



**Precise Sensors**

*"Defining Higher Expectations"*

# 1/16 DIN Dual Display Process Controller

Model **4222**

## Description

The Model 4222 is a microprocessor-based controller that features 2 input channels and 4 output channels and it can be programmed to perform a variety of control functions in a process-oriented environment. The Model 4222 is ideal for closed-loop process control and actuation based on inputs from pressure sensors, gas cylinder scales, or any sensor with mV, VDC, or mA output signals. With fast 10 Hz sampling, variable time base burst firing outputs, NEMA 4X front panel, and 0.1% calibration accuracy, this controller can easily handle some of the toughest application needs.



**UL916®, C-UL, CE, NEMA**

## Features

- Two (2) large LED 4-digit displays
- Standard feature: 3 relay (Form C outputs)
- 4 front panel keys
- Optional feature: RS-232 or RS-485 type digital output
- Standard feature: Universal mA or VDC retransmit option
- Multiple set points
- Pluggable output modules
- No dip switches

## Benefits

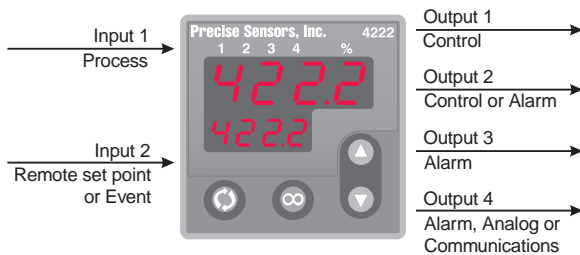
- A secondary display gives the operator a quick glance of the setpoint
- SPDT relay facilitates simultaneous control from one alarm event
- Easy navigation, user-friendly operation
- Allows interfacing to data acquisition systems or PC's
- Allows for sending an analog signal that can serve as an input signal to a second controller or device
- Flexible automatic control
- Field expandable
- Easily configurable from the front panel

# Model 4222 Specifications

## CONTROLLER

- Microprocessor-based, user selectable control modes
- Universal input 1, auxiliary input 2, 4 outputs
- Input sample period; Single input 10Hz (100 msec), dual input 5Hz (200 msec) adjustable digital filter
- Display update; 2Hz (500 msec), adjustable digital filter
- Output update; burst, 0.1 to 999.9 seconds
- Input/Output/Communication isolation

## Features



## INPUTS

### Process Input 1

- Range selectable: 0-10VDC, 0-5VDC, 1-5VDC, 0-50mV, 0-20mA, 4-20mA,
- Voltage input impedance 20k $\Omega$
- Current input impedance 100 $\Omega$
- Minimum current source resistance 1M $\Omega$
- Input resolution 50,000 bits (approx.) at full scale
- mV input impedance 20M $\Omega$

### Input 2

#### Event Input

- Contact or voltage
- 20K $\Omega$  input impedance
- Voltage input: event high state 3 to 36VDC, event low state 0 to 2VDC
- Resistance/contact input: event high state > 23k $\Omega$ , event low state 0 to 2k $\Omega$

### Remote Set Point Input: mA or DC Range Selectable

- Voltage input impedance 20k $\Omega$
- Current input impedance 100 $\Omega$

## OUTPUT TYPES

### Open Collector/Switched DC

- Open collector configuration:
  - Maximum voltage 42VDC
  - Maximum current 200mA
  - Maximum "on" resistance 0.15 $\Omega$
  - Maximum offstate leakage current 100 $\mu$ A
- Switched DC configuration:
  - Switched DC supply voltage 22 to 28VDC
  - DC supply current limited to 30mA

### Solid-state Relay

- Optically isolated
- Zero cross switched
- Without contact suppression
- Minimum load current 0.5mA rms
- Maximum current 0.5A rms at 20 to 280VAC
- Maximum offstate leakage current 10 $\mu$ A rms
- For resistive loads only, must use RC suppression for inductive loads

### Electromechanical Relay

- Form C contact configuration
- Minimum load current 10mA @ 5VDC
- Rated resistive and inductive loads: 2A @ 250VAC or 30VDC maximum (for resistive loads only, must use RC suppression for inductive loads)
- Electrical life 100,000 cycles at rated current

### Retransmit

- Range selectable: 0-20mA, 4-20mA, 0-5VDC, 1-5VDC, 0-10VDC
- 0 to 10VDC voltage output into a 1000 $\Omega$  minimum load resistance
- 0 to 20mA current output into an 800 $\Omega$  maximum load resistance
- Resolution:
  - DC ranges = 2.5mV nominal
  - mA ranges = 5 $\mu$ A nominal
- Calibration accuracy:
  - DC ranges =  $\pm$ 10mV
  - mA ranges =  $\pm$ 20 $\mu$ A
- Temperature stability 100ppm/ $^{\circ}$ C

