

DM-50

Digital Multimeter

features

True RMS Measurement

4-digits Segment Display

Real Time Display (for each phase) :-

Current (I) / Voltage (V) / Frequency (Hz) / True Power Factor (PF)
Displacement Power Factor (Cos Φ) / Active Power (P)
Reactive Power (Q) / Apparent Power (S)

Default View Mode Selection

Auto / Manual Scroll for L1, L2 & L3

Alarm LED Indication (Activated by A-02s) :-

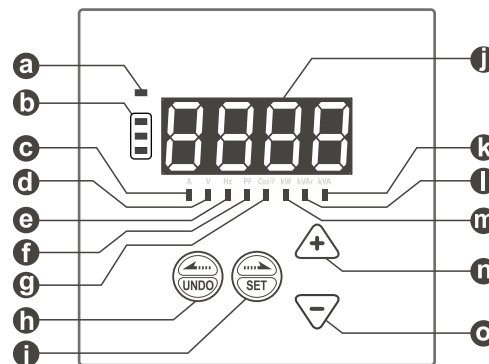
Adjustable Over / Under Voltage Setting
Adjustable Over / Under Current Setting
Adjustable Over / Under Frequency Setting
Adjustable Low PF / Low Cos Φ Setting
Adjustable Start / Reset Time Delay

Complies with : IEC 61326-1

External Plug-in Module for :-

A-01s / A-01sp (RS-485 Modbus RTU) isolated type
A-02s (RS-485 Modbus RTU + Alarm Output) isolated type

Panel Overview



- a - Alarm LED
- b - L1 ~ L3 LED
- c - (A) LED Indication
- d - (V) LED Indication
- e - (Hz) LED Indication
- f - (PF) LED Indication
- g - (Cos Φ) LED Indication
- h - Back Once / Undo Button
- i - Forward Once / Set Button
- j - 4 Digit 7-segment Display
- k - (kVA) LED Indication
- l - (kVar) LED Indication
- m - (kW) LED Indication
- n - Up Button - Increment
- o - Down Button - Decrement

Technical Data

Aux Power Supply

AC range : 65~275 Vac
(45~65 Hz)
DC range : 90~300 Vdc
Consumption : < 3VA

Current Measurement

AC Input Range : 0.025~10.0 A
Accuracy : $\pm 1.0\%$
CT Range : 5~10,000 / 5A
Burden : < 0.1 VA at 5A

Voltage Measurement

AC Input Range : 0~300 VLN
0~500 VLL
Accuracy : $\pm 1.0\%$

Power Measurement

W, VAr, VA, PF, Cos Φ
Accuracy : $\pm 2.0\%$

Frequency Measurement

Range : 45 ~ 65 Hz
Accuracy : $\pm 0.5\%$

Network Type

3P4W, 3P3W & 1P2W

Display Type

4-digits 7 Segment Display

Mechanical

Operating Temp. : -5°C ~ +55°C
IP Rating : IP54 (front panel)
Installation : Panel flush mount
Dimension (mm) : 99.2(h) x 99.2(w) x 45(d)
Weight : approx. 265 gram

Communication

A-01s / A-01sp or A-02s Plug in module
Modbus RTU RS-485 (isolated type) with
selectable baud rate, address & parity.

