

# C40-D multisignal panel meter

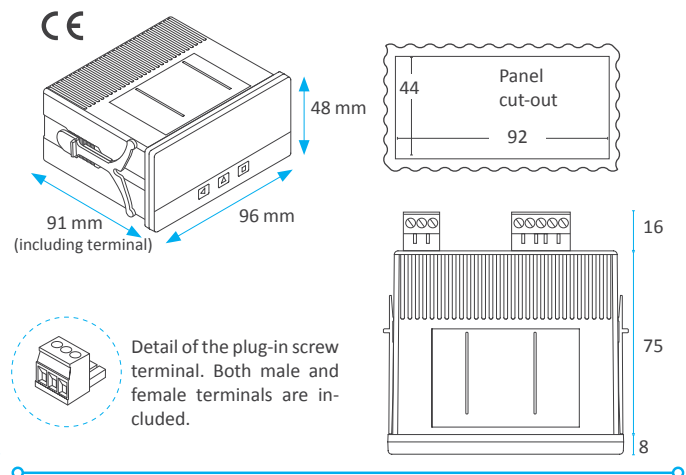
Multisignal digital panel meter, configurable to work as AC and DC voltmeter (up to 600 V), AC and DC ammeter (up to 5 A), process signals (mA and Vdc) with and without excitation voltage, thermocouples K, J, E, N, L, R, S, B, T and C, temperature probes Pt100 with 2 and 3 wires, Pt500, Pt1000, Ni100, Ni200, Ni1000, PTC and NTC, resistances, potentiometers and frequency. AC measures in True RMS. Standard 96 x 48 mm (1/8 DIN) size. Scalable reading with 4 digits (9999 to -1999) and configurable decimal point. 'Fast access' function to alarm setpoints, external contact for special functions, 'Eco' mode for reduced consumption, 5 brightness levels. Single universal power supply 18 to 265 Vac/dc. Optional relays, analog output and Modbus RTU serial communications. Recommended for OEM applications.



## Technical specifications

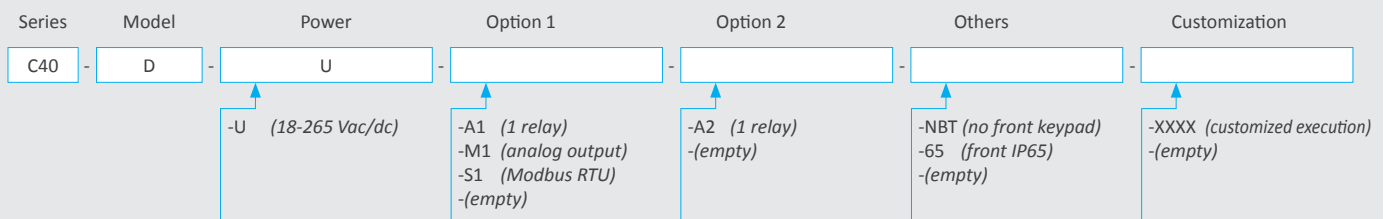
Digits	4
Reading	9999 / -1999
Decimal point	configurable
Led color	red
Digit height	14 mm
Accepted signal ranges	<i>see tables at page 3 for more information</i>
• AC voltages and AC currents	~600 Vac, ~200 Vac, ~20 Vac, ~2 Vac ~200 mVac, ~60 mVac, ~5 Aac, ~20 mAac (True RMS measure) (accepts phase-neutral and phase-phase measure) (frequency up to 150 Hz)
• DC voltages and DC currents	±600 Vdc, ±200 Vdc, ±20 Vdc, ±2 Vdc ±200 mVdc, ±60 mVdc, ±5 Adc, ±20 mAdc
• thermocouples	K, J, E, N, L, R, S, B, T and C (automatic cold junction compensation)
• resistive 'Pt' probes	Pt100 with 2 and 3 wires, Pt500, Pt1000
• resistive 'Ni' probes	Ni100, Ni200, Ni1000
• resistive NTC probes	<i>see table at page 3</i>
• resistive PTC probes	families KTY-121, KTY-210 and KTY-220
• process	4/20 mA, 0/10 Vdc (+15 Vdc excitation voltage configurable at terminal 5)
• frequency	up to 100 Hz (minimum 15 Hz). Vac and Aac ranges.
• resistances	ranges 0/5 KOhm and 0/50 KOhm
• potentiometers	with nominal values from 500 Ohm up to 20 KOhm
Thermal drift offset+span	150 ppm/°C
Readings	3 readings / second
Refresh	3 refresh / second
Response time	<300 mSec. (0% to 99% of signal)
Power 'U'	18 to 265 Vac/dc (isolated 1500 Veff @60 seconds)

