

MFM300 Multifunction Meter



DISPLAY

Quadrant power direction

Load %: 0,20,40,60,80,100,120%

3 Rows x 4 digits to show electrical parameters

1 signal + 8 digits to show energy

MEASUREMENT FUNCTIONS

Three phase voltage

Three phase current

Three phase power (kW, kVar, KVA)

Three phase power factor, frequency

Import and Export Energy: kWh, kVarh, kVAh

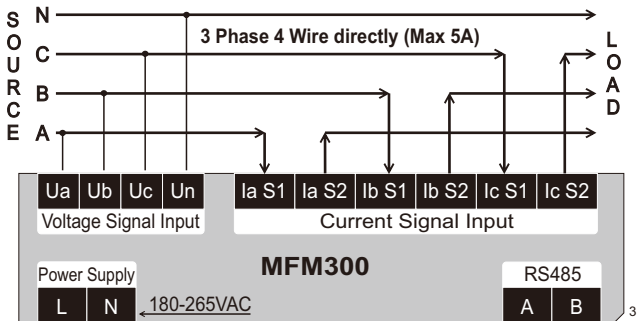
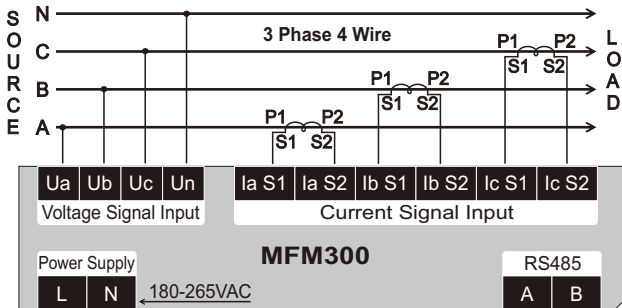
RS485 MODBUS-RTU communication

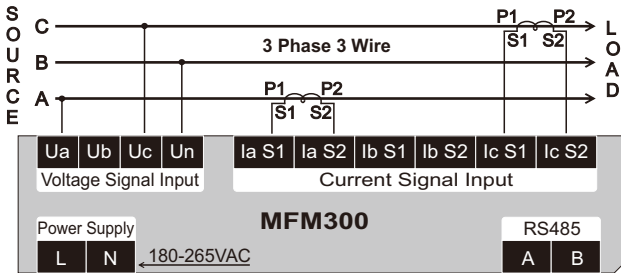
SPECIFICATIONS

Item	Description / Parameter
Wiring Input	Three phase 4 wire / Three phase 3 Wire
Auxiliary power supply	180-265VAC, 50 or 60Hz Maximum consumption: 5VA
Voltage input range	Rated: AC 300VLN / 500VLL Over voltage: continuous 120%; 200% / 1 Second
Current Input range	rated 5A; range 30mA - 6A Continuous 1.2In (6A), instantaneous 10*In / 5S

Item	Description / Parameter
Frequency	45 to 65 Hz
Measurement Accuracy class	Voltage: Cl 1; Current: Cl0.5; Frequency: +- 0.2Hz, Power: Cl1; Active energy: Cl1; reactive energy: CL2
Display	LCD display: - 3 rows x 4 digits for voltage, current, power, pf - Sign + 8 digits for energy import and export - Quadrant arrows for power direction - Graph level 20, 40, 50, 80, 100, 120% for current.
Communication	RS485 interface, MODBUS-RTU protocol. Speed; 1.2, 2.4, 4.8, 9.6, 19.2, 38.4Kbps, N81, E(Even)81, O(Odd)81
CT Ratio range	1 to 9999 (100/5A then ratio = 20)
PT Ratio range	1 to 9999
Protection Class	Front panel: IP52
Environment	Working: -10 - 45°C, Humidity <85%RH
Mounting	Panel mount, cut out 91x91mm

STANDARD CONNECTION DIAGRAM





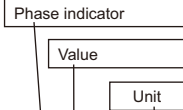
DISPLAY STRUCTURE

4 arrows for power direction.
 +P for positive active power:
 (RL normal load)
 -P for negative active power.
 +Q for positive reactive power
 (lag, inductive load)
 -Q for negative reactive power
 (lead, capacitive)

Load % Graph to show
 lever of current: 20%,
 40%, 60%, 80%, 100%,
 120%

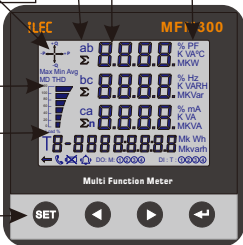
1 signal + 8 digits for
 energy. - indicate import
 energy (from load side
 to source side)

Function buttons



3 rows x 4 digits to show
 voltage, current, frequency,
 power factor, power.

