

# M60-LC for load cells



Panel meter for load cells with 4 and 6 wires. Standard 96 x 48 mm (1/8 DIN) size, and 6 digits with 14 mm digit height. Provides excitation voltage to power the load cell, configurable for 5 Vdc and 10 Vdc. Up to 60 samples per second. 'Tare' and 'auto-tare' functions. Universal high and low AC and DC power options. Optional output modules with relay, transistor, SSR control, analog outputs and MODBUS RTU communication.



## Technical specifications

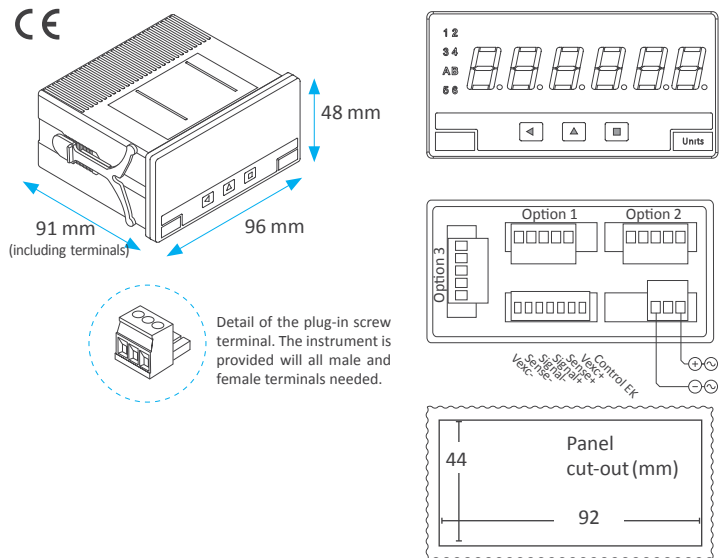
<b>Reading</b>	
digits	6
display	999999 / -199999
decimal point	configurable
led color	red or green
digit height	14 mm
digit type	7 segments
units	labeling 'Units-8' included (see 'Accessories')
<b>Load cells</b>	
types of load cells	1 mV/V, 2 mV/V, 3 mV/V and others
excitation voltage	5 Vdc o 10 Vdc configurable
maximum exc. current	140 mA
maximum Vdc at input	±30 Vdc
number of wires	4 and 6 wire cells
number of cells*	1 to 8 load cells (at 5 Vdc)
	1 to 4 load cells (at 10 Vdc)
	<small>*(for standard 350 Ohms cells)</small>
<b>Measurement</b>	
signal ranges (internal)	100 mV, 30 mV, 20 mV, 15 mV, 10 mV, 5 mV
accuracy at 25 °C	0.05 % FS
thermal stability	50 ppm/°C
input impedance	20 MOhm
acquisitions per second (and alarms update)	16, 50 or 60 acq. / sec. (configurable)
display refresh (and bus and analog output update)	16, 50 o 60 acq. / seg. (configurable)
step response (0% to 99% of signal)	17, 20 or 63 mSec. (configurable)
signal terminals	plug-in screw terminals (3.81 mm pitch)
<b>Output and control options</b>	relays, analog outputs, Modbus RTU, ...
<b>Configuration</b>	by front keypad
<b>External contact</b>	with configurable functions
<b>Power</b>	
power 'H'	85 to 265 Vac / dc (isolated 2500 Veff)
power 'L'	11 to 60 Vdc and 24 / 48 Vac (isolated 1500 Veff)
consumption	<1.5 W (meter only) <4.0 W (meter with output options)
power terminals	plug-in screw terminals (5.08 mm pitch)
power wires	max. 2.5 mm <sup>2</sup> (AWG14)
<b>Mechanical</b>	
front protection	IP65
connections	plug-in screw terminals
weight	<150 grams
mounting	panel
front size	96 x 48 mm (1/8 DIN)
panel cut-out	92 x 44 mm
depth	91 mm (including terminals)
operation temperature	0 to 50 °C
storage temperature	-20 to 70 °C
<b>Packaging</b>	
packing box	paperboard, 15 x 12 x 5 cm

## Order reference

Model	Power	Option 1	Option 2	Option 3	Others
M60 - LC - 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.

## Dimensions and connections



## Additional documentation

M60-LC user's manual	<a href="http://www.fema.es/docs/4506_M60-LC_manual_en.pdf">www.fema.es/docs/4506_M60-LC_manual_en.pdf</a>
M60-LC datasheet	<a href="http://www.fema.es/docs/4508_M60-LC_datasheet_en.pdf">www.fema.es/docs/4508_M60-LC_datasheet_en.pdf</a>
Options user's manual	<a href="http://www.fema.es/docs/4254_SERIES_M-K-S_OPTIONS_manual_en.pdf">www.fema.es/docs/4254_SERIES_M-K-S_OPTIONS_manual_en.pdf</a>