## Dimensions (mm)



Output and control options	1 or 2 relays 1 analog output 4/20 mA isolated 1 Modbus RTU isolated serial output
Protection	IP50 standard (optional IP65)
Consumption (normal mode)	<1.0 W (meter only) <2.5 W (meter with options)
Consumption ('Eco' mode)	<0.3 W (meter only) <1.5 W (meter with options)
Connections	plug-in screw terminals
Weight	<150 grams
Temperature of operation	0 to 50 °C

## How to order

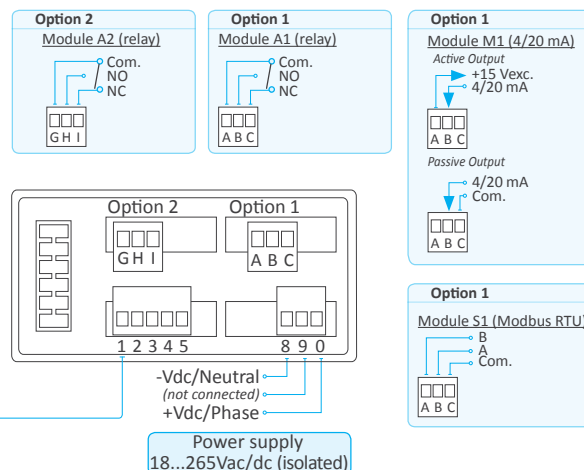


<b>50</b> YEARS 1969-2019	<b>Q</b> ISO 9001 Certified Quality	<b>CE</b> EN-61010-1 Security	<b>CE</b> EN-61326-1 Electromagnetic C.	<b>5</b> YEARS Extended Warranty
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## Functions included

- 'Fast access' menu . . . . . press the 'UP' ('▲') front key to access and modify the alarm setpoints, and / or the maximum and minimum memory. Configurable menu.
- 'External control' function . . . external contact at multifunctional terminal 5, configurable for : 'second scaling', decimal point change, 'hold' the reading, tare function, activate the maximum or minimum memory.
- 'Eco' mode . . . . . automatic turn off of the display leds, to reduce the consumption of the instrument when the operator is not using it.
- Alarms . . . . . 1 or 2 alarms, independent, configurable as maximum or minimum, with setpoint and hysteresis.
- Reading offset . . . . . this function allows to configure a fixed number of counts to be added to the reading.
- 'Second scaling' function . . . . define two scalings for the same signal and control which one is active with the 'External control' option.
- Display filters . . . . . recursive filter for noisy signals and configurable steps for minimum predefined changes on the reading.
- Output and control options . . . optional 1 or 2 relay outputs, 1 analog 4/20 mA isolated output, 1 Modbus RTU isolated serial output.
- Brightness . . . . . configurable 5 levels of brightness intensity.
- Password . . . . . blocks the configuration menu.
- Front Units . . . . . set of labels 'Units 7' included

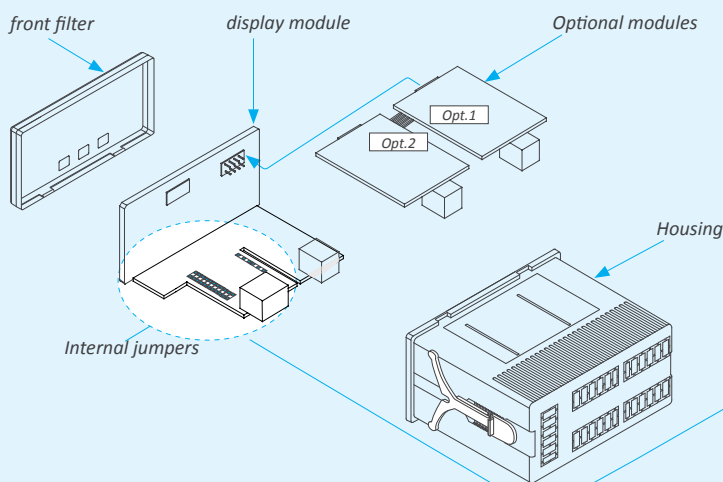
## Connections and rear view



1	2	3	4	5	Input Signal ranges
~Vac +Vdc			~Vac -Vdc		~600 Vac, ±600 Vdc, ~200 Vac, ±200 Vdc
	~Vac +Vdc		~Vac -Vdc		~20 V, ~2 V, ~200 mV, ~60 mV, ~20 mA ±20 V, ±2 V, ±200 mV, ±60 mV, ±20 mA
		~Aac +Adc	~Aac -Adc		~5 Aac ±5 Adc
	tc+		tc-		Thermocouples
	+		-		Pt (2 wire), Ni, NTC, PTC
	pt+		pt-	Sense	Pt100 (3 wire)
	mA			Vexc.	4/20 mA passive
	mA+		mA-		4/20 mA active
	+Vdc		com.	Vexc.	0/10 Vdc passive
	+Vdc		com.		0/10 Vdc active
	res+		res-		Resistances
	signal		pot-	pot+	Potentiometers

**⚡** \* Risk of electric shock. The 'EK' external control function shares terminal 4 with the common of the input signal connection. When measuring dangerous voltages AND using 'EK' external control contact, apply the appropriate protections to isolate the operator from dangerous voltages.

