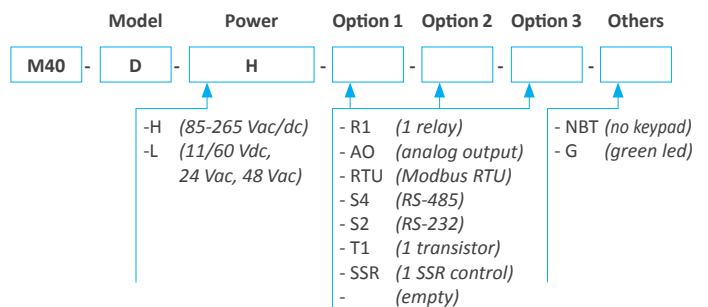# M40-D   DC Voltmeter and Ammeter

Panel mount DC Voltmeter and DC Ammeter with multiple input scales up to 600 Vdc and up to 5 Adc. Reading with 4 digits and 14 mm digit height. Standard 96 x 48 mm (1/8 DIN) size, for panel mount. Universal high and low AC and DC power options. Optional output modules with relay, transistor, SSR control, analog outputs and MODBUS RTU communication.
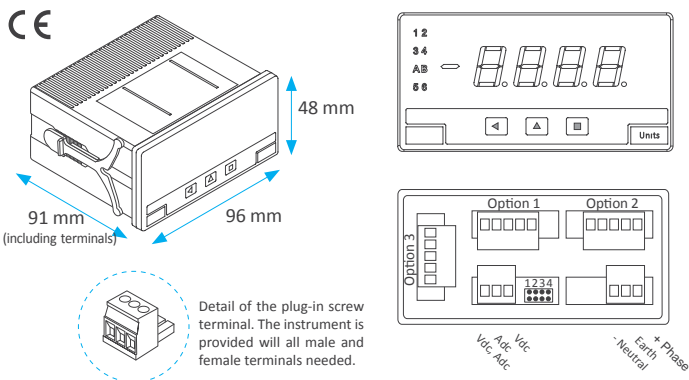
Vdc/Adc

Technical specifications

Digits	4
Reading	9999 / -9999
Decimal point	configurable
Led color	red or green
Digit height	14 mm
Signal ranges	±600 Vdc, ±100 Vdc, ±10 Vdc, ±1 Vdc, ±0.1 Vdc
	±5 Adc, ±1 Adc
Reading	scalable
Accuracy	0.10 % FS in Vdc
	0.15 % FS in Adc
Offset drift	50 ppm/ºC
Span drift*	100 ppm/ºC
	span drift value includes offset drift
Readings	15 readings / second
Response time to the step	<210 mSec. (0 % to 99 % signal)
	<75 mSec. for changes below 10 %
Input impedance	depends on range (see User's Manual)
Power 'H'	85 to 265 Vac/dc (isolated 2500 Veff)
Power 'L'	11 to 60 Vdc and 24/48 Vac (isolated 1500 Veff)
Retransmission and control options	relays, analog output, Modbus RTU, ...
Consumption	<1.5 W (meter only)
	<4.0 W (meter with options)
Frot protection	IP65
Connections	plug-in screw terminal
Weight	<150 grams
Mounting	panel
Front size	96 x 48 mm
Panel cut-out	92 x 44 mm
Deep	91 mm (including terminals)
Operating temperature	0 to 50 ºC

Order reference

Model	Power	Option 1	Option 2	Option 3	Others
M40 -	D -	H -	-	-	

-H (85-265 Vac/dc)
-L (11/60 Vdc, 24 Vac, 48 Vac)

- R1 (1 relay)
- AO (analog output)
- RTU (Modbus RTU)
- S4 (RS-485)
- S2 (RS-232)
- T1 (1 transistor)
- SSR (1 SSR control)
- (empty)

- NBT (no keypad)
- G (green led)

* Relays R1 with contacts (NC / NO / Common), max. 250 Vac 8 A
* Special options with 4 and 6 relays.
* Analog outputs and serial outputs, isolated.

