

Rosemount™ 3490 Controller



- Field mounted controller with physical buttons and easy-to-read colored display
- Modern user-centered interface design with a focus on ease-of-use for a quick setup
- Accepts 4-20 mA or HART® inputs
- Monitor open channel flows, pump control and level, tank volumes, and differential level
- Connect to intrinsically safe instruments and transmitters in hazardous areas

Introduction

Comprehensive control functionality for water and wastewater applications

The Rosemount 3490 Controller is part of Rosemount’s water and wastewater portfolio, designed to accompany the Rosemount 1208 Level and Flow Transmitters. To match these water and wastewater applications, the controller can be field mounted on either walls or pipes, as well as having a weather protection cover for increased screen visibility and an extra degree of protection in the worst outdoor environments.

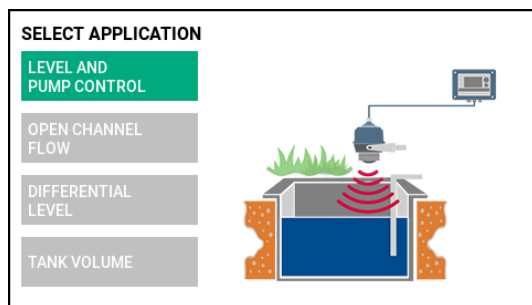
Process performance is optimized by local control and automation through monitored measurement values, totalization, pump control, and calculated variables such as open channel flow measurements. The Rosemount 3490 also allows you to log measured values, easily accessible and shareable through a webserver. Up to two sensor inputs are available for connection of any 4-20 mA or HART® transmitter. To gain full pump operations control, level measurement metrics is used by controlling pumps or alarms through up to six output relays.

Although the controller has been developed specifically for the water and wastewater industry, its versatile functionalities make it applicable within other industries where 4-20 mA or HART transmitters are used.

Simple and user-friendly configuration wizards

The Rosemount 3490 is equipped with step-by-step wizards to guide the user through configuration and setup for the most common applications. The application wizards provide various configuration possibilities and options, such as level measurement, pump control, and flow calculations. All measurements can be totalized, differenced, logged, to then be displayed on the display. The following application wizards are available: Level and pump control, Open channel flow, Differential level, and Tank volume.

Figure 1: Wizard Selection Presented on the Controller Display



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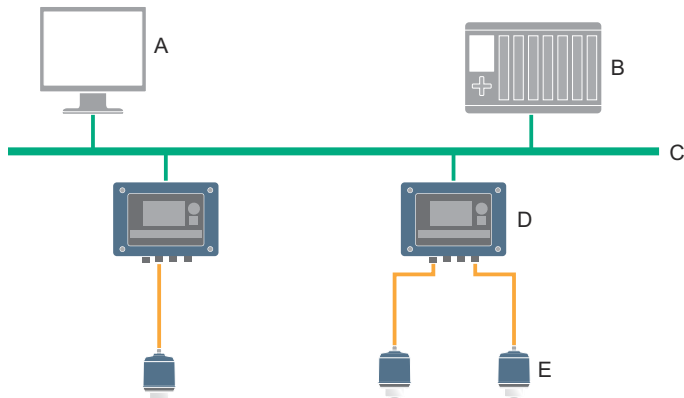
Intuitive user interface and easy-to-navigate menu structure

The controller's user interface has a simple and intuitive design, including a colored LCD display and physical keypad buttons to navigate through the software application. The display serves as an interface for the user to visualize measured values and status of inputs and outputs.

Modbus[®] TCP/IP communication to host

The Ethernet port can be used for Modbus TCP/IP connection to host systems. By simply connecting the controller to the existing LAN network, communication over Ethernet is established. Logged data is easily shared through the controller web interface.

Figure 2: Rosemount 3490 Modbus/TCP Communication to Host

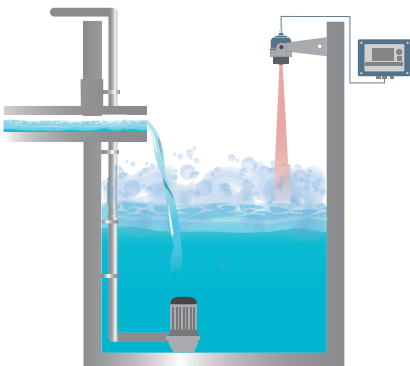


- A. PC
- B. Host
- C. LAN (Local Area Network)
- D. Rosemount 3490 Controller
- E. Rosemount 1208C Level and Flow Transmitter

