

# Programmable Process Indicator

## Model 250

### Features

- Powered by 4-20mA loop
- Non-linear signal correction
- Four level alarms
- Signal bar graph display
- Intrinsically safe
- Watertight to IP67 (Nema 4X)
- Wall, pipe and panel mounting
- CE Compliant



### Overview

The Model 250 Programmable Process Indicator accepts a 4-20mA 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 4-20mA 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 250 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 250 can be supplied as a panel mount instrument.

# Programmable Process Indicator

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### 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 4½ 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 250 will perform linear interpolation between points.

### Mains Powered Relay Module

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

- 24Vdc at 50mA max for powering the 4-20mA current loop
- four relays rated at 240Vac, 3A max

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

### Intrinsic Safety

The Model 250 is certified as intrinsically safe to European CENELEC standards, and CSA<sub>US/IC</sub> standards covering both the USA and Canada.

## General

<b>Display</b>	LCD.
<b>Signal</b>	20 segment bar graph.
<b>Signal Span</b>	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.
<b>Process Variable</b>	7 digits with 12mm (0.48") high digits on the LCD. The process variable is displayed with 4½ digit resolution and trailing zeros.
<b>Process Span</b>	The process span is programmable in the range of 0.001...9,999,999 and can be any unit of measure.
<b>Process Zero</b>	The process zero is programmable in the range of 0.000...9,999,999.
<b>Decimal Points</b>	Decimal point position for contents is programmable in range of 0...3 decimal point places.

## 4-20mA Input

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

## Alarm/Pulse Outputs

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

## Physical

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

## Intrinsically Safe Parameters

<b>CENELEC Approval</b>	Type Ex ia IIB T4.
<b>CSA<sub>USC</sub> Approval</b>	Type Class 1, Groups C & D.
<b>4-20mA Input</b>	U <sub>i</sub> = 28V max I <sub>i</sub> = 93mA max P <sub>i</sub> = 653mW max
<b>Relay Outputs</b>	U <sub>i</sub> = 28V max I <sub>i</sub> = 93mA max P <sub>i</sub> = 653mW max

## Terminal Description

Terminals for 250	
No.	
1	Low-low Alarm (-)
2	Low-low Alarm (+)
3	4-20mA (-) Input
4	4-20mA (+) Input
5	Low Alarm (-)
6	Low Alarm (+)
7	High Alarm (-)
8	High Alarm (+)
9	High-high Alarm (-)
10	High-high Alarm (+)

*Important: Specifications are subject to change without notice.*

## Relay & 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 250.

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

### Specifications

#### Power Supply Out

24 Volts dc. 50mA maximum.

#### Relays (4)

250 Vac, 30 Vdc max. 3A max.

#### Dimensions

80mm H x 107mm D x 40mm W.  
3.1" H x 4.2" D x 1.6" W.



### Ordering Information

When specifying please indicate model(s) required using the following method.

<b>Model</b>	<b>250i . 2</b>	<b>Mounting</b>
<b>250</b> Standard (non IS) version		<b>1</b> - Panel Mount
<b>250i</b> Intrinsically Safe version		<b>2</b> - Wall Mount
		<b>6</b> - 2" Pipe Bracket
<b>Relay &amp; Power Supply Module</b> (not suitable for IS applications)		
RPS24 A	110 Vac	
RPS24 E	220 Vac	

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