

Rosemount 3490 Series Universal Control Unit

- *Intrinsically Safe power supply to transmitter*
- *4–20mA HART input*
- *Isolated 4–20mA output*
- *Five control relays*
- *Multi-function back lit display*
- *Wall or panel mount*
- *Pre-programmed linearization: volume and open channel flow*
- *Configurable by using the integral keypad*



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Reliable Performance...In Challenging Applications



Wall Mount, IP65 Model Of The
Rosemount 3490 Series Controller Unit



Wall Mount, NEMA 4X Model Of The
Rosemount 3490 Series Controller Unit



Panel Mount Model Of The
Rosemount 3490 Series Controller Unit

OVERVIEW OF THE 3490 SERIES

The 3490 Series of wall and panel mounting control units provide comprehensive control functionality for any 4–20 mA or HART compatible transmitter. A back-lit display gives clear visual indication of the measured value and status of all inputs and outputs.

FEATURES AND BENEFITS

- Tough weatherproof wall mount enclosure for internal and external mounting
- Accepts any 4–20 mA or HART compatible input
- Five voltage-free SPDT relays for alarm and control duties
- Supports two voltage-free contact closure inputs
- 4–20 mA 12-bit isolated current output proportional to calculated value
- Bright local display of measured value and input/output status
- Pre-programmed tank shapes, flow algorithms, and control control routines simplify configuration. A 20-point strapping table facility is provided for non-standard applications
- Real-time clock allows energy saving routines and pump efficiency calculations

Intrinsically Safe Power Supply To transmitter

The 3490 Series is mounted in a non-hazardous area, and provides a protected (intrinsically safe) 24 volts direct current supply to a transmitter in a hazardous area.

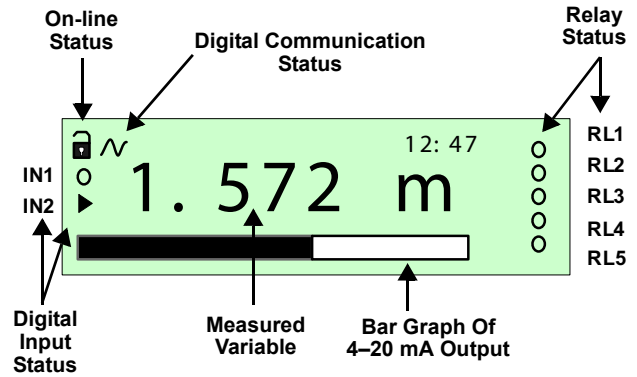
Ideal For Programming And Control Of Rosemount Transmitters

It is ideal for programming and control of Rosemount 3100 Series level and flow transmitters, and Rosemount 3300 Guided Wave Radar level and interface transmitters (*non-explosion-proof only*).

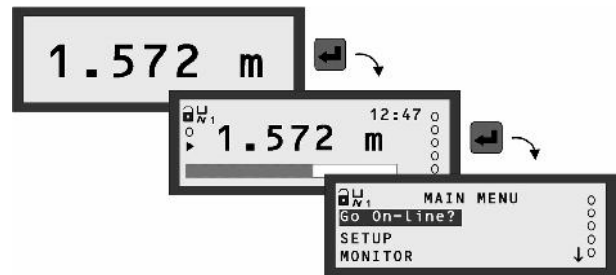
Other HART transmitters can be connected. The 3490 Series recognizes the transmitters as an “unknown instruments” but allows access to programming of Universal and Common Practice HART commands.

SPECIAL FEATURES

- Configured and interrogated using an integral six-button keypad
 - Easy to navigate menu structure
 - Wizard assisted programming, with password protection to prevent unauthorized access
- Many popular configurations are “Wizard assisted”, enabling fast and accurate programming. Typical applications include level, volume, distance measurement, and open channel flow measurement
- The HART digital or 4–20 mA analog signal from the transmitter may be offset, dampened, scaled, and linearized. A range of pre-programmed linearization algorithms are user-selectable
 - The 4–20 mA output signal may be scaled to re-transmit all or just part of the transmitter’s input signal or calculated value
 - Five relays are fully field programmable to perform a variety of control, fault indication, and alarm duties
 - Two digital inputs can be individually set-up to perform various control actions (e.g. raise an alarm) whenever activated