## Internal structure - Jumpers for input range selection



**Example #1**  
Jumpers 'S' placed for the range of ~600Vac, jumpers G & I.  
Jumper 'T' between 4-5 for EK external control function.  
Jumper not used placed between A-B of non-use.

**Example #2**  
Jumpers 'S' placed for the range of 4/20mA, jumper D.  
Jumper 'T' between 1-2 for +15Vdc excitation voltage.  
Jumpers not used placed between A-B and E-F of non use.

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## Input signal ranges - Technical specifications

Vac ranges (Veff.)	Scale by default	Scalable	Jumpers 'S'	Jumper 'T'	Accuracy (% FS)	Max. oversignal	Z <sub>in</sub>
~600 Vac*	600	from 9999 to -1999	G I	4-5	<0.30% (up to 150Hz)	800 Vac	12 MOhm
~200 Vac	200.0		I			800 Vac	12 MOhm
~20 Vac	20.00		A I			150 Vac	1 MOhm
~2 Vac	2.000		B I			100 Vac	100 KOhm
~200 mVac	200.0		C I			30 Vac	10 KOhm
~60 mVac	60.0		E I			3 Vac	1 MOhm

\* measure 300V CAT-III, 600V CAT-II. Measure of frequency available for all ranges.

Vdc ranges	Scale by default	Scalable	Jumpers 'S'	Jumper 'T'	Accuracy (% FS)	Max. oversignal	Z <sub>in</sub>
±600 Vdc	600	from 9999 to -1999	G	4-5	<0.20%	800 Vdc	12 MOhm
±200 Vdc	200.0		---			800 Vdc	12 MOhm
±20 Vdc	20.00		A			150 Vdc	1 MOhm
±2 Vdc	2.000		B			100 Vdc	100 KOhm
±200 mVdc	200.0		C			30 Vdc	10 KOhm
±60 mVdc	60.0		E			3 Vdc	1 MOhm

Aac ranges (Aeff.)	Scale by default	Scalable	Jumpers 'S'	Jumper 'T'	Accuracy (% FS)	Max. oversignal	Z <sub>in</sub>
~5 Aac	5.00	from 9999 to -1999	I	4-5	<0.50% (up to 150Hz)	7 Aac (max. 7 sec.)	20 mOhm
~20 mAac	20.00		D I			25 mAac	4.7 Ohm

Adc ranges	Scale by default	Scalable	Jumpers 'S'	Jumper 'T'	Accuracy (% FS)	Max. oversignal	Z <sub>in</sub>
±5 Adc	±5.00	from 9999 to -1999	---	4-5	<0.25%	7 Adc (max. 7 sec.)	20 mOhm
±20 mAac	±20.00		D			25 mAac	4.7 Ohm

Process signals	Scale by default	Scalable	Jumpers 'S'	Jumper 'T'	Accuracy (% FS)	Max. oversignal	Z <sub>in</sub>
4/20 mA	0/100.0	from 9999 to -1999	D	1-2*	<0.15%	25 mA	4.7 Ohm
0/10 Vdc	0/100.0		A			25 Vdc	1 MOhm

\* Place jumper 'T' at position 1-2 for +15 Vdc excitation voltage at terminal 5. Optionally, place jumper 'T' at position 4-5 to work with 'external contact' at terminal 5.

NTC probes 'R <sub>25</sub> '* (configurable)	Jumpers 'S'	Jumper 'T'	Range of measure	Accuracy (% of reading)	Beta* (configurable)
10K	F K	4-5	-60 °C to 150 °C	<1.5% of reading	3500

\*Beta' configurable (2000 to 5500). R25 configurable. Measure from 100Ohm to 1MOhm.