## Functions included

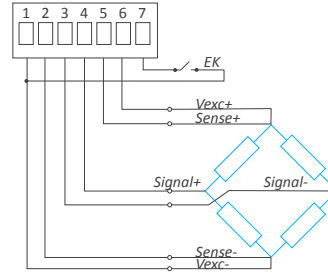
- Function **'Tare'** . . . . . accessible from front key, rear contact, on power-up, and automatic tare
- Function **'Auto-tare'** . . . . . automatic tare for signals close to '0'
- Function **'Maximum tare'** . . . . . prevents tares at values far from '0'
- Function **'Scale factor'** . . . . . scale the reading without reconfiguring the load cell parameters
- Function **'Stock units'** . . . . . function to count the units based on weight
- Modes **'50 and 60 Hz'** . . . . . fast acquisition modes
- Alarms . . . . . activation 'standard' or 'by stability', with one or two setpoints, independent activation and deactivation delays, hysteresis, optional manual unlocking of the relay
- Display filters . . . . . fixed digits, recursive filter, 'steps', left zeros
- Rear control 'EK' . . . . . configure functions to the rear terminal
- Front key 'LE' (◀) . . . . . configure functions to the front 'LE' key
- 'Fast access'** menu (▲) . . . . . a single press on the front keypad gives access to alarm setpoint modification, gross weight, memories, ...
- Function **'On power-up'** . . . . . configure functions to activate at power-up
- Memory . . . . . maximum and minimum reading memories
- Brightness . . . . . 5 levels of brightness intensity
- Password . . . . . blocks access to configuration menu
- Troubleshooting functions . . . . . access to real values for 'mV' signals, real excitation voltage at the cell, and excitation current provided

## Output and control options

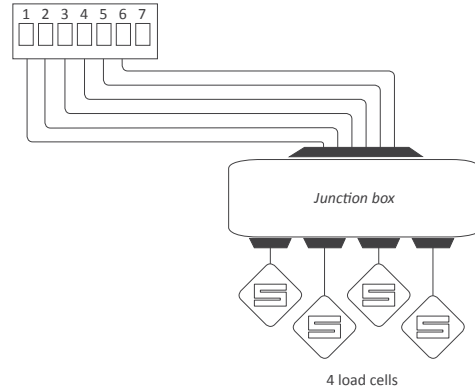


	Function	Installable options	Isolated
R1	1 relay output	3	yes
T1	1 transistor output	3	yes
SSR	1 control for SSR relay	3	yes
AO	1 analog output	3	yes
RTU	1 Modbus RTU port	3	yes
S4	1 RS-485 port	3	yes
S2	1 RS-232 port	3	yes
R2, R4, R6	<i>special modules up to 6 relay outputs. Check for information.</i>		

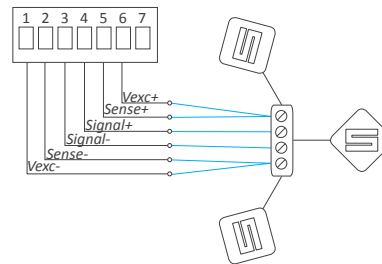
## Connections with 1 load cell



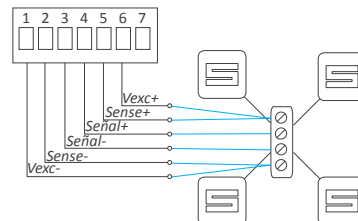
## Connections with 'junction box'



## Direct connection with 3 load cells

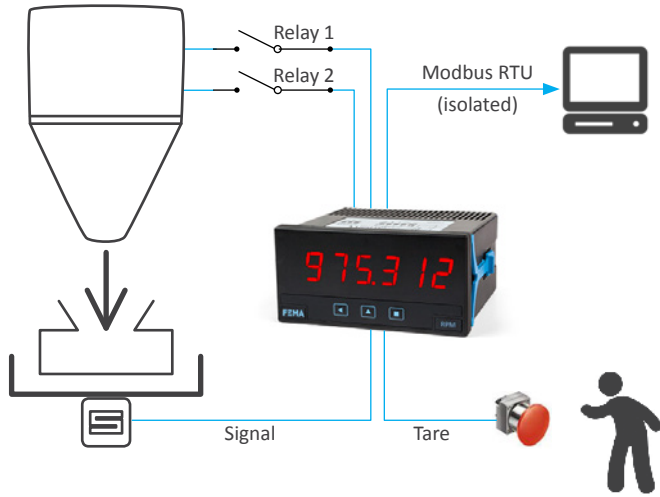


## Direct connection with 4 load cells



## Application example

Bucket filling with material from a silo. Measure and reading of the weight at the bucket, with automatic control for slow filling with relay 1 and final closing of the silo opening with relay 2. The measure is transmitted to a central data for storage and future analysis, via Modbus RTU.



## Other options

### Option NBT



Without front keypad

### Option G



Green leds

## Accessories

### WME



Wall mount

### DRA



DIN rail mount

### THM



Benchtop housing

### KIP



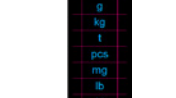
Protection cover

### KA96



Adapter 96 x 96 mm

### Units-8



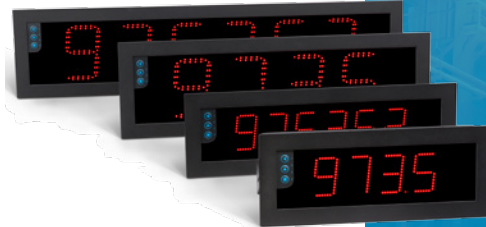
Labelling units  
(g, kg, t, pcs, mg, lb, N, kN)

## Other meters for load cells

### 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



## Other signals



**FEMA**

[fema.es](http://fema.es)