A: THD prompt
B: Higher harmonic prompt
C: Phase sequence & quadrant prompt
D: Real–time data display area
E: Real–time data unit
F: Communication prompt
G: Energy/program data area
H: Energy unit
I: Relay status indication
K: Status state indication
L: Energy pulse function prompt
M: Energy quadrant prompt
O: Programming indication
P: Real–time data type indication
Q: Unbalance rate prompt
R: Minimum/maximum value/demand prompt
1: Trademark of the Company
2: Product type

※ Key–press instruction: function of each key vary with interface

	Display interface of measured data	Programming interface	
		Enquiry configuration	Modification configuration
<	Submenu page–up		Move the cursor left
>	Submenu page–down		Move the cursor right
v	Main menu page–down	Menu turning–down	Decrease the numeric value at the cursor
^	Main menu page–up	Menu turning–up	Increase the numeric value at the cursor
⩒	Energy page turning	Press the key "Enter" to enter into modification	Press the key "Enter" to confirm the modification
O	Enter into programming interface	Exit from programming interface	Exit from programming interface

Data query

The real–time measured data are indicated in the form of main menu and submenu

Menu tree diagram

- For main menu page turning, press ▲ and ▼
- For page turning of the submenus under each main menu, press ◀ and ▶

Main menu	Submenus
Voltage	Line voltage
	Line voltage unbalance rate
	Phase voltage
	Phase voltage unbalance rate
Current	Phase current
	Current unbalance rate
	Neutral current
Active power	Total active power
	Phase active power
Reactive power	Total reactive power
	Phase reactive power
Apparent power	Total apparent power
	Phase apparent power
Power factor	Total power factor
	Phase power factor
Frequency	

Main menu	Submenus
Demand and maximum value	Average current demand and maximum value
	Total active power demand and maximum value
	Total reactive power demand and maximum value
	Total apparent power demand and maximum value
Voltage harmonic	Total voltage harmonic THD
	Component of each voltage harmonic
Current harmonic	Total current harmonic THD
	Component of each current harmonic
Maximum value recording	Maximum value of three phase current
	Maximum value of total active power
	Maximum value of total reactive power
	Maximum value of total apparent power
	Maximum value of current THD
	Maximum value of voltage THD
Minimum value recording	Minimum value of three phase current
	Minimum value of total active power
	Minimum value of total reactive power
	Minimum value of total apparent power
	Minimum value of current THD
	Minimum value of voltage THD

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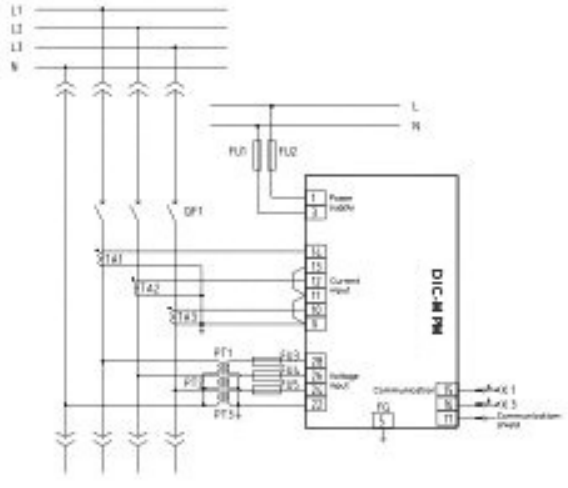
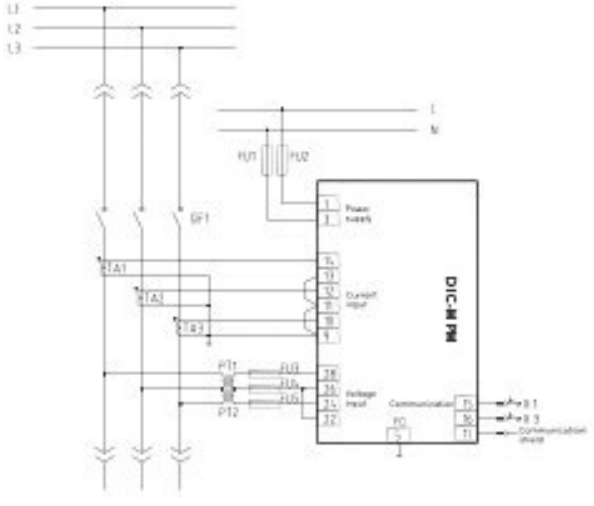
Connection

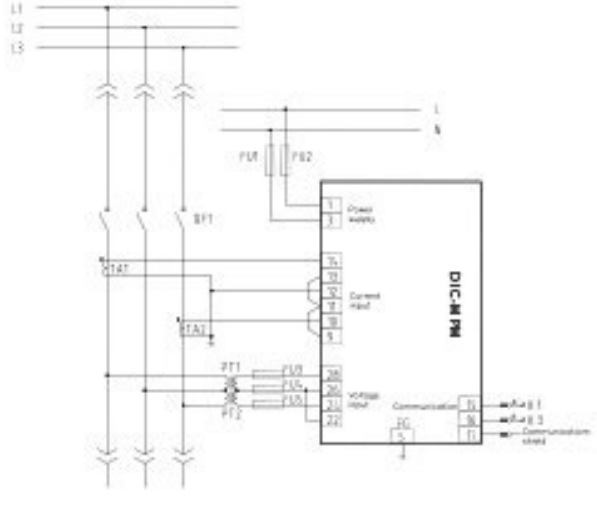
3–phase 4–wire star connection



3–phase 3–wire delta connection (3 CTs)



3–phase 3–wire delta connection (2 CTs)



Dimension & Installation