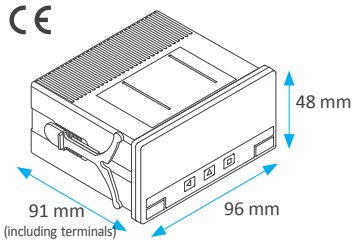
M60-C1 Impulse counter, Ratemeter

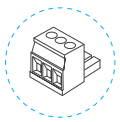
Impulse counter, ratemeter and periodmeter. Reading at 6 digits with 14 mm digit height. Standard 96 x 48 mm (1/8 DIN) size, for panel mount. Accepts all type of impulse signals and encoders. Provides excitation voltage for the sensor. Universal high and low AC and DC power options. Optional output modules with relay, transistor, SSR control, analog outputs and MODBUS RTU communication.

Technical specifications

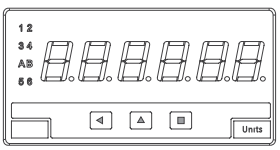
Digits	6
Reading	999999 / -199999
Decimal point	configurable
Led color	red or green
Digit height	14 mm
Signals accepted	NPN, PNP, Namur, pick-up, TTL, inductive, mechanical ,quadrature, ...
Excitation voltage	+5 Vdc, +9 Vdc, +15 Vdc, +18 Vdc (max. 70 mA)
Maximum Vdc at input terminals	±30 Vdc
Quartz accuracy	±0.01 %
Thermal stability	20 ppm/ºC
Display refresh	15 refresh / second
Maximum frequencies	counter up to 250 KHz
	ratemeter and periodmeter up to 500 KHz
Minimum frequencies	ratemeter and periodmeter down to 1 mHz (0.001 Hz)
Power 'H'	85 to 265 Vac/dc (isolated 2500 Veff)
Power 'L'	11 to 60 Vdc and 24/48 Vac (isolated 1500 Veff)
Retransmission and control options	relays, analog output, serial communications, ...
Consumption	<1.5 W (meter only)
	<4.0 W (meter with options)
Front protection	IP65
Connections	plug-in screw terminal
Weight	<150 grams
Mounting	panel
Front size	96 x 48 mm
Panel cut-out	92 x 44 mm
Deep	91 mm (including terminals)
Operating temperature	0 to 50 ºC

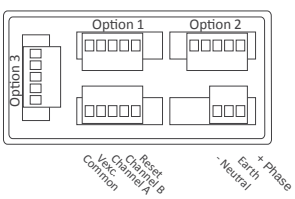
Dimensions and connections





Detail of the plug-in screw terminal. The instrument is provided will all male and female terminals needed.





Order reference

Model	Power	Option 1	Option 2	Option 3	Others
M60 - C1	- H	-	-	-	-

- -H *(85-265 Vac/dc)*
- -L *(11/60 Vdc, 24 Vac, 48 Vac)*

Option 1:
- - R1 *(1 relay)*
- - AO *(analog output)*
- - RTU *(Modbus RTU)*
- - S4 *(RS-485)*
- - S2 *(RS-232)*
- - T1 *(1 transistor)*
- - SSR *(1 SSR control)*
- - *(empty)*

Others:
- - 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.*

Functions included

'**Fast access**' menu ..... a single press on the front keypad gives access to alarm setpoint modification, preset, memories, ...

Function '**SLOW**' ..... special mode for low frequency ratemeter applications

Function '**FAST**' ..... special mode for high frequency counter applications

Scaling factor ..... multiplier and divider from 1 to 999999

Configurable reset..... front and rear reset, and reset linked to alarm activation

Preset..... configurable

Trigger level..... configurable

Function '**Trigger Sense**' ..... help on setting the correct trigger level

Sensor selection..... by menu

Cycle counter ..... count of cycles defined by the 'on alarm reset' function

Retention memory..... recovers the counting value in case of power loss

'**On power-up**' function ..... protects remote systems by delaying the output and control signals at cold start-up.

Alarms ..... with one or two setpoints, independent activation and deactivation delays, hysteresis, optional manual deactivation of the relay.

Inverted relay ..... for security applications

Display filters..... recursive filters for unstable signals

Brightness ..... 5 levels of brightness intensity.

Password ..... blocks access to configuration menu.

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Output and control options

Model	Power	Option 1	Option 2	Option 3	Others
M60 -	C1 -		-	-	-

	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	*special modules up to 6 relay outputs. Check for information.*		

Other options

Option NBT

Without front keypad

Option G

Green leds

Accessories

WME

Wall mount

DRA

DIN rail mount

THM

Benchtop housing

KIP

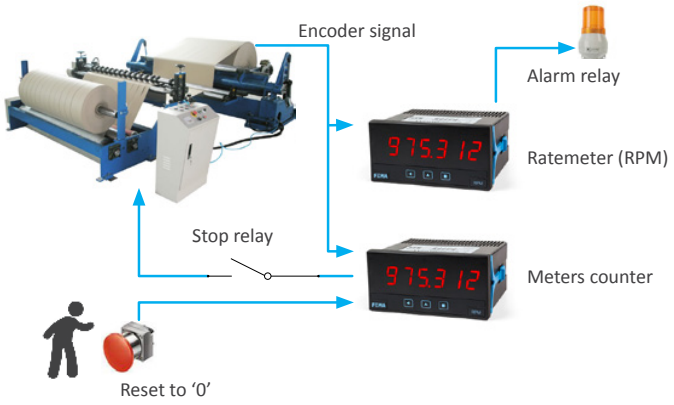
Protector IP65

KA96

Adapter 96 x 96 mm

Application example

Reading of total processed meters on a paper mill. Signal received from a built-in bidirectional encoder at the roller. Operator has a manual reset control to set the counter to '0' at start. A relay output stops the mill when the total desired meters has been reached. A second meter, configured as ratemeter, reads the actual RPM speed of the roller. A relay output controls an alarm signal in case of excessive speed.



Reading distances

Other Counters and Ratemeters

Series M

4, 5 and 6 digits

digit height . . . . . 14 mm
color . . . . . red, green
vision . . . . . 5 meters
size . . . . . 96 x 48 mm

Series K

Further view

digit height . . . . . 20 mm
color . . . . . red
vision . . . . . 8 meters
size . . . . . 96 x 48 mm

Series S

Compact size

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

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