Application examples

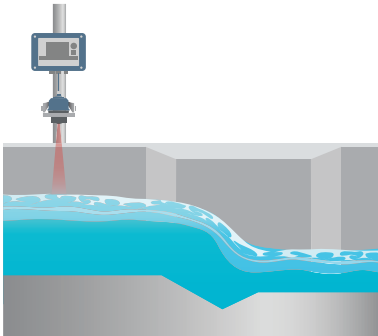
Level and pump control

Pump stations need accurate measurement and control to ensure an optimal water flow to the next stage of the potabilization process, while also avoiding overflows and pumps from dry-running. Level measurement is essential to ensure a sustainable extraction of water and a sufficient supply of water to the next phases of the potabilization process.



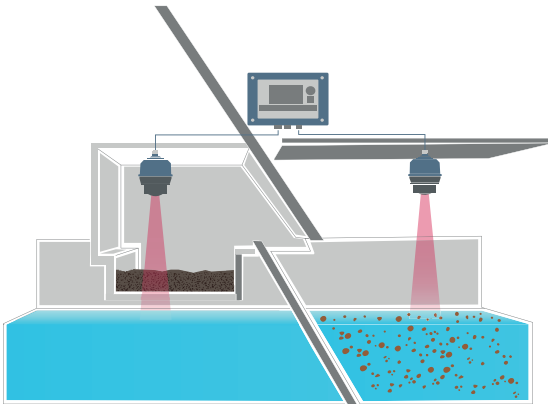
Open channel flow

Open-air channels transport water from a water source to a water plant where it will be processed. Flow monitoring in open channels is important to know the amount of water that is flowing to comply with regulations and avoid flooding.



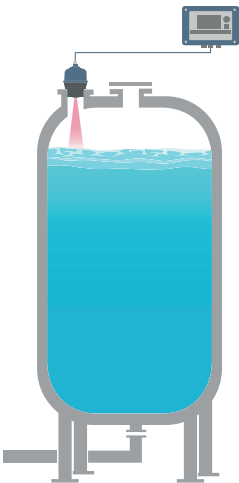
Differential level

In the screening process level measurement is necessary to monitor the level of water in the different parts of the screen, which will determine when to start the cleaning of the sieve.



Tank volume

Storage tanks are used in water processes to store chemical substances, which are needed to treat the water. Level measurement is necessary to monitor, optimize chemical dosing, and avoid overfilling.



Access information when you need it with asset tags

Newly shipped devices include a unique QR code asset tag that enables you to access serialized information directly from the device. With this capability, you can:

- Access device drawings, diagrams, technical documentation, and troubleshooting information in your MyEmerson account.
- Improve mean time to repair and maintain efficiency.
- Ensure confidence that you have located the correct device.
- Eliminate the time-consuming process of locating and transcribing nameplates to view asset information.

Ordering information

Online product configurator

Many products are configurable online using our product configurator.

Select the **Configure** button or visit [Emerson.com/global](https://www.emerson.com/global) to start. With this tool's built-in logic and continuous validation, you can configure your products more quickly and accurately.

Specifications and options

Specification and selection of product materials, options, and/or components must be made by the purchaser of the equipment.

Model codes

Model codes contain the details related to each product. Exact model codes will vary; an example of a typical model code is shown in [Figure 3](#).

Figure 3: Model Code Example

<u>3490 C S M P KL 00 0 0</u>	<u>01 MP WP</u>
1	2

1. Required model components (choices available on most)

Rosemount 3490 Controller



- Provides comprehensive control functionality for 4–20 mA or HART® compatible transmitters
- Modern exterior design with a user-centric interface
- Continuous access to information
- Pipe or wall mounting for easy field installation
- Weather protection cover to increase screen readability in sunlight, rain, hail, and snow

[VIEW PRODUCT >](#)

Required model components

Model

Code	Description
3490	Controller

Inputs and outputs

Code	Description
A	Inputs: 1 x 4-20 mA/HART®, 2 x digital. Outputs: 1 x 4-20 mA, 3 x relays
C	Inputs: 2 x 4-20 mA/HART, 4 x digital. Outputs: 3 x 4-20 mA, 6 x relays

Application

Code	Description
S	Standard

Host communication

Code	Description
M	Modbus® TCP

Housing

Code	Description
P	Engineered polymer

Hazardous location certification

Code	Description
NA	No Hazardous locations certifications
KL	ATEX, IECEx, US, and Canada Intrinsically safe sensor inputs

