



PM 190

Process Display

- ▶ combined analogue / digital display
- ▶ bargraph display for quick trend recognition
- ▶ digital display for display of exact values
- ▶ cost-effective device for panel mounting

The panel meter PM 190 is used for display and monitoring of linear measuring signals.

Combination of analogue and digital display of measured values unites advantages of both display methods:

- ▶ Analogue - quick recognition of tendencies against limit values and range boundaries also from distant position
- ▶ Digital - quick and precise reading of measuring value in digital notation

Together with our submersible transmitters and screw-in transmitters for example with LMP 307, LMP 308, LMP 808 or LMP 331, the panel meter PM 190 offers a wide range of use.

- ▶ different input signals possible, e.g. 4 ... 20 mA / 2-wire
0 ... 10 V / 3-wire
- ▶ integrated sensor supply
- ▶ linear bar with 100 single segments
- ▶ 4 limit values with relay output
- ▶ high power rating of relay outputs: 5 A / 250 V
- ▶ easy set-up with front keys and digital display

Characteristics



PM 190
Process Display

Analogue input			
Input signal (only one of these can be used)	2-wire:	4 ... 20 mA	$R_i = \text{approx. } 70 \Omega$
	3-wire:	0 ... 20 mA	$R_i = \text{approx. } 70 \Omega$
		4 ... 20 mA	$R_i = \text{approx. } 70 \Omega$
		0 ... 10 V	$R_i = \text{approx. } 1 \text{ M}\Omega$

Limit values	
Limit values	2 minimum and 2 maximum limit values, individually programmable with front keys
Digital outputs	one alarm relay per limit point, with two-way contact (250 V / 5 A) (4 pcs.)

Supply	
Standard	230 V _{AC} , 45 ... 400 Hz, 7 VA, tolerance $\pm 20 \%$
Optional	115 V _{AC} , 45 ... 400 Hz, 7 VA, tolerance $\pm 20 \%$
	24 V _{DC} , 4W _r , tolerance $\pm 20 \%$

Output voltage	
Transducer supply	approx. 24 V / 25 mA
Voltage output for testing purposes	approx. 5 V / 7 mA

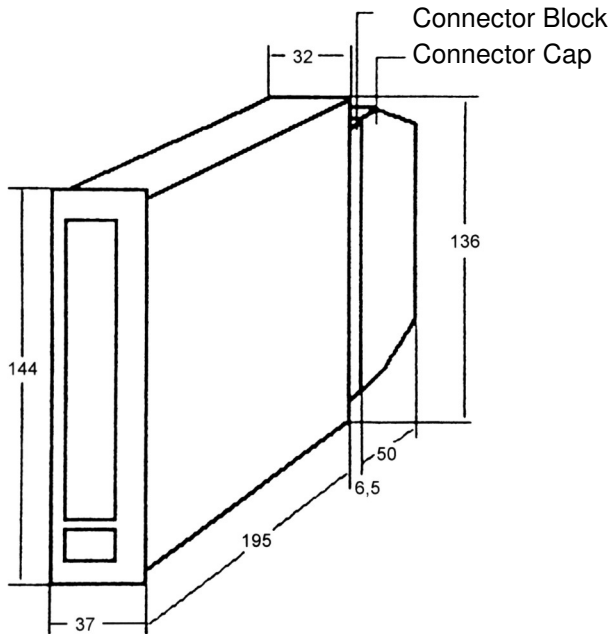
Accuracy	
Standard	0.1 % of displayed value ± 1 digit

Performance	
Measuring method	Dual-Slope-Integration, approx. 30 conversions / sec., resolution 13 bit
Alarm response time	max. 40 ms after passing limit value
Electromagnetic compatibility	emission: EN 50 081-2
	immunity: EN 50 082-2

Calibration and device configuration	
Calibration	the device can be calibrated with front keys or external signal when applying a calibration source of 10 V resp. 20 mA to the inputs
Device configuration	The user can set all programmable parameters. This is done by the control keys and prompted by the digital display. These parameters are stored non-volatile.

