

MODEL · MBR

BAR GRAPH METERS



Configurable bar graph meters for process signals, for industrial applications.

Configurable bar graph meters for process signals, for both single and bipolar ranges (4/20 mA, 0/10 Vdc, ±20 mA, ±10 Vdc), and potentiometric signals. Scalable bar graph reading, with standard 0 to 100% and alternate ±100% (with centered 0). Display includes two numerical digits for process reading or percentage value reading. Standard 96 x 48 mm housing (1/8 DIN). Front protection IP65. Connections with plug-in screw terminals. Fast and easy configuration through front push-button keypad.

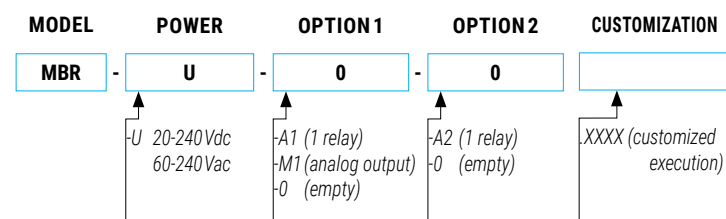
Universal power supply from 20 to 240 Vdc and 60 to 240 Vac. 3 way isolation between power, input and output circuits. Circuit isolation prevents ground loops and transient propagation, protecting remote equipment and signal integrity. Optional 1 or 2 relay outputs, optional 4/20 mA isolated analog output (configurable as active or passive). Two independent alarms, configurable as maximum or minimum, with hysteresis and setpoint. 'Password' function to block non-authorized access to configuration menu and display with 5 brightness levels. Fast access to configurable parameters and access to fast functions.

Designed for industrial use, with potential integration into a wide range of applications, reduced cost, excellent quality and available customization.

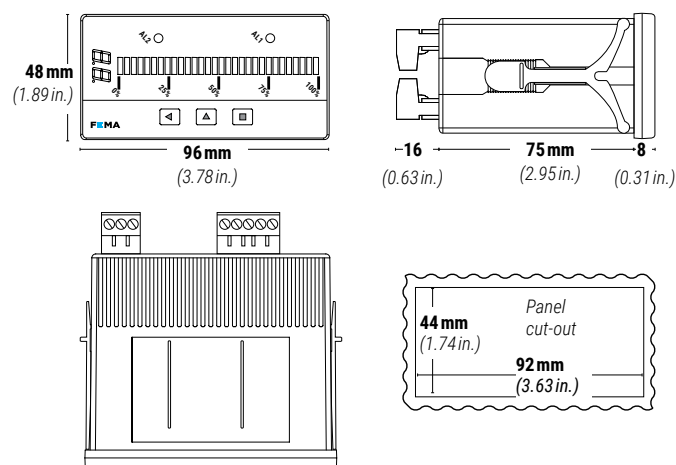
1. TECHNICAL SPECIFICATIONS

Input signal ranges	
process unipolar	4/20 mA, 0/10 Vdc
process bipolar	±4/20 mA, ±0/10 Vdc
type of signal	active or passive
excitation voltage	+15 Vdc, max. 30 mA, shortcircuit protected
potentiometers	nominal value from 500 Ohms to 10 KOhms (Vexc. +5 Vdc, non shortcircuit protected)
maximum oversignal	±50 mA, ±30 Vdc
Accuracy at 25 °C	
	0.5%
Thermal drift	
	150 ppm/°
Step response	
	250 mSec. (0% to 99% signal)
Configuration system	
key pad	three push buttons, accessible at the front of the instrument
display	two digits, seven segment, red color
configuration	by 'configuration menu'
Power supply	
voltage range	20 to 240 Vdc, 60 to 240 Vac, ±10%, isolated
AC frequency	45 to 65 Hz
consumption	<6.0 W
power wires	1 mm ² to 2.5 mm ² (AWG17 to AWG14)
overvoltage category	2
Isolation	
power - input	1500 Veff (60 seconds)
power - output	1500 Veff (60 seconds)
input - output	(see output module isolations)
Environmental	
IP protection	front IP65
impact protection	IK08
operation temperature	from 0 to +50 °C
storage temperature	from -20 to +70 °C
'warm-up' time	15 minutes
relative humidity	0 to 95% non condensing
altitude	up to 2000 meters
Mechanical	
mounting	panel
front size	96 x 48 mm (1/8 DIN)
panel cut-out	92 x 44 mm
connections	plug-in screw terminals (pitch 5.08 mm)
housing material	ABS (body), polycarbonate (front)
weight	<150 grams
packaging	120 x 114 x 51 mm, cardboard
Output modules A1 and A2	
type	relays, 3 contact (nc, no, comm.),
isolation	3500 Veff
max. ratings	max. 250 Vac continuous, max. 8 Amp/relay (resistive load)
Output module M1	
type	analog output 4/20 mA (active and passive)
isolation	1000 Vdc