Local certifications for safe zone

Code	Description
00	None

Extra 1

Code	Description
0	None

Extra 2

Code	Description
0	None

Additional options

Cable/conduit connections

Code	Description
01	3 pcs M20 cable glands + 5 pcs plugs
02	7 pcs M20 cable glands + 5 pcs plugs + 1 pcs M20 gland for RJ45
03	3 pcs M20 cable glands + 5 pcs plugs + NPT adapter (3 pcs ½-in. NPT)

Mechanical installation

Code	Description
MP	Installation kit for wall and pipe mounting

Covers

Code	Description
WP	Weather protection

General specifications

Number of ports

Number of ports depend on selected Inputs and outputs code.

Table 1: Number of ports

Terminal	Number of ports	
	Inputs and outputs code A	Inputs and outputs code C
Sensor input	1	2
Digital input	2	4
Analog output	1	3
Relay output	3	6
Ethernet	1	1

Supported applications

Supported applications depend on selected Inputs and outputs code.

Table 2: Supported applications

Application	Inputs and outputs code A	Inputs and outputs code C
Level and pump control	✓	✓
Open channel flow	✓	✓
Differential level	-	✓
Tank volume	✓	✓

Power supply

Power consumption

Maximum 12 W

Supply voltage

- DC: 24-48 Vdc -15% to +10%
- AC: 100-240 Vac 50/60 Hz -15% to +10%

Fuse

2 A, 350 V

Start-up time

Approximately 40 seconds

Write protection

Yes

Memory card

Built-in memory card for logging function, up to 200.000 data points can be logged.

Update rate (software)

10 Hz

Supported HART[®] transmitters

Supported Rosemount transmitters

- Rosemount 1208C Level and Flow Transmitter
- Rosemount 3408 Level Transmitter
- Rosemount 5408 Level Transmitter
- Rosemount 5300 Level Transmitter
- Rosemount 3300 Level Transmitter
- Rosemount 3100 Level Transmitter

Generic support for HART transmitters

Support for data collection from other HART 5/7 level transmitters in accordance with HART practice

Display

Type

4.3 inch 480 x 272, backlit TFT LCD module color

Output units

- Level and distance: ft., in., m, cm, mm, %
- Volume: ft³, US gallon, imperial gallon, barrel, m³, l
- Flow rate: ft³/s, ft³/min, ft³/h, ft³day, US gallon/min, US gallon/h, US gallon/day, UK gallon/min, UK gallon/h, UK gallon/day, Mega gallon/day, barrel/h, barrel/day, m³/s, m³/h, l/s, l/min, l/h

Keypad

Six buttons; up, down, left, right, back, and enter

Light emitting diode (LED)

One multi-colored LED for health status

Electrical specifications

Relay outputs

Up to six relay outputs

250 Vac 8 A/24 Vdc 8 A resistive load

Analog outputs

Up to three analog outputs

Signal range

4-20 mA

Accuracy

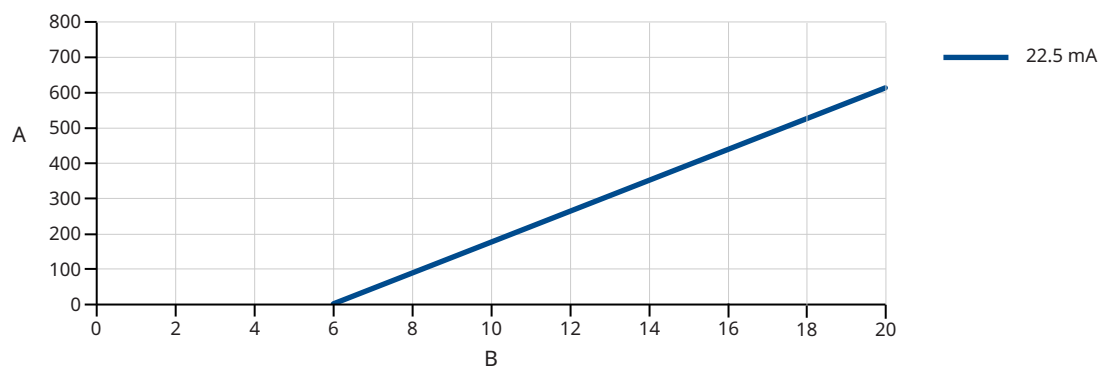
± 0.02 mA (0.1% of 20 mA)