Selectable baud rate (kbps):
0.3, 0.6, 1.2, 2.4, 4.8, 9.6, 19.2, 28.8

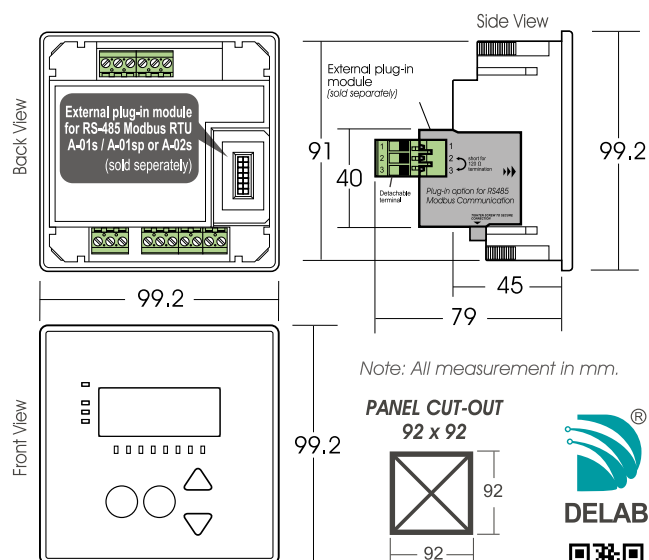
Selectable address:
1 ~ 247

Selectable Parity:
None / odd / even

External Output (Programmable Alarm)

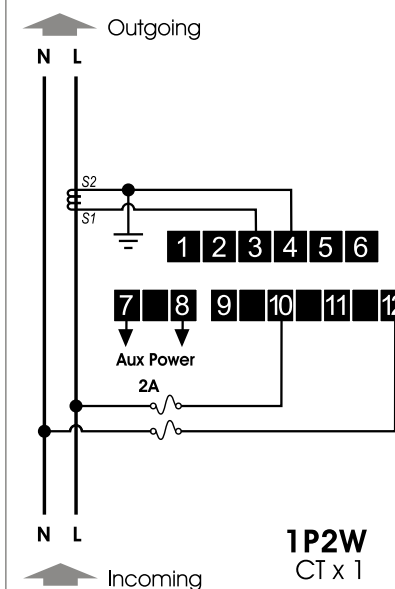
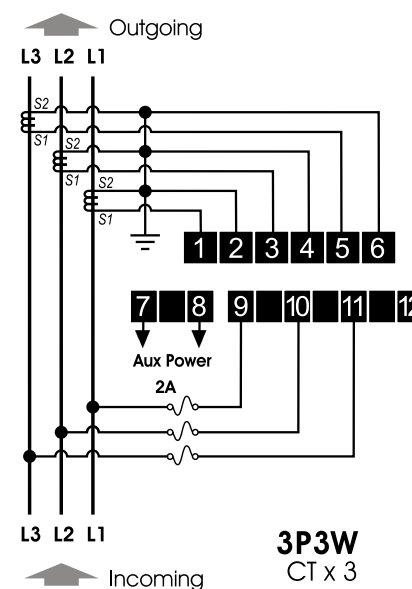
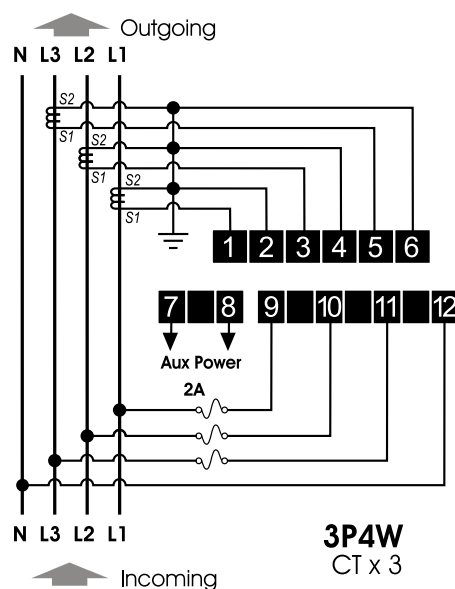
A-02s : Modbus RTU RS-485
Plug in module (isolated type) with
external output

Casing Dimension



Note: Specification subject to change without prior notification
(please visit www.delab.com.my for latest specification)

Wiring





Access to Set-up Menu

Set CT ratio, Network type, Auto scroll, Default parameter display, Plug-in module & Alarm

To access Set-up Menu

In any view (not in alarm and operation hour display mode):-

Press 'UNDO' & 'SET' button simultaneously and hold for 5 seconds until **CTr** appears.



Press ▲ or ▼ button to modify parameters.



Press 'SET' button to confirm and proceed to next mode.