2. HOW TO ORDER



3. DIMENSIONS



4. Typical applications

Process applications with control with relay or analog outputs, where a bar graph view of the process situation with a fast glance is highly appreciated. Applications to measure the deviation from a central point, for example tilts, inclinations, slopes.

5. FUNCTIONS INCLUDED

- Alarms** two alarms with setpoint, hysteresis, and configurable flash functions.
- Average filter** configurable average filter for noisy signals.
- External control** external contact can be associated to led test function or 'measure' function.
- Led test** test function to check leds.
- 'Measure'** reads the actual input signal value in mA or Vdc
- 'Fast access'** fast access to configurable parameters at front key **UP** (▲)
- 'Fast functions'** fast functions configurable at front key **LE** (▼)
- 'Password'** prevents access from unauthorized operators to 'configuration menu'.
- 'Brightness'** five selectable levels of brightness available.
- 'Field correction'** scale and/or correct the reading according to the input.
- 'Eco mode'** configure the two front digits to power off automatically.

7. FRONT VIEW

The instrument can be mounted in vertical or horizontal position. Below is a description of the main elements visible at the front and a front view in vertical and horizontal positions.

Table 1 | FRONT VIEW DESCRIPTION

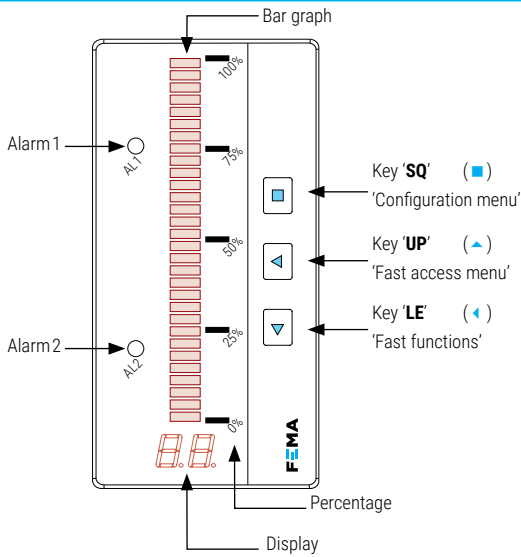
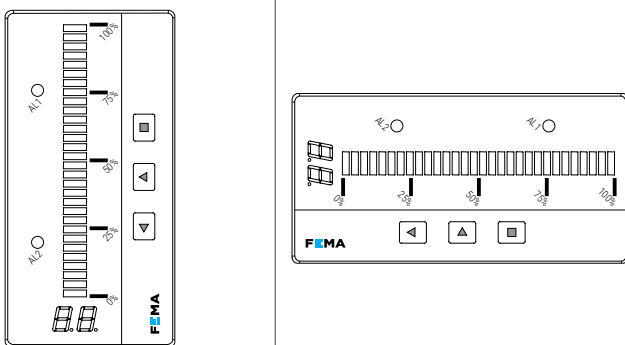
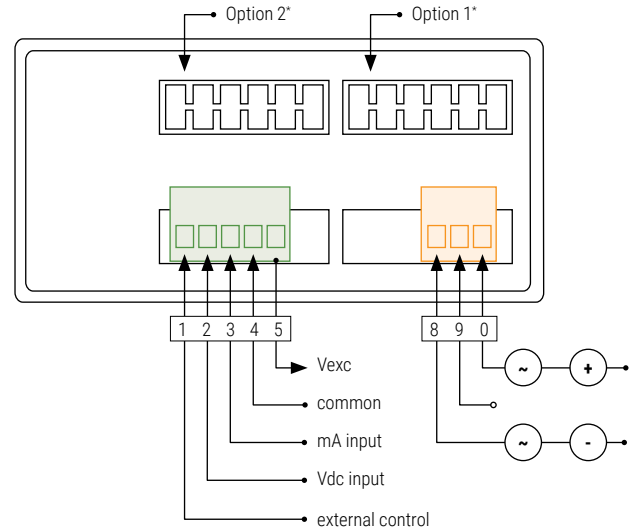


