

EC4-ZR3

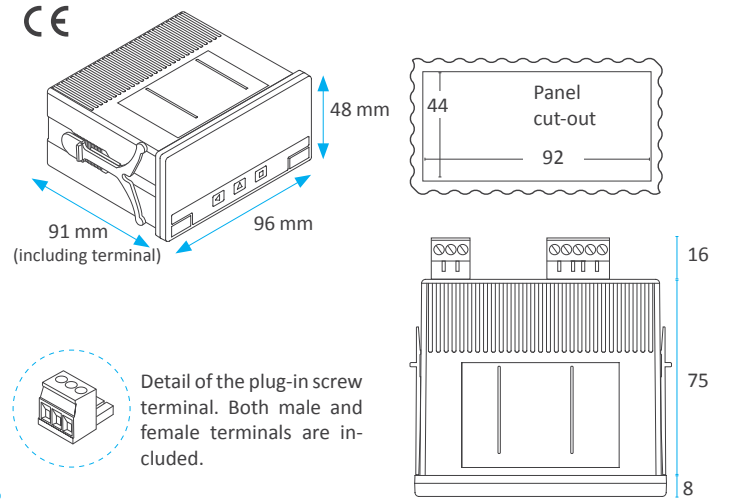
Multisignal digital panel meter with 4 relays and analog output. Configurable to read AC and DC voltages (up to 600 V), AC and DC amperes (up to 5 A), process signals (mA and Vdc) with and without excitation voltage, thermocouples K, J, E, N, L, R, S, B, T and C, temperature probes Pt100 with 2 and 3 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. Includes 4 relays SPST and 1 analog output 4/20 mA isolated.



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 @30 mA exc. voltage. Configurable at terminal 5)
• frequency	up to 100 Hz (minimum 15 Hz). Vac and Aac ranges.
• resistances	ranges 0/5 K and 0/50 K
• potentiometers	with nominal values from 500 R up to 20 K
Thermal drift offset+span	150 ppm/°C
Readings	3 readings / second
Refresh	3 refresh / second
Response time	<300 mSec. (0 % to 99 % of signal)
Universal Power Supply	18 to 265 Vac/dc (isolated 1500 Veff @60 seconds)

Dimensions (mm)



Relay outputs	4 relays (SPST, 2 terminals, pitch 5.08 mm) up to 250 Vac @6 Amperes
Analog output	1 analog output 4/20 mA isolated (1000 Vdc) active output (select internal jumper for 'passive')
Protection	IP65 front protection
Consumption (normal mode)	<4.0 W
Connections	plug-in screw terminals
Weight	<200 grams
Temperature of operation	0 to 55 °C

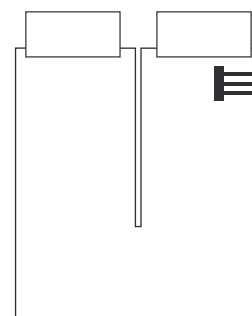
How to order

Series Model Customization

EC4 - ZR3 - XXXX

↑

-XXXX (customized execution)
 -(empty)



Analog output jumper:
 'passive' output (close jumper '7 & 8')
 'active' output (close jumper '8 & 9')

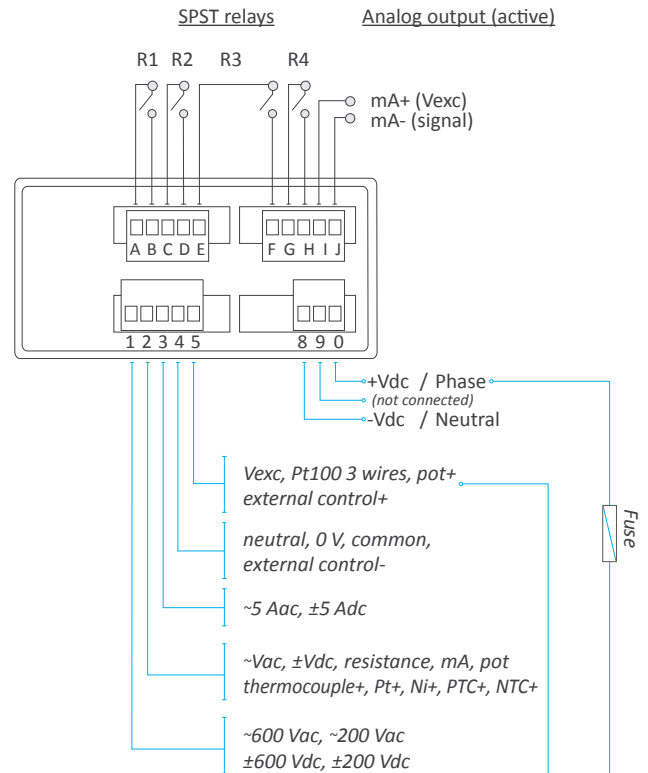
Additional documentation

- User's manual EC4-ZR3 www.fema.es/docs/4608_EC4-ZR3_manual_en.pdf
- Datasheet EC4-ZR3 www.fema.es/docs/4609_EC4-ZR3_datasheet_en.pdf
- Quick installation guide EC4-ZR3 www.fema.es/docs/4610_EC4-ZR3_installation_en.pdf

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 : '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 4 alarms, independent, configurable as maximum or minimum, with setpoint and hysteresis. Fail-safe mode included.
- Reading offset this function allows to configure a fixed number of counts to be added to the reading.
- Display filters recursive filter for noisy signals and configurable steps for minimum predefined changes on the reading.
- 20 segment linearization linearization of process signals up to 20 points
- Brightness configurable 5 levels of brightness intensity.
- Password blocks the configuration menu.

