

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 96x48 mm housing (1/8 DIN). Front protection IP65. Connections with plug-in screw terminals. Fast and easy configuration through front push-button keypad.

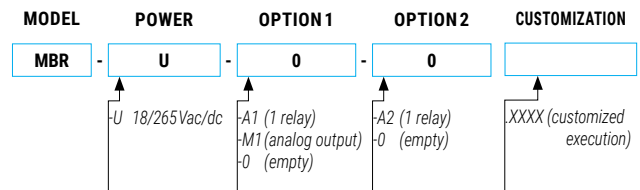
Universal power supply from 18 to 265 Vac/dc. 3 way isolation between power, input and output circuits. Circuit isolation prevents ground loops and transient propagation, protecting remote equipment and signal integrity. Optional 1 or 2 relay outputs, optional 4/20 mA isolated analog output (configurable 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.

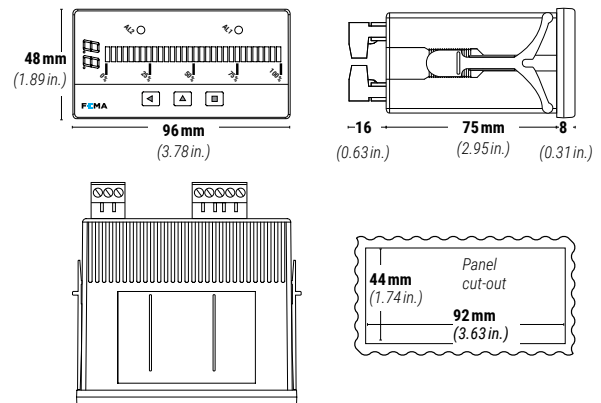
1. TECHNICAL SPECIFICATIONS

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	18 to 265 Vac/dc isolated (20 to 240 Vac/dc ±10%)
AC frequency	45 to 65 Hz
consumption	<1.5 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	96x48 mm (1/8 DIN)
panel cut-out	92x44 mm
connections	plug-in screw terminals (pitch 5.08 mm)
housing material	ABS (body), polycarbonate (front)
weight	<150 grams
packaging	120x114x51 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

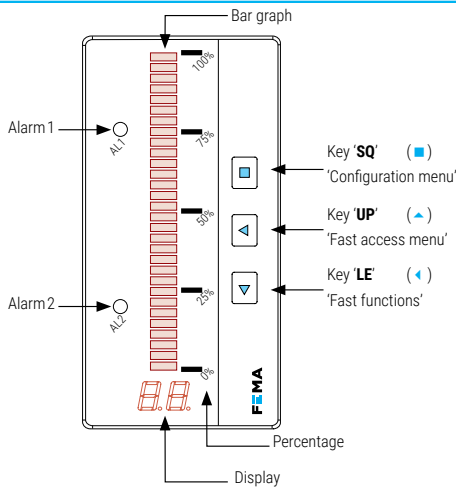
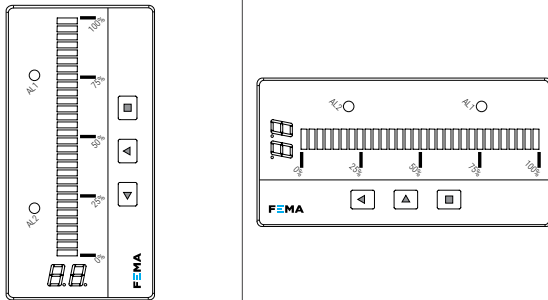
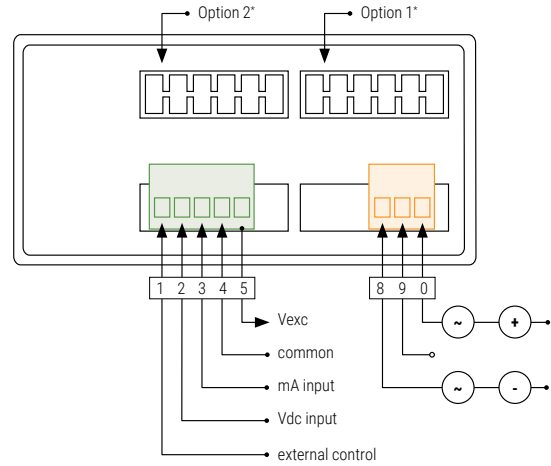


Table 2 | HORIZONTAL AND VERTICAL READINGS



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	
18 to 265 Vac/dc	neutral	n.c.	phase	
	0 Vdc	n.c.	+Vdc	

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