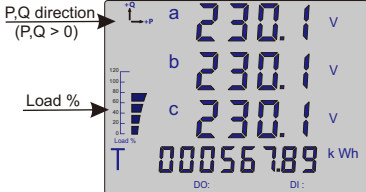
Combination of phase
 indicator + value + unit
 make full meaning data



^a 230.1 V
 Voltage Phase A 230.1 V

^b 32.89 A
 Current Phase B 32.89 A

^b 32.89 A
 Current Phase B 32.89 A



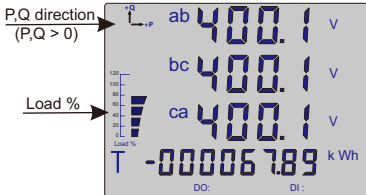
DISP=1: Voltage U_{LN}

$U_{an} = 230.1V$

$U_{bn} = 230.1V$

$U_{cn} = 230.1V$

Positive active energy
(from source to load (Export))
=567.89 kWh



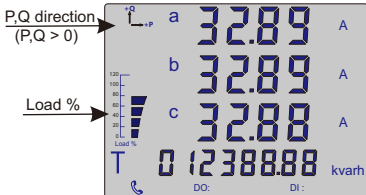
DISP=2: Voltage U_{LL}

$U_{ab} = 400.1V$

$U_{bc} = 400.1V$

$U_{ca} = 400.1V$

Negative active energy
(from load to source (Import))
=67.89 kWh



DISP=3: Three phase current

$I_a = 32.89A$

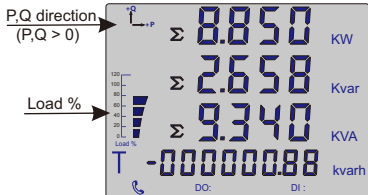
$I_b = 32.89V$

$I_c = 32.88V$

Positive reactive energy
(from source to load (Export))
=12388.88 kvarh



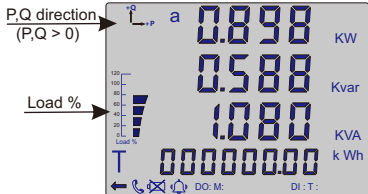
To change screen using arrow button



DISP=4: Total power

Total active power = 8.850kW
Total reactive power = 2.658kvar
Total apparent power = 9.340kVA

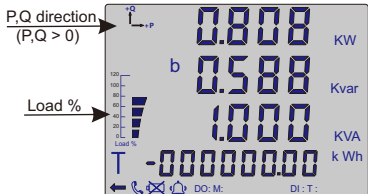
Negative reactive energy
(from load to source (import))
=0.89 kvarh



DISP=5: A Phase power

Active power = 0.898kW
Reactive power = 0.588Kvar
Apparent power = 1.080KVA

Positive active energy
(from source to load (Export))
=00.00 kWh



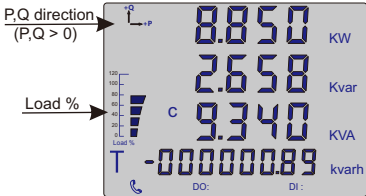
DISP=6: B Phase power

Active power = 0.808kW
Reactive power = 0.588Kvar
Apparent power = 1.000KVA

Negative active energy
(from load to source (Import))
=00.00 kWh



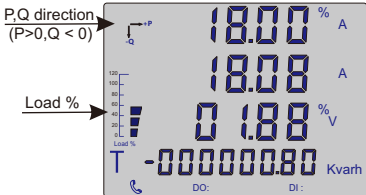
To change screen using arrow button



DISP=7: C Phase power

Total active power = 8.850kW
Total reactive power = 2.658kvar
Total apparent power = 9.340kVA

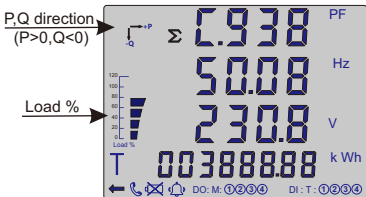
Negative reactive energy
(from load to source (import))
=0.89 kvarh



DISP=8: Unbalance

Current Unbalance = 18.00%
Average Current = 18.08A
Voltage Unbalance = 01.88%

Negative reactive energy
(from load to source (Import))
=00.80 kvarh



DISP=9: Total PF, Hz, Voltage

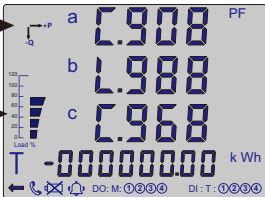
Total PF = 0.938 (Capacitive)
Frequency = 50.08Hz
Average Voltage = 230.08V