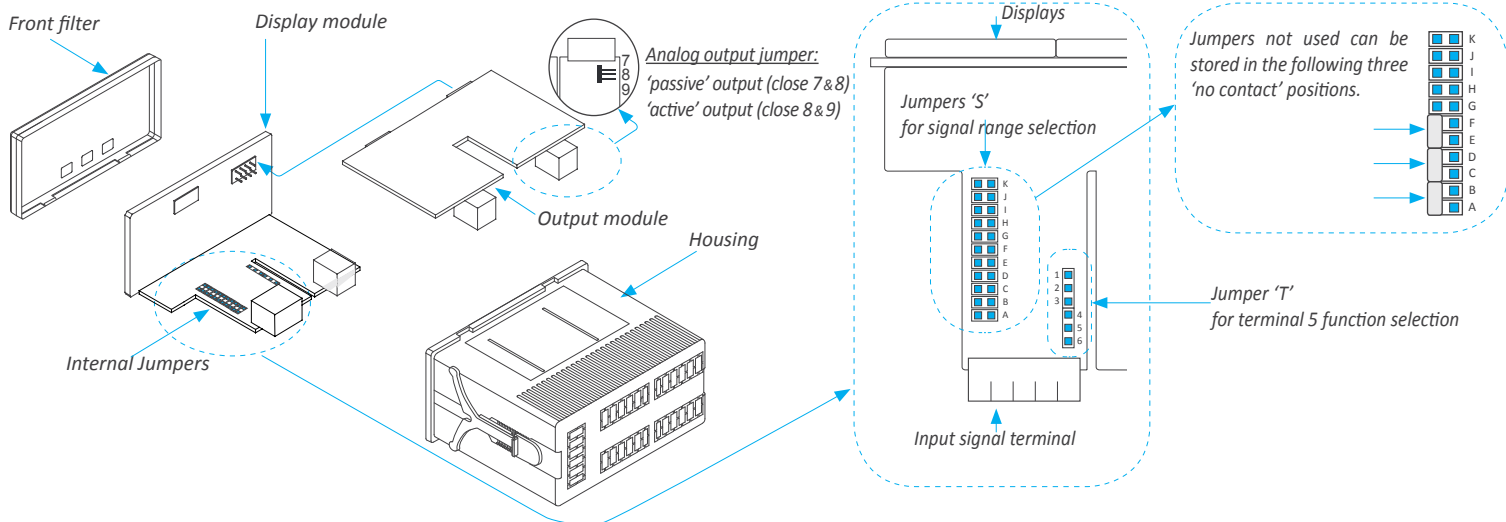
Connections and rear view



* 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.

As requested by security regulations EN-61010-1, add a protection fuse to the power line, with value :
250 mA time-lag for power voltage > 50 Vac/dc
400 mA time-lag for power voltage < 50 Vac/dc

Internal structure and jumpers for range selection



Input signal ranges - Technical specifications

Vac ranges (Veff.)	Scale by default	Scalable	Jumpers 'S'	Jumper 'T'	Accuracy (% FS)	Max. oversignal	Z _{in}
~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 _{in}
±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 _{in}
~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 _{in}
±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 _{in}
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		<0.20%	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 ₂₅ '* (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. Resistance measure from 100R to 1MR.

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 °C
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 °C
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	0 / 1768 °C (32 / 3214 °F)	<5 °C	
tc. T	-100 / 400 °C (-148 / 752 °F)			
tc. C	E	0 / 2300 °C (32 / 4172 °F)		
tc. B	E & J	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 °C	< 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 K	9.999	from 9999 to -1999	F & H & K	4-5	<1.5% of reading
0 a 50 K	99.99		F & K		

Potentiometers nominal value	Scale by default	Scalable	Jumpers 'S'	Jumper 'T'	Accuracy (% FS)
500 R to 20 K	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.

Options and accessories

Benchtop housing

Reference THM



DIN rail mount adapter

Reference DRA-M



Wall mount housing

Reference WME



Option without keypad

Reference NBT



Set of units (included)

Reference Units7

Description Set of labels 'Vdc', 'Vac',
 'Adc', 'Aac', 'mVdc', 'mVac',
 'mAdc', 'mAac', '%', '°C', '°F',
 'ph', 'm', 'cm', 'mm', 'bar',
 'psi', 'Pa', 'N', 'Ω', 'KΩ', 'W',
 'kW', 'MW', 'kV', 'kA',
 'm/min', 'rpm', 'l'

Included with the instrument.

Option 'customized'

Customization of standard instruments

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

