

LOOP POWERED PROCESS INDICATOR

Model 250A



Overview

The Model 250A Programmable Process Indicator accepts a 4-20 mA signal from a wide range of transducers such as pressure or temperature transmitters, weigh scales, pH sensors, flowmeters or level transmitters. The Indicator will display the signal level on the bar graph and the scaled process variable on the large numeric display.

Solid state relay outputs provide up to four level alarms and a 25 point non-linearity correction table allows the instrument to be programmed for non-linear signals.

The Process Indicator is powered entirely from the 4-20 mA current loop and, therefore, requires no external power or batteries.

The instrument is fully programmable with setup parameters such as span, offset, alarm levels, etc, stored in a non-volatile memory which will retain all data for more than 10 years without power.

The Model 250A is housed in an attractive IP67 (Nema 4X) polycarbonate enclosure which is completely watertight.

A wall mounting bracket is supplied as standard, while a 2" pipe mounting bracket is available as an option.

Alternatively, the Model 250A can be supplied as a panel mount instrument.

Display

Signal bar graph

Displays measured signal as a percentage (0-100%).

Process Variable

7 digit numeric display of the process variable. This is calculated from programming the span, zero offset and non-linearity correction, if applicable.

The process variable is displayed with 4 1/2 digit resolution so that larger values are displayed with trailing zeros (for example, 1437765 would be displayed as 1437700 and 5467289 would be displayed as 5467000).

Filter

A programmable filter will smooth out fluctuations in readings.

Relays

Type

Four solid state opto-isolated dc relays arranged as high-high, high, low and low-low.

An optional DIN rail mounted relay module is available which incorporates mains operated relays.

Acknowledgement

Alarms can be programmed for continuous operation or for an Acknowledge mode of operation where the Display key is pressed to acknowledge and cancel the relay alarm output.

Normally energised or de-energised relay

Relays are programmable to alarm in either mode.

Non-Linearity Correction

A 25 point non-linear correction table can be programmed to handle any non-linear relationship between the signal input and the process variable. Up to 25 points on both the x and y axis can be programmed and the Model 250A will perform linear interpolation between points.

Mains Powered Relay Module

A DIN rail mounted module is available as an option which provides:

- ▶ 24Vdc at 50 mA max for powering the 4-20 mA current loop.
- ▶ Four relays rated at 240V ac, 3A max.

The module is designed such that it can be mounted remotely from the Model 250A, but easily wired to the instrument.

Intrinsic Safety

The Model 250A is certified as intrinsically safe to European ATEX standards, and CSA_{US/IC} standards covering both the USA and Canada.



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Specifications Model 250A

General

Display	LCD
Signal	20 segment bar graph
Signal Span	0...100% proportional to input signal For non-inverting signals 0% is 4mA and 100% is 20mA For inverting signals 0% equals 20mA and 100% is 4mA
Process Variable	7 digits with 12mm (0.48") high digits on the LCD. The process variable is displayed with 4 1/2 digit resolution and trailing zeros
Process Span	The process span is programmable in the range of 0.001...9,999,999 and can be any unit of measure
Process Zero	The process zero is programmable in the range of 0.000...9,999,999.
Decimal Points	Decimal point position for contents is programmable in range of 0...3 decimal point places

4-20mA Input

Resolution and Linearity	0.05% of span
Accuracy	0.05% of span @ 25°C 0.1%(typ) of span, full temperature range
Update Time	0.5 second
Connection	Two wire
Voltage Drop	2.5 volts maximum

Alarm / Pulse Outputs

Type	Four open collector outputs suitable for driving DC solenoids or external relays. The outputs provide high, high-high, low and low-low flow alarms
Switching Power	200mA. 30Vdc maximum
Saturation Voltage	0.8 Vdc typical across the output in the "on" state
Isolation	Output are separately opto-isolated

Relay and Power Module

The Model RPS24 Relay & Power Module is a DIN rail mounted module that provides a 24 Vdc loop power supply which can be used to power both the transmitter and Model 250A.

In addition, the RPS24 has four electromechanical relays which can be connected directly to the open collector outputs in the Model 250A to provide switchable AC outputs.

Physical

Temperature	Operating temperature: -20°C to 60°C
Dimensions	98mm (3.9") (h) x 152mm (6.0") (w) x 43mm (1.7") deep (cable glands not included)
Protection	Sealed to Nema 4X or IP67 standards
Mounting Options	
Wall	Universal mounting bracket supplied as standard
Pipe	A galvanised metal bracket is available which enables the Model 250A to be attached to a 2" vertical or horizontal pipe
Panel	Supplied with mounting brackets. Terminals accessible from rear. (Note that the panel mount version is not watertight)

Intrinsically Safe Parameters

Type of Approvals	
ATEX	II 2G EEx ia IIB T4
CSA_{US/C}	Class 1, Groups C & D
4-20mA Input	U _i = 28V max I _i = 93mA max P _i = 653mW max
Relay Outputs	U _i = 28V max I _i = 93mA max P _i = 653mW max

Terminal Descriptions

Number		Number	
1	Low-low Alarm (-)	6	Low Alarm (+)
2	Low-low Alarm (+)	7	High Alarm (-)
3	4-20mA (-) Input	8	High Alarm (+)
4	4-20mA (+) Input	9	High-high Alarm (-)
5	Low Alarm (-)	10	High-high Alarm (+)

Important: Specifications are subject to change without notice

Product Codes

250A	.	Loop Powered Process Indicator
Intrinsic Safety	i	Intrinsically safe
		Not intrinsically safe
Enclosure and Mounting	0	Wall Mounting (no glad holes)
	1	Panel Mount
	2	Wall Mounting (Standard glands)
	6	Pipe Mount
Hazardous Approvals	C	CSA US & Canadian Approval
	M	ATEX Approval
	S	SAA Australian Approval
		No Approvals

Typical Part Number: 250A.0C