Resolution

12 bit

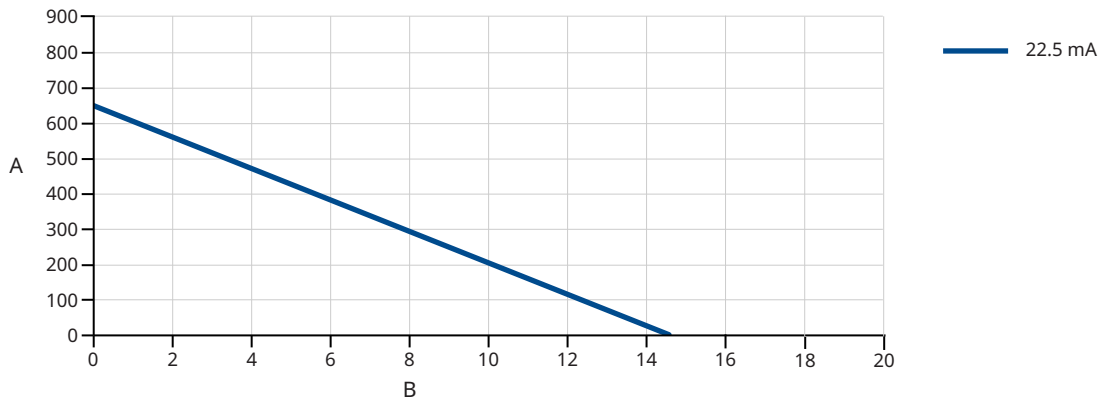
Maximum load

Figure 4: Loop Resistance: Loop Power, Analog Output



- A. Loop resistance [Ω]
- B. Load voltage [V]

Figure 5: Loop Resistance: Internal Power, Analog Output



- A. Loop resistance [Ω]
- B. Load voltage [V]

Power supply out

24 Vdc

Analog signal on alarm

The Rosemount 3490 automatically and continuously performs self-diagnostic routines. If a failure or a calculated value error is detected, the analog signal will be driven offscale to alert the user. The fixed analog signal on alarm is user-configurable.

Table 3: Signal on Alarm

Standard	High	Low
Rosemount standard	21.75 mA	3.75 mA
NAMUR NE43	22.5 mA	3.6 mA

Analog saturation levels

The Rosemount 3490 will continue to set a current that corresponds to the calculated value until reaching the associated saturation limit (and then freeze).

Table 4: Saturation Levels

Standard	High	Low
Rosemount standard	≥ 20.8 mA	≤ 3.9 mA
NAMUR NE43	≥ 20.5 mA	≤ 3.8 mA

Digital inputs

Up to four digital inputs, for use with potential-free contacts

Output voltage

14 V

Output current

6 mA

Sensor inputs

Up to two inputs, isolated from ground, for loop-powered/self-powered 4-20 mA/HART® transmitters

Signal range

4-20 mA

Accuracy

±0.02 mA (0.1% of 20 mA)

Resolution

12 bit

Load limitations

Minimum output voltage is 13.5 Vdc. The maximum loop resistance quoted ensures there will be at least 12 Vdc available at the transmitter.

Table 5: Minimum Terminal Output Voltages

Load current (mA)	Rosemount 3490 terminal voltage (Vdc)	Maximum loop resistance (Ohms)
3.75	20.25	2200
4.0	20.16	2040
20.0	14.32	120
21.75	13.77	81
22.5	13.5	66

Ethernet

Modbus® TCP connection to host system, and/or web interface access for service functions and data log download

- 10/100 Mbps
- RJ45 connector

Isolation

Sensor inputs to other terminals

1.75 kV

Mechanical specifications

Material selection

Emerson provides a variety of Rosemount products with various product options and configurations, including materials of construction that can be expected to perform well in a wide range of applications.

The product information presented is intended as a guide for the purchaser to make an appropriate selection for the application. It is the purchaser's sole responsibility to make a careful analysis of all process parameters (such as all chemical components, temperature, pressure, flow rate, abrasives, contaminants, etc.), when specifying product, materials, options, and components for the particular application. Emerson is not in a position to evaluate or guarantee the compatibility of the process fluid or other process parameters with the product, options, configuration, or materials of construction selected.