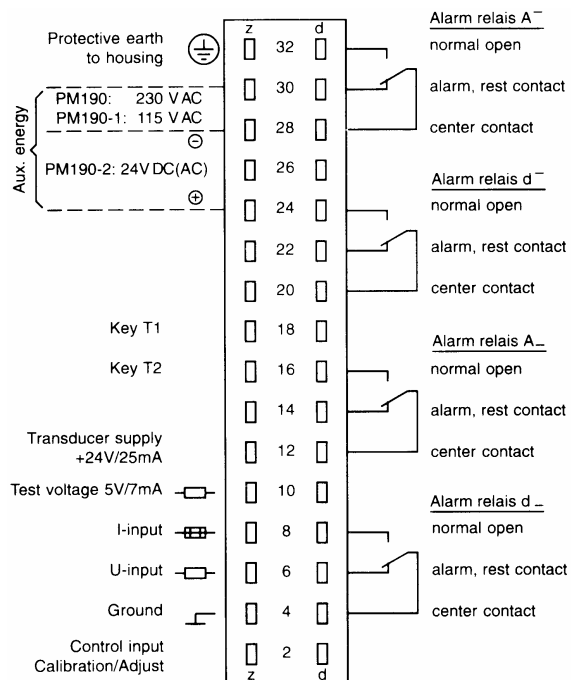
Fluorescent display	
Analogue	semi-analogue bar graph of 100 single elements, total length approx. 84 mm
Digital	3 digits, capacity -1099 up to +1099, indication for 1000 ... 1099 : °00 ... °99
Negative sign	for 1 and 2 digits in first digit position, otherwise determinable from analogue display
Decimal point	programmable, alternatively 000 / 0.00 / 00.0
Over-, underrange indication	special character chain $\overline{\text{m}}/\underline{\text{m}}$ in the digital display when actual value is larger than +1099 / smaller than -1099
Range of digital values	digital display programmable for 0(4) mA resp. 0 V (offset), and for 20 mA resp. 10 V (full scale)
Standard scale	0 to 100; white figures on black background

Dimensions



compact panel meter in sheet-steel case for panel mounting, frame 36 × 144 mm (W × H), mounting depth 200 mm, panel break through acc. to DIN 43700, 33 + 0.6 × 138 + 1.0 mm (W × H)

Electrical connection



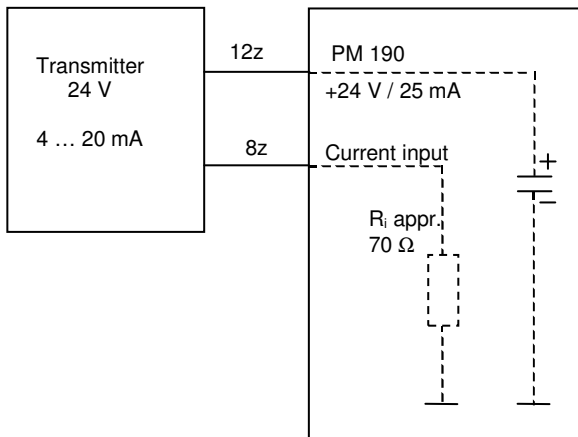
32-pin male connector, DIN 41612, design F

Miscellaneous

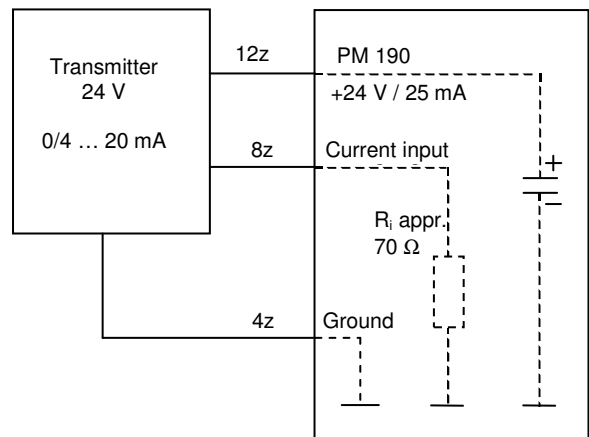
Protection class	Protection Class I according to IEC 348, VDE 0411
Fuse	Supply: 230 V _{AC} and 115 V _{AC} : fuse T 0.1 A / 250 V 24 V _{DC} : fuse T 0.5 A / 250 V

Wiring diagrams

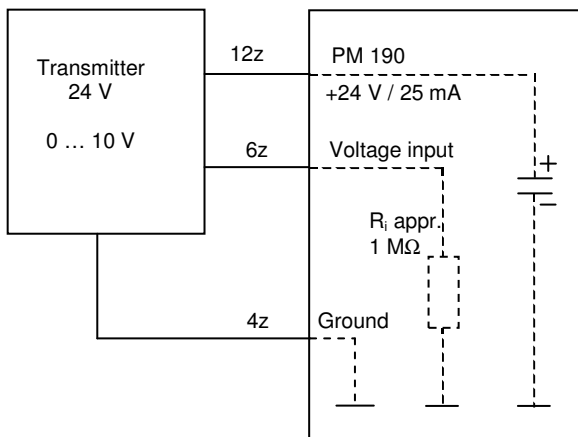
2-wire-system: 4 ... 20 mA



3-wire-system: 0/4 ... 20 mA



3-wire-system: 0 ... 10 V



This data sheet contains product specification, properties are not guaranteed. Subject to change without notice.

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Ordering Code PM 190

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Power Supply		
220 VAC / 50 Hz	5	1 0
115 VAC / 50 Hz	5	1 1
24 VDC	5	1 2
Electrical connections 32-pin (acc. to DIN 41612)		
(A) 32-pin female connector with soldering terminals		1
32-pin female connector with screw-terminals (wire cross section max. 1.5 mm ²)		6
Customer Scale		
no		1
yes		2



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