## COMMUNICATIONS

- EIA/TIA-485 or EIA/TIA-232
- Opto-isolated
- Modbus™ RTU protocol
- 1200, 2400, 4800, 9600, 19200 baud rates
- 32 maximum units can be connected (with additional 485 repeater hardware, up to 247 units may be connected)

## ACCURACY

- Voltage input ranges  
Accuracy  $\pm 10\text{mV} \pm 1 \text{ LSD}$  at standard conditions  
Temperature stability  $\pm 100\text{ppm}/^\circ\text{C}$  maximum
- Milli-amp input ranges  
Accuracy  $\pm 20\mu\text{A} \pm 1 \text{ LSD}$  at standard conditions  
Temperature stability  $\pm 100\text{ppm}/^\circ\text{C}$  maximum

## AGENCY APPROVALS

- UL916®, C-UL, CE, NEMA 4X

Modbus™ is a trademark of AEG Schneider Automation.

UL® is a registered trademark of the Underwriter's Laboratories, Inc.

## TERMINALS

- Touch safe
- 22 to 12 AWG

## POWER

- 100-240VAC/DC +10%, -15%; 50/60Hz,  $\pm 5\%$
- 24-28VAC/DC +10%, -15%; 50/60Hz,  $\pm 5\%$
- 7.0VA maximum power consumption
- Data retention upon power failure via nonvolatile memory

## OPERATING ENVIRONMENT

- 32 to 149°F, 0 to 65°C
- 0 to 90% RH, non-condensing
- Storage temperature: -40 to 185°F, -40 to 85°C

## DIMENSIONS

- 1/16 DIN size, front panel:
- 2.050 x 2.050 inches (52.07 x 52.07 mm)

## PANEL CUTOUT

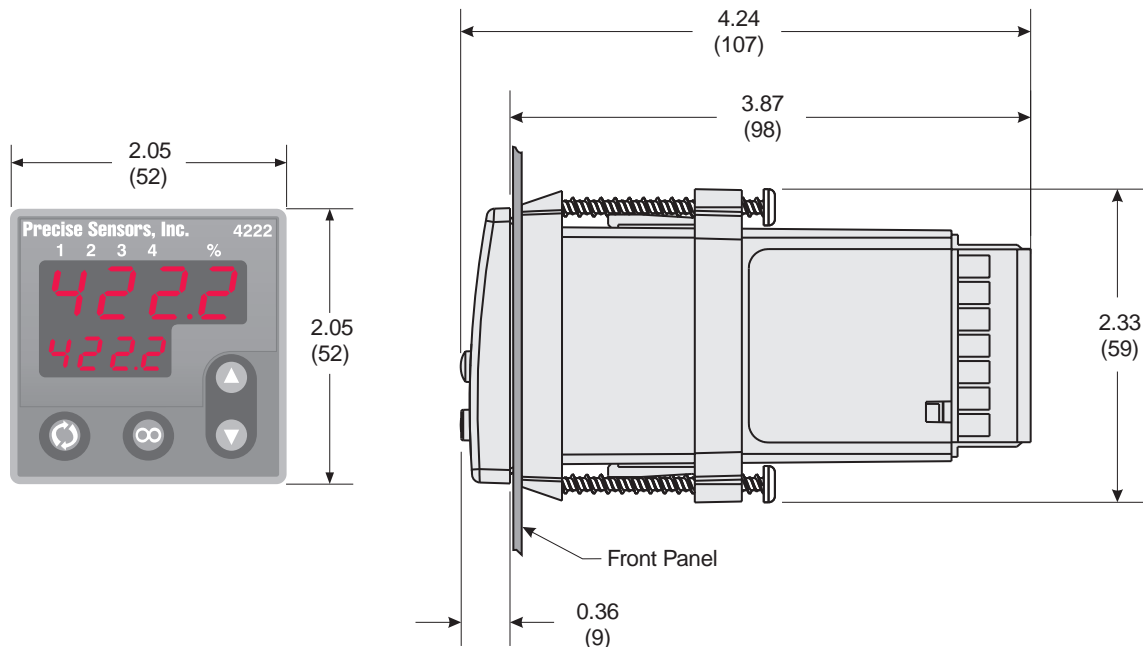
- 1.77 to 1.79 inches square (44.96 to 45.47mm)
- Panel thickness: 0.06 to 0.38 inches (1.5 to 9.7mm)

## Standard Conditions For Specifications

Ambient temperature 77°F/25°C  $\pm 3^\circ\text{C}$ , rated line voltage, 50 to 60Hz, 0 to 90% RH non-condensing, 15 minute warm-up.