Functions included

'Fast access' menu . . . . a single press on the front keypad gives access to alarm setpoint modification, special functions, memory of maximum and minimum reading, ...

'Field correction' function . . . for fast and easy offset corrections when installing on the field.

'On power-up' function . . . . . protects remote systems by delaying the output and control signals at cold start-up.

Alarms . . . . with one or two setpoints, independent activation and deactivation delays, hysteresis, optional manual deactivation of the relay.

Inverted relay . . . . for security applications, relay can be configured with inverted function.

'Peak & hold' function . . . . . . for test-break applications.

Display filters. . . . . recursive filters for noisy signals, optional reading in predefined steps, configurable fixed digits, ...

Brightness . . . . 5 levels of brightness intensity.

Password . . . . blocks access to configuration menu.

Dimensions and connections

CE

48 mm
91 mm (including terminals)
96 mm

Units

Option 3
Option 1
Option 2

1 2
3 4
A B
5 6

1234

Adc. Vdc.
Vdc Adc.
+ Phase
- Neutral
Earth

Detail of the plug-in screw terminal. The instrument is provided will all male and female terminals needed.

Output and control options

Model	Power	Option 1	Option 2	Option 3	Others
M40 - D -		-	-	-	-

	Function	Installable options	Isolated
R1	1 relay output	3	yes
T1	1 transistor output	3	yes
SSR	1 control for SSR relay	3	yes
AO	1 analog output	3	yes
RTU	1 Modbus RTU port	3	yes
S4	1 RS-485 port	3	yes
S2	1 RS-232 port	3	yes
R2, R4, R6	special modules up to 6 relay outputs. Check for information.		

Other options

Option NBT

Without front keypad

Option G

Green leds

Accessories

WME

Wall mount

DRA

DIN rail mount

THM

Benchtop housing
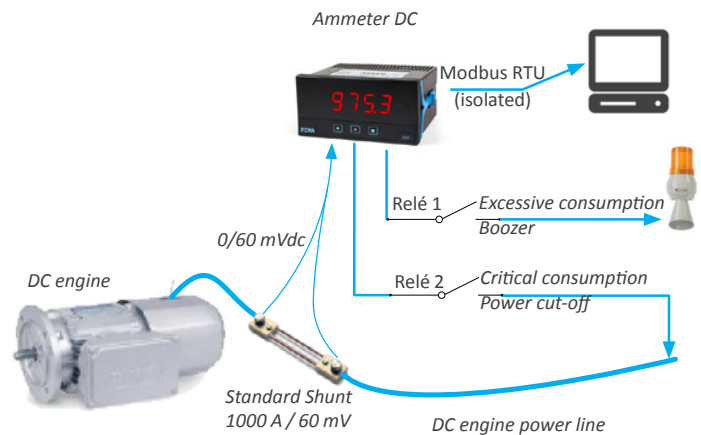
KIP

Protector IP65

KA96

Adapter 96 x 96 mm

Application example

Measure of current consumption on an DC engine measured through a standard 1000 Adc / 60 mVdc shunt. A first relay output signal the excessive consumption for operator intervention. A second relay output controls the power cut-off in case of critical consumption. Retransmission of the reading value to a remote SCADA of PLC unit through an isolated Modbus RTU bus.

Ammeter DC

Modbus RTU (isolated)

Relé 1 — Excessive consumption Boozer

Relé 2 — Critical consumption Power cut-off

0/60 mVdc

DC engine

Standard Shunt 1000 A / 60 mV

DC engine power line

Reading distances

Digit height (mm)	10	14	20	60	100
Reading distance	4 m	5 m	8 m	20 m	40 m
Series	L	M,S	K	B2x	B4x

Other DC Voltmeters and Ammeters

Series M

4, 5 and 6 digits

digit height ...... 14 mm
color ....red, green
vision ....5 meters
size ....96 x 48 mm

Series K

Further view

digit height ...... 20 mm
color ....red
vision ....8 meters
size ....96 x 48 mm

Series S

Compact size

digit height ...... 14 mm
color ....red, green
vision ....5 meters
size ....72 x 36 mm

Doc.3180r03

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