Table 2 | HORIZONTAL AND VERTICAL READINGS



6. CONNECTIONS



* Connections for optional relays (A1 and A2) and optional analog output (M1) see user's manual at section 8.

Table 3 | INPUT SIGNAL CONNECTIONS

INPUT signal	Input terminals				
	1	2	3	4	5
4/20 mA, ±20 mA (active loop)			mA (in)	mA (out)	
0/10 Vdc, ±10 Vdc (2 wires)		±Vdc		comm.	
4/20 mA, ±20 mA (passive loop)			mA (in)		Vexc (mA out)
0/10 Vdc, ±10 Vdc (3 wires)		±Vdc		comm.	Vexc
Potentiometer		signal		pot-	pot+

Table 4 | POWER CONNECTIONS

POWER	Power terminals			
	8	9	0	
20 to 240 Vdc	0 Vdc	n.c.	+Vdc	
60 to 240 Vac	neutral	n.c.	phase	

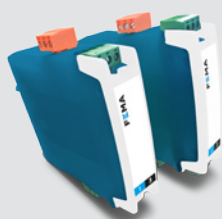
Table 5 | EXTERNAL CONTROL CONNECTIONS

EXTERNAL CONTROL	Input terminals				
	1	--	--	4	--
external control	shortcircuit between terminal 1 (external control) and terminal 4 (common) to activate external control				

8. ADDITIONAL DOCUMENTATION

User's manual	www.fema.es/docs/5245_MBR_manual_en.pdf
Datasheet	www.fema.es/docs/5247_MBR_datasheet_en.pdf
Quick installation guide	www.fema.es/docs/5249_MBR_installation_en.pdf
Web	www.fema.es/Series_BAR

9. OTHER INSTRUMENTS : SIGNAL CONVERTERS



SERIES I3

SERIES OEM

output signal 4/20 mA, 0/10 Vdc
 configuration by codes (inside)
 isolation 3 ways



SERIES I4

FULLY CONFIGURABLE

output signal 4/20 mA, 0/10 Vdc, ...
 configuration menu (front keypad)
 isolation 3 ways



SERIES I5

FIELD BUS

output signal Modbus RTU, CANbus, ...
 configuration by menu (front keypad)
 isolation 3 ways



SERIES B

LARGE FORMAT DISPLAYS

digit 60 and 100 mm
 reading 25 and 50 meters
 mounting wall, panel, hanging
 housing metallic IP65

50 YEARS 1969-2019	Q ISO 9001 Certified Quality	CE EN-61010-1 Security	CE EN-61326-1 Electromagnetic C.	5 YEARS Extended Warranty
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Process	Temperature	Counter	Weight	Flow	Time
Frequency	Temperature	Speed	Vac	Aac	Integrators
Potentiometer	Temperature	Period	Ade	Vdc	Resistances
Digital	Digital	Digital	Digital	Custom	