Typical Display Of The Rosemount 3491



Easy To Navigate Menu Structure

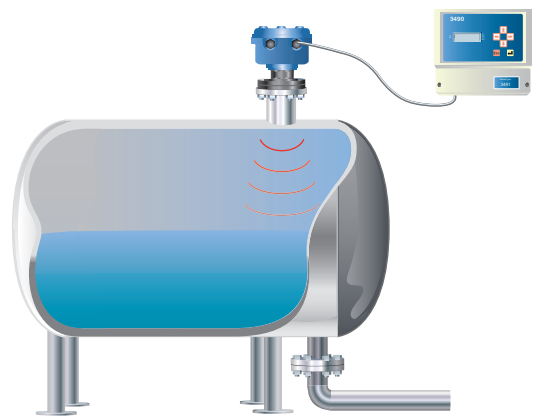
CHOOSING THE RIGHT MODEL

Each model of the 3490 Series has been designed for a specific purpose, as shown below:

TABLE 1. Choosing The Right Control Unit

	Model	Ordering Information
Standard Control Unit	3491	Page 2
Differential Measurement Control Unit	3492	Page 3
Logging Measurement Control Unit	3492	Page 4

- The Standard Control Unit accepts input from one transmitter
- The Rosemount 3492 Differential Measurement Control Unit accepts input from two transmitters and performs sum or differential calculations, providing a single current output proportional to the answer
- The Rosemount 3493 Logging Measurement Control Unit provides on-board logging of the process/primary value (PV), and totalized open channel flow



Level or Volume Measurement With A Rosemount 3490 Series Control Unit And Rosemount 3100 Series Level Transmitter

Rosemount 3491 Standard Control Unit



(Wall Mount, IP65)



(Wall Mount, NEMA 4X)

(Panel Mount)

Rosemount 3491 capabilities include:

- Wall mount or Panel mount versions
- Powers any HART or two wire 4–20mA transmitter
- Backlit LCD three line display
- Simple push button programming
- Wizard programming for Level, Tank volume, and Open Channel flow
- Five SPDT relays, and a 4–20mA output
- Intrinsically Safe (associated equipment) approved UL, CSA, ATEX, and IECEx

Additional Information

Specifications: page 7
 Certifications: page 9
 Dimensions: page 10

TABLE 2. 3491 Ordering Information

★The Standard offering represents the most common models and options. These options should be selected for best delivery. The Expanded offering is manufactured after receipt of order and is subject to additional delivery lead time.

Model	Product Description	
3491	Standard Control Unit	
Signal Output		
Standard		Standard
L	4–20 mA	★
Power Supply		
Standard		Standard
1	115/230 Vac	★
2	24 Vdc	★
Enclosure / Mounting		
Standard		Standard
P6	Wall mounting, IP65	★
P7	Panel mounting	★
P4	Wall mounting, NEMA 4X	★
Product Certificates		
Standard		Standard
I1	ATEX Intrinsically Safe	★
I6 ⁽¹⁾	CSA Intrinsically Safe	★
I7	IECEx Intrinsically Safe	★
I5 ⁽²⁾⁽³⁾	UL Intrinsically Safe	★
Typical Model Number: 3491 L 1 P4 I5		

(1) Enclosure/Mounting codes P4 or P7 are required for this option.

(2) Enclosure/Mounting code P4 is required for this option.

(3) Power supply code 1 is required for this option.

Rosemount 3492 Differential Control Unit



(Wall Mount, IP65)



(Wall Mount, NEMA 4X)

Rosemount 3492 capabilities include:

- Dual HART inputs for Differential level
- Powers any HART or two wire 4–20mA transmitter
- Backlit LCD three line display
- Simple push button programming
- Wizard programming for Level, Tank volume, and Open Channel flow
- Five SPDT relays, and a 4–20mA output
- Intrinsically Safe (associated equipment) approved UL, CSA, ATEX, and IECEx

Additional Information

Specifications: page 7
 Certifications: page 9
 Dimensions: page 10

TABLE 3. 3492 Ordering Information

★The Standard offering represents the most common models and options. These options should be selected for best delivery. The Expanded offering is manufactured after receipt of order and is subject to additional delivery lead time.