Materials

Housing

Polycarbonat Copolymer

Wall and pipe mounting kit

SST 316L

Weather protection

SST 316L

Weight

3.7 lb (1.7 kg)

Cable/conduit entries

- Seven M20 cable entries
- Support plate in stainless steel with M20 threads for cable glands or NPT adapters/conduit hubs

Terminal connection type

Spring loaded terminals

Environmental specifications

Temperature limits

Ambient temperature

-40 to +140 °F (-40 to +60 °C)⁽¹⁾

Storage temperature

-40 to +140 °F (-40 to +60 °C)

Humidity

0 - 100% relative humidity

Electrical safety

EN 61010-1:2010 (LVD)

Ingress protection

- Enclosure meets IP66/IP67 according to IEC 60529
- Enclosure meets Type 4X according to UL50E

Impact protection

Enclosure withstands 7 Joule

Maximum vibration

Vibration according to IEC 61298-3, level "field with general application"

Installation category

Overvoltage category II (according to IEC 60664-1)

Pollution degree

Degree 2 according to IEC 61010-1

(1) Display reading: -4 to +140 °F (-20 to +60 °C).

Metrology sealing possibility

Yes

Transient/built-in lightning protection

Surge

IEC 61000-4-5, 1 kV line-to-line, 2 kV line to ground

Burst

IEC 61000-4-4, 2 kV

Electromagnetic compatibility

Emission and Immunity: EMC directive 2014/30/EU, EN 61326-1

Maximum altitude

6560 ft. (2000 m)

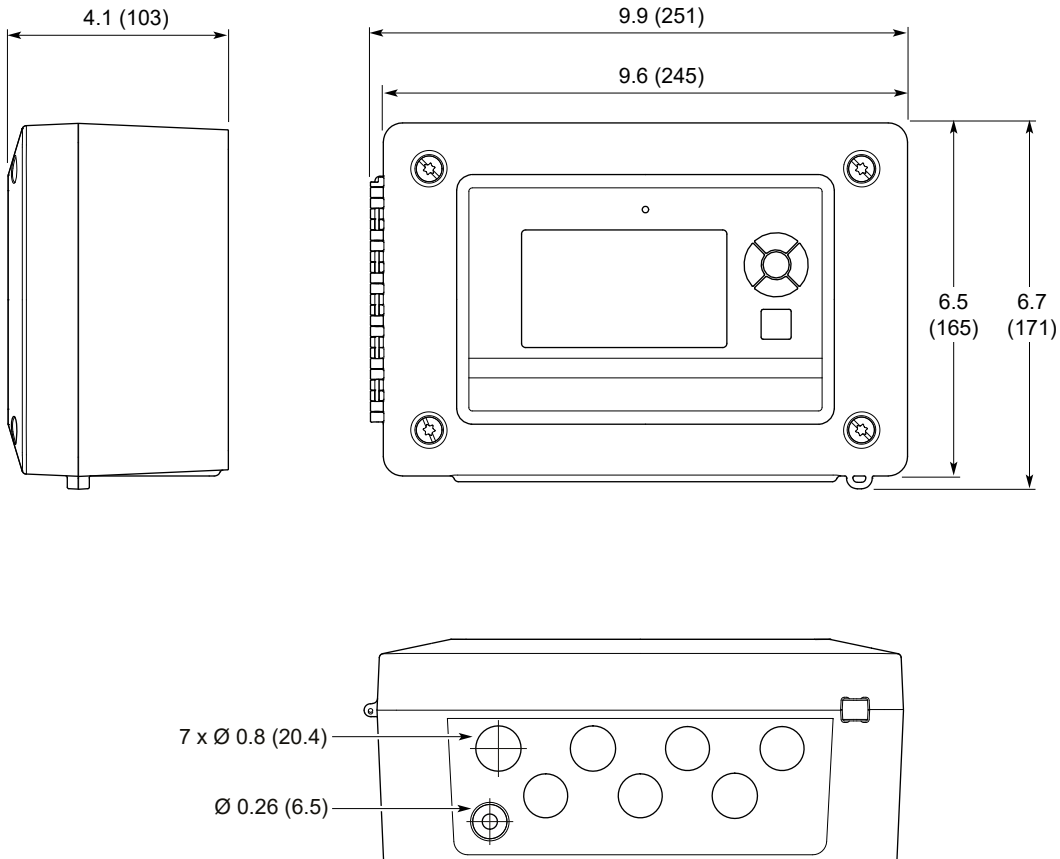
Product certifications

See the Rosemount 3490 [Product Certifications](#) document for detailed information on the existing approvals and certifications.