PTC probes Family	Jumpers 'S'	Jumper 'T'	Range in °C (in °F)	Total error
KTY-121	F	4-5	-55 / 150 °C (-67 / 302 °F)	<1 °
KTY-210	F H K			
KTY-220	F H K			



Thermocouples	Jumpers 'S'	Jumper 'T'	Range in °C (in °F)	Total error (cold junction included)
tc. K	E	4-5	-100 / 1350 °C (-148 / 2462 °F)	<3 °
tc. J			-100 / 1200 °C (-148 / 2192 °F)	
tc. E			-100 / 1000 °C (-148 / 1832 °F)	
tc. N			-100 / 1300 °C (-148 / 2372 °F)	
tc. L			-100 / 900 °C (-148 / 1652 °F)	
tc. R			0 / 1768 °C (32 / 3214 °F)	
tc. S	E J	4-5	0 / 1768 °C (32 / 3214 °F)	<5 °
tc. T			-100 / 400 °C (-148 / 752 °F)	
tc. C	E	4-5	0 / 2300 °C (32 / 4172 °F)	<5 °
tc. B	E J	4-5	700 / 1820 °C (1292 / 3308 °F)	

Pt and Ni probes	Jumpers 'S'	Jumper 'T'	Range in °C (in °F)	Total error	Current at sensor
Pt100 (3 wires)	F H J	5-6	-200 / 700 °C (-328 / 1292 °F)	<1 °	< 900 uA
Pt100 (2 wires)	F H	4-5	-200 / 700 °C (-328 / 1292 °F)		< 900 uA
Pt500	F		-150 / 630 °C (-238 / 1166 °F)		< 90 uA
Pt1000	F		-190 / 630 °C (-310 / 1166 °F)		< 90 uA
Ni100	F H		-60 / 180 °C (-76 / 356 °F)		< 900 uA
Ni200	F H		-60 / 120 °C (-76 / 248 °F)		< 900 uA
Ni1000	F		-60 / 180 °C (-76 / 356 °F)	< 90 uA	

Resistance ranges	Scale by default	Scalable	Jumpers 'S'	Jumper 'T'	Accuracy (% of reading)
0 a 5 KOhm	9.999	from 9999 to -1999	F H K	4-5	<1.5% of reading
0 a 50 KOhm	99.99		F K		

Potentiometers nominal value	Scale by default	Scalable	Jumpers 'S'	Jumper 'T'	Accuracy (% FS)
500 Ohm to 20 KOhm	0/100.0	from 9999 to -1999	A	2-3	<0.5 %

Frequency signals	Scale by default	Scalable	Jumpers 'S'	Jumper 'T'	Accuracy (% reading)
15 Hz to 100 Hz	0/100.0	from 9999 to -1999	Vac or Aac ranges	4-5	<0.15% of reading

Maximum oversignal is the maximum signal accepted by the instrument. Higher signal values may cause instrument damage. Lower values are not destructive but may be out of accuracy specifications.

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## Options and accessories

### Relay Output

Module A1 and A2  
Function 1 relay output  
3 contacts (NC, NO, Com)  
up to 250 Vac @ 8 Amperes



### Analog Output

Module M1  
Function 1 analog output isolated  
4/20 mA  
isolated 1000 Vdc



### Modbus RTU output

Module ..... S1  
Function 1 Modbus RTU output  
9.600 bps, 4.800 bps  
isolated 1000 Vdc



### Option without keypad

Reference ..... NBT



### Protection IP65

Reference ..... .65  
O-ring for IP65 front protection



### Wall mount housing

Reference ..... WME



### DIN rail mount adapter

Reference ..... DRA-M



### Option 'customized'

Customization of standard instruments

- improved technical performances
- custom configurations
- special functions
- ...



### Set of Unit (included)

Reference ..... Units7  
Description ..... Vdc    Vac    Adc  
                          mVdc    mVdc    mVdc  
                          mAac    mAac    %  
                          °C       °F       ph  
                          m       cm       mm  
                          bar      Pa       KΩ  
                          N       Ω       MW  
                          W       kW      m/min  
                          kV      kA      (empty)  
                          rpm     I



## Other FEMA meters

### Series B

4 and 6 digits  
digit height ..... 60 and 100 mm  
color ..... red, green  
reading ..... 25 and 50 meters  
formats ..... B24, B26, B44, B46



### Series M

4, 5 and 6 digits  
digit height ..... 14 mm  
color ..... red, green  
reading ..... 5 meters  
size ..... 96 x 48 mm

DIGITAL PANEL METER  
**SERIES M**  
Full Signal Ranges Available



### Series K

Further view  
digit height ..... 20 mm  
color ..... red  
reading ..... 8 meters  
size ..... 96 x 48 mm

DIGITAL PANEL METERS  
**SERIES K**  
20 mm Digit Size



### Series S

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

DIGITAL PANEL METERS  
**SERIES S**  
Compact Size 72x36 mm



## More signals