Model	Product Description	
3492	Differential Control Unit	
Signal Output		
Standard		Standard
L	4–20 mA	★
Power Supply		
Standard		Standard
1	115/230 Vac	★
2	24 Vdc	★
Enclosure / Mounting		
Standard		Standard
P6	Wall mounting, IP65	★
P7	Panel mounting	★
P4	Wall mounting, NEMA 4X	★
Product Certificates		
Standard		Standard
I1	ATEX Intrinsically Safe	★
I6 ⁽¹⁾	CSA Intrinsically Safe	★
I7	IECEx Intrinsically Safe	★
I5 ⁽²⁾⁽³⁾	UL Intrinsically Safe	★
Typical Model Number: 3492 L 1 P4 I5		

(1) Enclosure/Mounting codes P4 or P7 are required for this option.

(2) Enclosure/Mounting code P4 is required for this option.

(3) Power supply code 1 is required for this option.

Rosemount 3493 Logging Control Unit



(Wall Mount, IP65)



(Wall Mount, NEMA 4X)

Rosemount 3493 capabilities include:

- Powers any HART or two wire 4–20mA transmitter
- Backlit LCD three line display
- Simple push button programming
- Wizard programming for Open Channel flow
- Cumulative and Daily totals, five SPDT relays, and a 4-20mA output
- Integral data logger 7000 flow events
- Intrinsically Safe (associated equipment) approved UL, CSA, ATEX, and IECEx

Additional Information

Specifications: page 7
 Certifications: page 9
 Dimensions: page 10

TABLE 4. 3493 Ordering Information

★The Standard offering represents the most common models and options. These options should be selected for best delivery. The Expanded offering is manufactured after receipt of order and is subject to additional delivery lead time.

Model	Product Description	
3493	Logging Control Unit	
Signal Output		
Standard		Standard
L	4–20 mA	★
Power Supply		
Standard		Standard
1	115/230 Vac	★
2	24 Vdc	★
Enclosure / Mounting		
Standard		Standard
P6	Wall mounting, IP65	★
P7	Panel mounting	★
P4	Wall mounting, NEMA 4X	★
Product Certificates		
Standard		Standard
I1	ATEX Intrinsically Safe	★
I6 ⁽¹⁾	CSA Intrinsically Safe	★
I7	IECEx Intrinsically Safe	★
I5 ⁽²⁾⁽³⁾	UL Intrinsically Safe	★
Typical Model Number: 3493 L 1 P4 I5		

(1) Enclosure/Mounting codes P4 or P7 are required for this option.

(2) Enclosure/Mounting code P4 is required for this option.

(3) Power supply code 1 is required for this option.

Specification

General	
Product	Rosemount 3490 Series Universal Control Unit: 3491 Standard Control Unit 3492 Differential Control Unit 3493 Logging Control Unit
Mounting Styles	Wall mount or panel mount
Power Options	AC Mains or DC
Display	
Type	Dot matrix LCD, 32 x 122 pixels, back lit
Location	Integrated into enclosure
Indicators	Red LED for health status
Electrical	
AC Mains Power Supply Input	115 or 230 Vac $\pm 10\%$ (switch selectable) Power consumption: 10 VA nominal, 18 VA maximum Fuse: 200 mA(T), 5 x 20 mm, 250 V
DC Power Supply Input	15 to 30 Vdc, 30 Vdc maximum Power consumption: 9 W maximum
Current Input	4–20mA (Earth referenced in control unit) or HART digital communications (Rev. 5) (Supplies 23 volts from 400 Ohm source resistance)
Trigger Inputs	2 voltage-free contact closures
Current Output	Signal range (nominal): 4–20 mA Output range (linear): 3.8 to 20.5 mA (Alarm current of 3.6 mA, 21 mA, or 22.5 mA user-selectable) or 3.9 to 20.8 mA (Alarm current of 3.75 mA, or 21.75mA user-selectable) Load: Rmax is 1 K Ohm Resolution: 12-bit Regulation: < 0.1% over load change from 0 to 600 Ohms Isolation: Isolated from other terminals to 500 Vdc Update rate (software): 5 times per second
Relays	5 x SPDT, 5 A at 240 Vac
Cable Entry	IP-rated wall mount enclosure: 5 positions pre-drilled, 2 glands and 3 blanking plugs supplied NEMA-4X-rated wall mount enclosure: Positions require drilling by user, glands/conduits and blanking plugs are not supplied Panel enclosure: Direct wiring to terminal blocks at rear
Cable Connection	Wall mount enclosure: Cage clamp terminal blocks in separate terminal compartment Panel mount enclosure: 2-part cage clamp terminal blocks at rear
Mechanical	
Materials Of Construction (Wall Mount)	Polycarbonate enclosure and cover IP-rated wall mount: 304SST cover fixing screws NEMA-4X-rated wall mount: Polyester and Alloy 400 fastening UV resistant Polycarbonate membrane keypad Nylon cable glands and blanking plugs (IP-rated wall mount version only)
Materials Of Construction (Panel Mount)	Noryl PPO enclosure and cover Carbon Steel / Zinc plated fascia fixing screws UV resistant Noryl PPO membrane keypad Nylon + PBT terminal blocks with plated fittings
Dimensions	See Dimensional Drawings on pages 10 to 12
Weight	IP-rated wall mount: 1.4 kg (mains unit) or 1.0 kg (DC unit) NEMA-4X-rated wall mount: 3.5 kg (mains unit) or 3.1 kg (DC unit) Panel mount 1.2 kg (mains unit) or 0.8 kg (DC unit)