Dimensional drawings

Controller

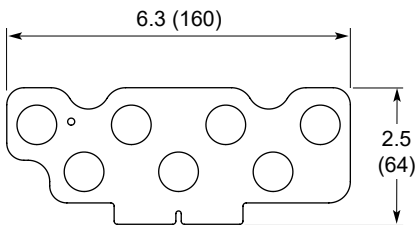
Figure 6: Rosemount 3490



Dimensions are in inches (millimeters).

Support plate

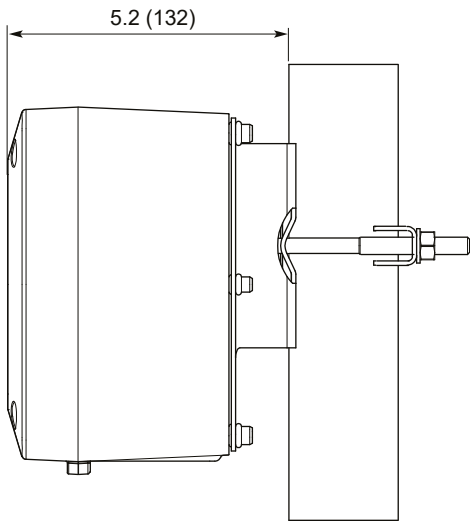
Figure 7: Support Plate



Dimensions are in inches (millimeters).

Wall and pipe mounting kit

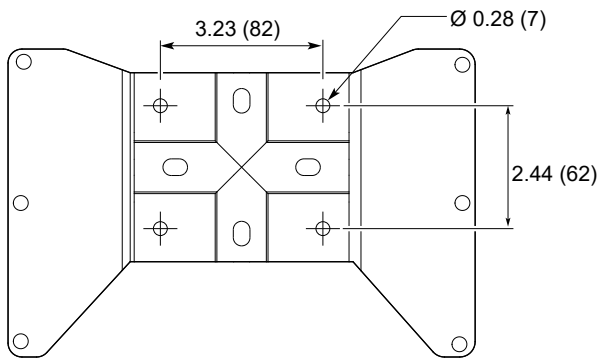
Figure 8: Mounting Bracket



Dimensions are in inches (millimeters).

Bracket hole pattern

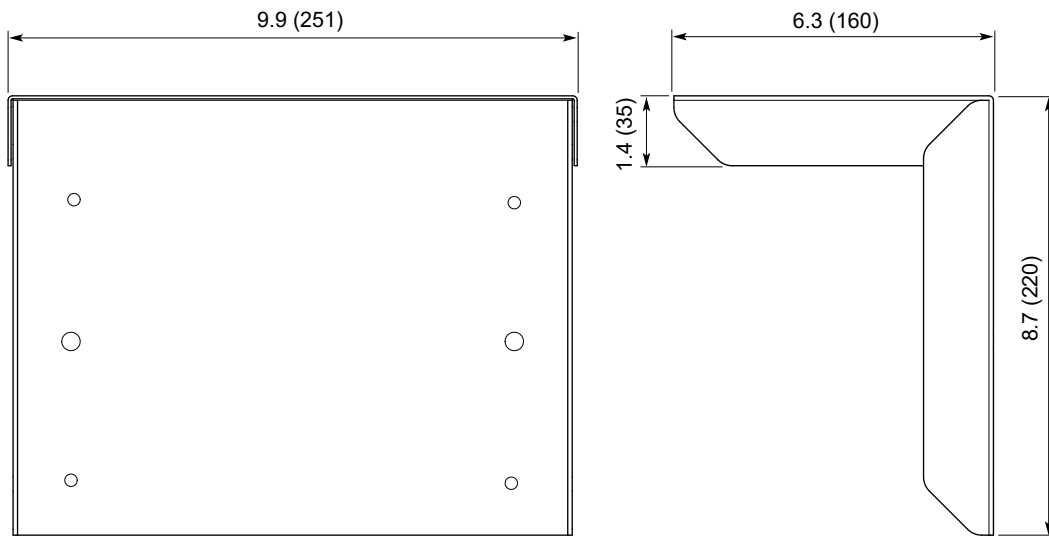
Figure 9: Hole Pattern for Wall Mounting



Dimensions are in inches (millimeters).

Weather protection

Figure 10: Weather protection



Dimensions are in inches (millimeters).

For more information: [Emerson.com/global](https://emerson.com/global)

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