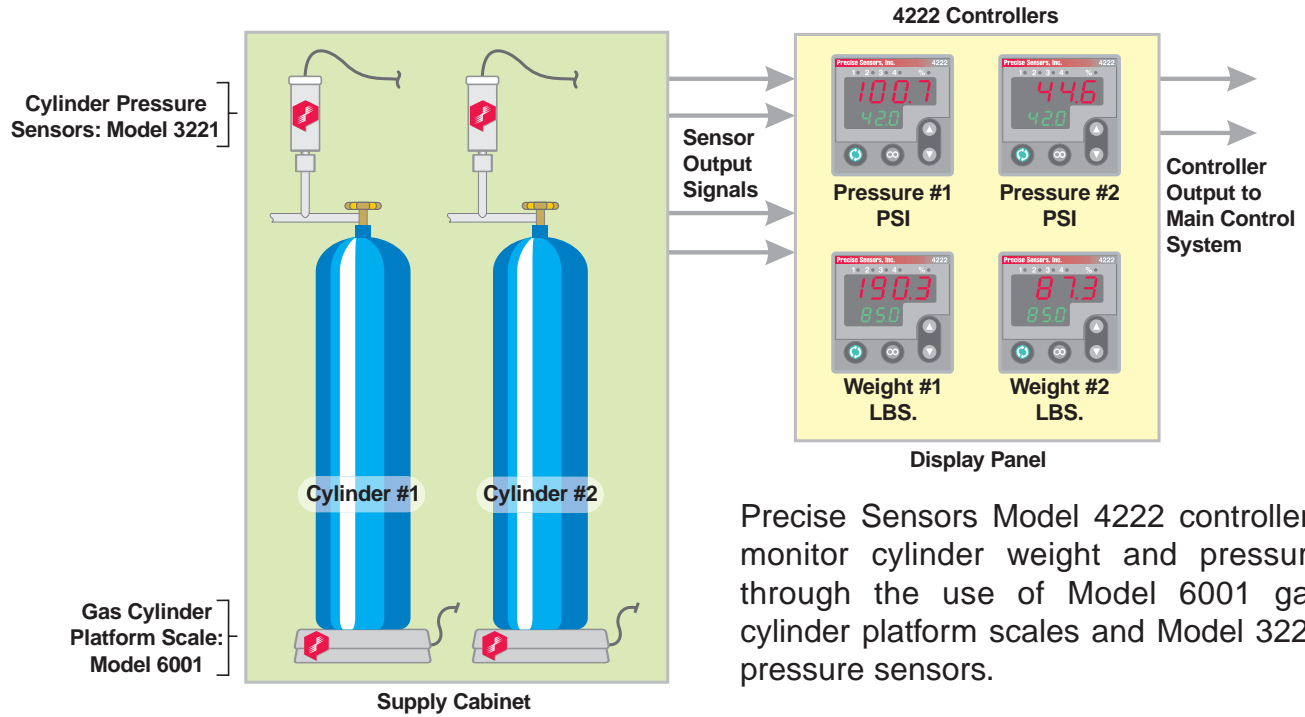
Note: Specifications are subject to change without notice.

## DIMENSIONS:



Note: Dimensions are in inches, millimeters are in ( ).

# Application Example



Precise Sensors Model 4222 controllers monitor cylinder weight and pressure through the use of Model 6001 gas cylinder platform scales and Model 3221 pressure sensors.

## How to order

Example: 4222 - A 1 C A A A

BASIC MODEL NUMBER

POWER SUPPLY

A = 100-240VAC/VDC

B = 24-28VAC/VDC

INPUT 2

0 = None

1 = Event input & 0-5VDC/ 4-20mA (remote set point input)

OUTPUT 1

C = Switched DC / Open Collector

D = Electromechanical relay, Form C, 2A, without RC suppression

K = 0.5A solid-state relay without RC suppression

OUTPUT 2

A = None

D = Electromechanical relay, Form C, 2A, without RC suppression

K = 0.5A solid-state relay without RC suppression

OUTPUT 3

A = None

D = Electromechanical relay, Form C, 2A, without RC suppression

OUTPUT 4

A = None

R = 232 Communications

U = 485 Communications

M = Universal Retransmit, range selectable: 0-20mA, 4-20mA, 0-5VDC, 1-5VDC, 0-10VDC

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