Rosemount 3490 Series

Product Data Sheet
00813-0100-4841, Rev CA
November 2010

Environment	
Ambient Temperature ⁽¹⁾	-40 to 55 °C (-40 to 131 °F)
Relative Humidity	Wall mount: 100% Panel mount: 90% non-condensing
Electrical Safety	EN61010-1
Ingress Protection	IP-rated wall mount: IP65 indoor/outdoor. NEMA-4X-rated wall mount: NEMA 4X indoor/outdoor. Panel mount: IP40 indoor mount (or IP65 if with optional hood)
Vibration	Control Room: 0.1 to 9 Hz 1.5 mm displacement peak amplitude / 9 to 200 Hz 0.5 g
Installation Category	III : Supply voltage < 127Vac (IEC60664) II : Supply voltage < 254Vac (IEC60664)
Pollution Degree	2 (IEC60664)
Maximum Altitude	2000 m
Electromagnetic Compatibility	Emissions and Immunity (for IP-rated wall mount and panel mount): EN61326-1:2006
Certifications	CE-mark, ATEX, IECEx, CSA, or UL (dependent on order code)

(1) See Product Certifications on page 9 for approval temperatures ranges.

Product Certifications

European Directive Information

The EC declaration of conformity for all applicable European directives for this product can be found on the Rosemount website at www.rosemount.com. A hard copy may be obtained by contacting your local sales office.

ATEX Directive (94/9/EC)

Complies with the ATEX Directive

Low Voltage Directive (2006/95/EC)

EN61010 Part 1: 2001

Pressure Equipment Directive (PED) (97/23/EC)

The Rosemount 3490 Series is outside the scope of PED Directive

Electro Magnetic Compatibility (EMC) Directive

EN61326-1: 2006

CE-mark

The Rosemount 3490 Series complies with EMC, ATEX, and LVD directives

Restriction of Hazardous Substances (ROHS)

The Rosemount 3490 Series is exempt

Hazardous Locations Certifications

ATEX Intrinsicly Safe Approval

- I1** Certificate Numbers:
SIRA 06ATEX7128 (Wall Mount),
SIRA 06ATEX7129X (Panel Mount)
Intrinsicly Safe for II(1) G D,
[Ex ia] IIC, [Ex ia Da] IIIC
Ambient Temperature: -40°C to +55°C
Uo = 27,3 V, Io = 96,9 mA, Po = 0,66 W,
Li = 0,22 mH, Ci = 0,6 nF

Special conditions for safe use (Certificate SIRA 06ATEX7129X):

- Terminal 30 must be earthed in the safe area to a high integrity earth.