Set-up Menu

1) Set CT ratio	5 ~ 10,000 / 5
2) Set Network Type	3P (3P4W / 3P3W) or 1P (1P2W)
3) Set Auto Scroll	Auto / Off
4) Set Default Parameter	Ampere / Voltage / Frequency / Power Factor / Cos φ / Active Power / Reactive Power / Apparent Power
5) Plug-In Module	None ; A-01s / A-01sp ; A-02s Add : 1~247 Baud rate : 3,6,12,24,48,96,192,288 Parity : none / odd / even
6) Set Alarm Parameter (available only when A-02s is selected)	Over / Under Current Over / Under Voltage Over / Under Frequency Low PF / Low Cos φ Start / Reset Time Delay
7) End Setting	Save & Exit Set-up Menu

1

CTr

Set CT ratio

Modify by pressing the ▲ or ▼ button.

e.g. CT primary is 1,000 turns, $\text{CTr} = \frac{1,000}{5} = 200$

Press ▲ or ▼ button to modify CT ratio to 200.
Press 'SET' button to confirm and proceed to next mode.

Note: Selectable CT ratio range is from 1 ~ 2,000, which means the CT primary is from 5 ~ 10,000.

2

TYPE

Network Selection

3PH 3P4W or 3P3W

1PH 1P2W

Note: Please refer wiring diagram for 3P4W, 3P3W & 1P2W connection

3

rotp

Auto Scroll Selection

Auto Auto scroll phase view

OFF Disable auto scroll

When auto scroll is activated, L1, L2, & L3 will scroll automatically in the selected view mode every 10 seconds.

4

UIE

Default Parameter Display Selection

Amp Ampere (A)

Cos φ Cosine φ (Cos φ)

Volt Voltage (V)

Watt Active Power (kW)

Hz Frequency (Hz)

VAR Reactive Power (kVar)

PF Power Factor (PF)

VA Apparent Power (kVA)

The selected parameter will be the default display view after power on, it will auto return to default display view after 4 minutes if in other display view.

5

-PC-

Plug-in Module Selection

A02 A-02s

A01 A-01s / A-01sp

non None

Addr Modbus Address -> Selectable from 1~247

Baud Baud Rate Setting -> Selectable as:
3=300, 6=600, 12=1200, 24=2400, 48=4800,
96=9600, 192=19200 or 288=28800 bps

Prty Parity Setting -> Selectable as:

non None

Odd Odd

Even Even

6

Alarm Parameter Setting

Setting can only be done when A-02s in **-PC-** mode is selected.

OL Over-current alarm -> **IOP** to **I10P** (range: OFF or 10~110 %) : step of 1%

UL Under-current alarm -> **SP** to **I00P** (range: OFF or 5~100 %) : step of 1%

OV Over-voltage alarm -> **200V** to **270V** (range: OFF or 200~270 V) : step of 1V

UV Under-voltage alarm -> **70V** to **220V** (range: OFF or 70~220 V) : step of 1V

OF Over frequency alarm -> **45Hz** to **65Hz** (range: OFF or 45~65 Hz) : step of 1Hz

UF Under frequency alarm -> **45Hz** to **65Hz** (range: OFF or 45~65 Hz) : step of 1Hz

PF Low-PF alarm -> **C085** to **L085** (range: OFF or 0.85 cap~0.85 ind) : step of 0.01

COS Low-Cosφ alarm -> **C085** to **L085** (range: OFF or 0.85 cap~0.85 ind) : step of 0.01

t-on Start Time Delay of alarm output -> (range: 1~200 seconds) : step of 1 sec.

t-of Reset Time Delay of alarm output -> (range: 1~200 seconds) : step of 1 sec.

7

End

End Setting

Press 'SET' button to save setting and exit or 'UNDO' button to previous set-up menu.



Mode Viewing



Press '→' button to forward next view mode.
Press and hold '→' button for 2 seconds to view default parameter display.



Press '←' button to previous view mode.
Press and hold '←' button for 2 seconds to view alarm display.



Press '▲ or ▼' button to swap each phase.