Positive active energy
(from source to load (Export))
=3888.88 kWh



To change screen using arrow button

P,Q direction
(P,Q > 0)



DISP=10: Three Phase PF

A phase PF = C.0.908
B phase PF = L.0.988
C phase PF = C.0.968

Negative active energy
(from load to source (import))
=0.00 kWh

P,Q direction
(P>0,Q < 0)



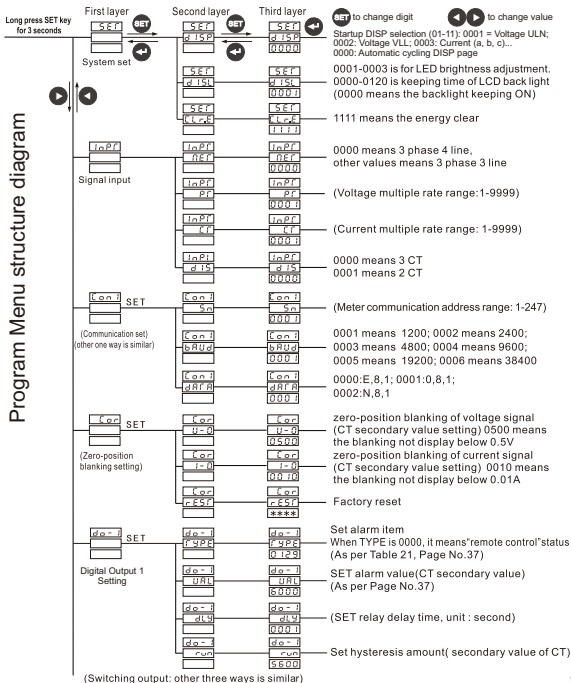
DISP=11: Year and ID

Year = 2023
Id=12084004



To change screen using arrow button

Program Menu structure diagram



BASIC PROGRAMMING EXPLANATION

Under programming status, digital interface adopts layered structure menu type ,meter supply three lines digital display. (see Fig.6)

No.1 line is first layer menu information.

No.2 line is second layer menu information,

No.3 line is third layer menu information.

For example: as shown in Fig. 6, No.1 line: INPT means signal input.

No.2 line:CT current ratio No. 3 line: 5 means the CT value. CT value=25/5A=5.



Fig.6

Parameter setting can be customized according to requirements.(See Table 4)

No.1 layer	No.2 layer	No.3 layer	Description
System set "SET"	Display DISP	0000-0014	0000 means automatic cycling display(Displayed information see Table 5,6)
	DISL	0001-0003 or 0000-0120	0001-0003 is for LED brightness adjustment. 0000-0120 is keeping time of LCD back light(0000 means the backlight keeping ON)
	Energy clear CLr.E	1111	1111 means the energy clear, other values are invalid

Signal input INPT	Wiring mode NET	0000 or other values	0000 means 3 phase 4 line, other values means 3 phase 3 line
	Voltage transformation ratio PT	1~9999	PT value= PT primary value/ secondary value
	Current transformation ratio CT	1~9999	CT value= CT primary value/ secondary value
Communication set CONi (i is 1~2)	address SN	1~247	Meter address range: 1-247
	Communication speed BAUD	0000~0006	0001 means 1200; 0002 means 2400; 0003 means 4800; 0004 means 9600; 0005 means 19200; 0006 means 38400
	Data format DATA	0000~0002	0000:E,8,1; 0001:0,8,1; 0002:N,8,1
Switching output set D0-i (i is 1-4)	Choose alarm item or close alarm (refer to 8.2 switching output)	Set the specific threshold value of alarm item	Choose alarm item, and set relative threshold value (when alarm item is switching value, noneed set threshold value), once meet the alarm conditions, switch output ON.

Note: The above menu is applied to the product with complete function. If you find there is no such menu in the product or the menu is not working, It means the product not supporting the function.

DIMENSION, CUTOUT HOLE AND INSTALLATION

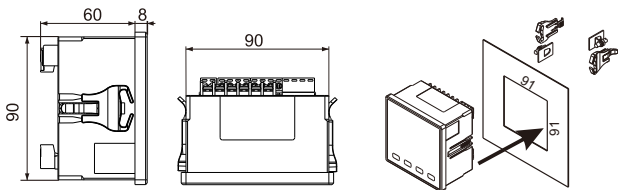


Fig.1

RS485 WIRING