Underwriters Laboratories Inc. (UL) Intrinsicly Safe Approval

- I5** Project IDs: E308780, E308781
Intrinsicly Safe for:
Class I, Division 1, Groups A, B, C, D
Intrinsicly Safe for:
Class 1, Zone 0, Group IIC
Ambient Temperature: -40°C to +55°C
Control Drawing: 71097/1210
Uo = 27,3 V, Io = 96,9 mA, Po = 0,66 W,
La = 2,26 mH, Ca = 70 nF

Canadian Standards Association (CSA) Intrinsicly Safe Approval

- I6** Project ID: 1834150
Intrinsicly Safe for:
Class I, Division 1, Groups A, B, C, and D
Intrinsicly Safe for:
Class 1, Zone 0, Group IIC [Ex ia]
Ambient Temperature: -40°C to +55°C
Control Drawing: 71097/1201
Uo = 27,3 V, Io = 96,9 mA, Po = 0,66 W,
La = 2,26 mH, Ca = 70 nF

IECEx Intrinsicly Safe Approval

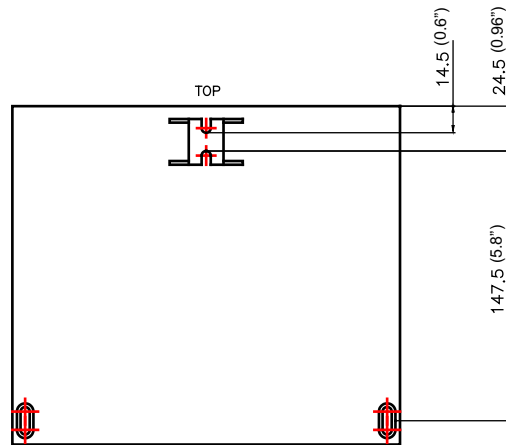
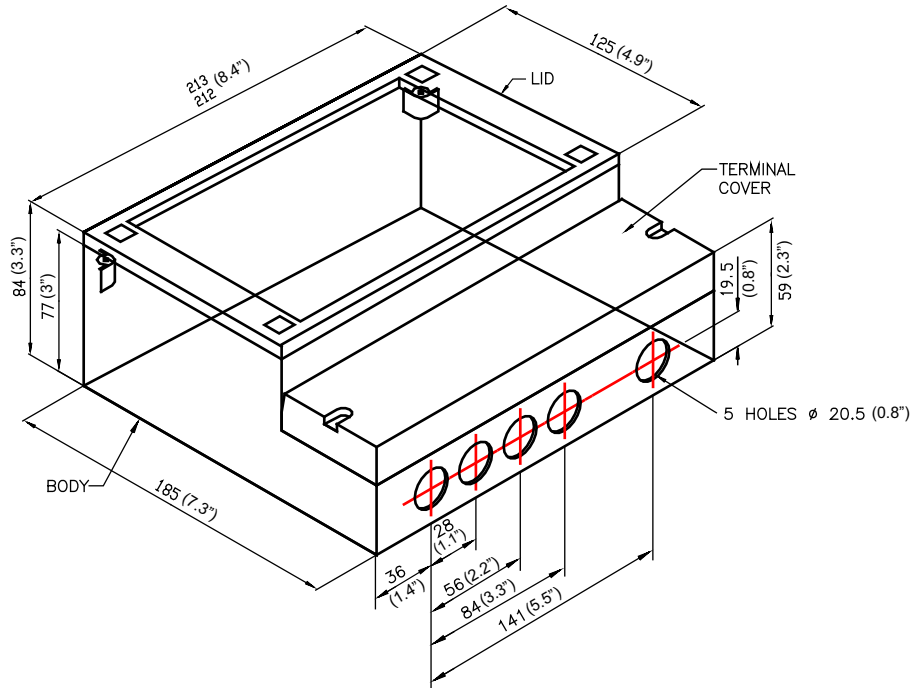
- I7** Certificate Number: IECEx SIR 06.0104X
Intrinsicly Safe for:
Zone 0, 20, [Ex ia] IIC, [Ex iaD 20]
Ambient Temperature: -40°C to +55°C
Uo = 27,3 V, Io = 96,9 mA, Po = 0,66 W,
Li = 0,22 mH, Ci = 0,6 nF

Conditions of Certification (Panel Mount):

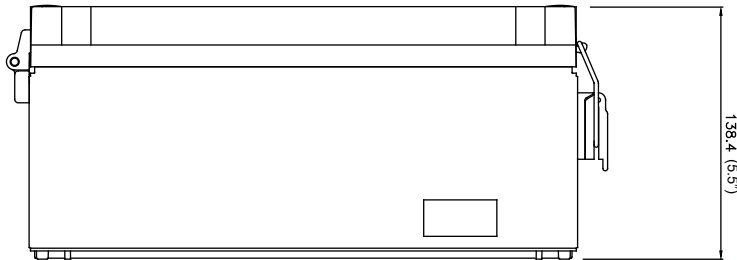
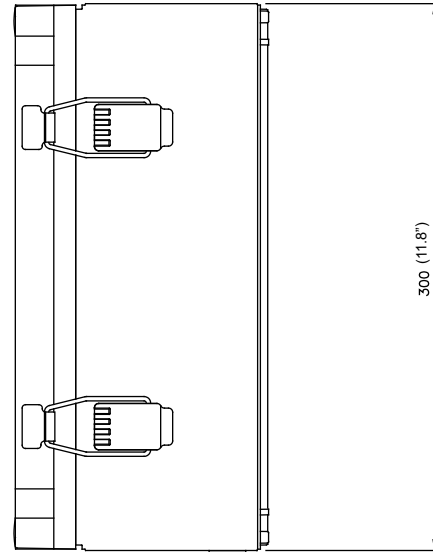
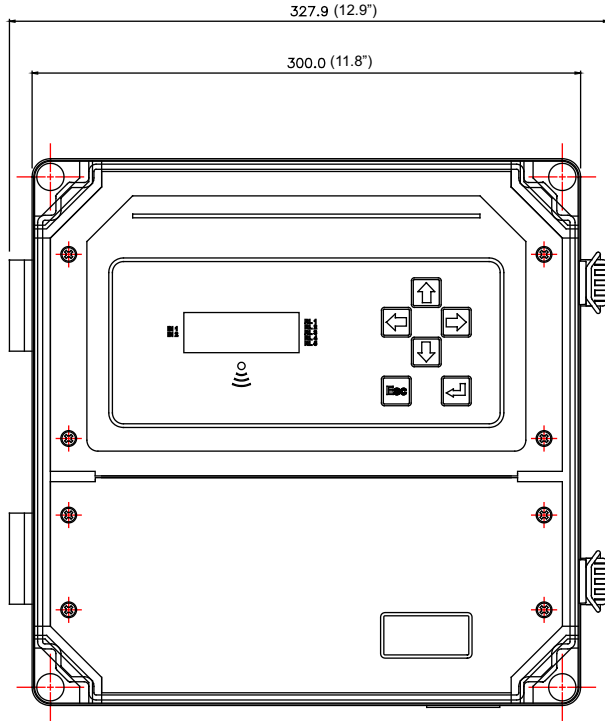
- Terminal 30 must be earthed in the safe area to a high integrity earth.

Dimensional Drawings

Dimensions for IP-rated Wall Mount Box

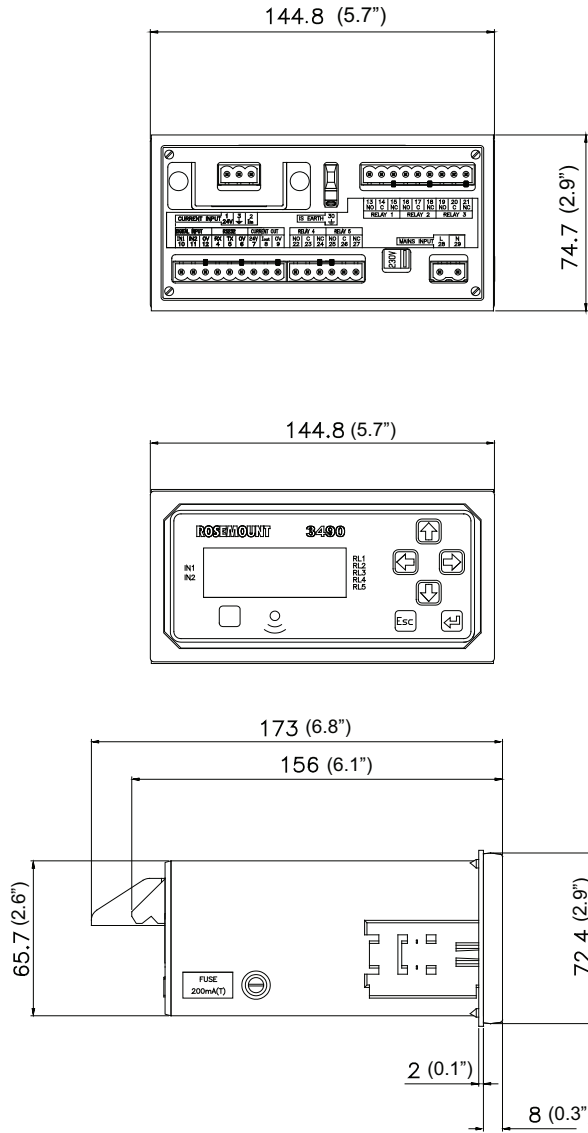


Dimensions for NEMA-4X-rated Wall Mount Box



Rosemount 3490 Series

Dimensions for Panel Mount



Rosemount Level Solutions

Emerson provides a complete range of Rosemount products for level measurement applications.

Vibrating Fork Switches – Point Level Detection

For high and low alarms, overflow protection, pump control, including wide pressure and temperature requirements, and hygienic applications. Flexible mounting. Immune to changing process conditions and suitable for most liquids.

The product line consists of:

- Rosemount 2160 Wireless
- Rosemount 2130 Enhanced
- Rosemount 2120 Full-featured
- Rosemount 2110 Compact

Differential Pressure – Level or Interface Measurement

Flexible mounting for liquid tank levels, including those with wide temperature and pressure requirements. Can be isolated by valves. Unaffected by: vapor space changes, surface conditions, foam, corrosive fluids, internal tank equipment. Optimize performance with direct mount, Tuned-System Assemblies:

- Rosemount DP Level Transmitters and Remote Seals
- Rosemount 3051S_L, 3051L, and 2051L Liquid Level Transmitters

Ultrasonic – Level Measurement

Top mounted, non-contacting for simple tank and open air level measurements. Unaffected by fluid properties such as: density, viscosity, dirty coating, and corrosiveness. Appropriate for routine applications outside of explosion proof areas.

The product line consists of:

- Rosemount 3100 Series Ultrasonic Process Level Transmitters

Guided Wave Radar – Level and Interface Measurement

Top mounted, direct level and interface measurement of liquids or solids, including those with wide temperature and pressure requirements. Unaffected by changing process conditions. Good fit for small spaces and easy swap for older technologies.

The product line consists of:

- Rosemount 5300 Series – Accurate, superior performance transmitter in most applications including process vessels and control
- Rosemount 3300 Series – Versatile and easy-to-use transmitter in most liquid storage and monitoring applications

Non-contacting Radar – Level Measurement

Top mounted, direct level measurement for liquids or solids, including those with wide temperature and pressure requirements. Can be isolated by valves. Unaffected by changing process conditions. Good for dirty, coating, and corrosive applications.

The product line consists of:

- Rosemount 5400 Series – Accurate, superior performance 2-wire transmitters for most liquid level applications and process conditions
- Rosemount 5600 Series – 4-wire transmitters with maximum sensitivity and performance for solids, challenging reactors, rapid level changes, and excessive process conditions

Chambers for Process Level Instrumentation

- Rosemount 9901 – High quality chambers for external mounting of level measurement and control instrumentation on process vessels

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Emerson Process Management Rosemount Measurement

8200 Market Boulevard
Chanhassen, MN 55317 USA
Tel (USA) 1 800 999 9307
Tel (International) +1 952 906 8888
Fax +1 952 949 7001
www.rosemount.com

Emerson Process Management

Blegistrasse 23
P.O. Box 1046
CH 6341 Baar
Switzerland
Tel +41 (0) 41 768 6111
Fax +41 (0) 41 768 6300

Emerson FZE

P.O. Box 17033
Jebel Ali Free Zone
Dubai UAE
Tel +971 4 811 8100
Fax +971 4 886 5465

Emerson Process Management Asia Pacific Pte Ltd

1 Pandan Crescent
Singapore 128461
Tel +65 6777 8211
Fax +65 6777 0947
Service Support Hotline: +65 6770 8711
Email: Enquiries@AP.EmersonProcess.com



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Process Management