

Net Safety™ Standalone Junction Box



Important Instructions

Net Safety designs, manufactures and tests products to function within specific conditions. Because these products are sophisticated technical instruments, it is important that the owner and operation personnel must strictly adhere both to the information printed on the product nameplate and to all instructions provided in this manual prior to installation, operation, and maintenance.

WARNING

Installing, operating or maintaining a Net Safety Product improperly could lead to serious injury or death from explosion or exposure to dangerous substances. Comply with all information on the product, in this manual, and in any local and national codes that apply to the product. Do not allow untrained personnel to work with this product. Use Net Safety parts and work procedures specified in this manual.

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Section 1: Introduction

1.1 Models covered

This junction box is designed by Net Safety to be used as a termination box for general electrical wiring or for use as an enclosure to house electrical circuits for various electronic or electrical applications. It is available in copper free Aluminum (Al) or 316 Stainless Steel (SS) with optional solid or window cover. The junction box assembly consists of an explosion proof housing with three (3) ¾-in. NPT or optional M20 × 1.5mm conduit entries.

Models available:

- **JB-MPB-A** - Standalone junction box, blind cover, ¾-in. NPT conduit entry, aluminum housing
- **JB-MPB-S** - Standalone junction box, blind cover, ¾-in. NPT conduit entry, stainless steel housing
- **JB-MPW-A** - Standalone junction box, window cover, ¾-in. NPT conduit entry, aluminum housing
- **JB-MPW-S** - Standalone junction box, window cover, ¾-in. NPT conduit entry, stainless steel housing

1.2 Service support

Technical support for this product can be provided by contacting your local Emerson™ Process Management/Net Safety representative or by contacting the Net Safety Technical Support department at +1 866 347 3427 or Safety.CSC@Emerson.com.

1.3 Return of material

To expedite the repair and return of this product, proper communication between the customer and the factory is important. Before returning a product for repair, call +1866 347 3427 or e-mail Safety.CSC@Emerson.com for a Material Return Authorization (MRA) number.

On the return of the equipment, include the following information:

1. MRA number provided to you by Net Safety
2. Company name and contact information
3. Purchase order, from your company, authorizing repairs or request for quote
4. Ship all equipment, prepaid to:
Emerson Process Management
6021 Innovation Blvd.
Shakopee, MN 55379
T +1 866 347 3427
F +1 952 949 7001
Safety.CSC@Emerson.com
5. Mark all packages with as **Return for Repair** and include MRA number

Pack items to protect them from damage and use anti-static bags or aluminum-backed cardboard as protection from electrostatic damage.

All equipment must be shipped prepaid. Collect shipments will not be accepted.

1.4 Product recycling/disposal

Recycling of equipment and packaging should be taken into consideration and disposed of in accordance with local and national legislations/regulations.

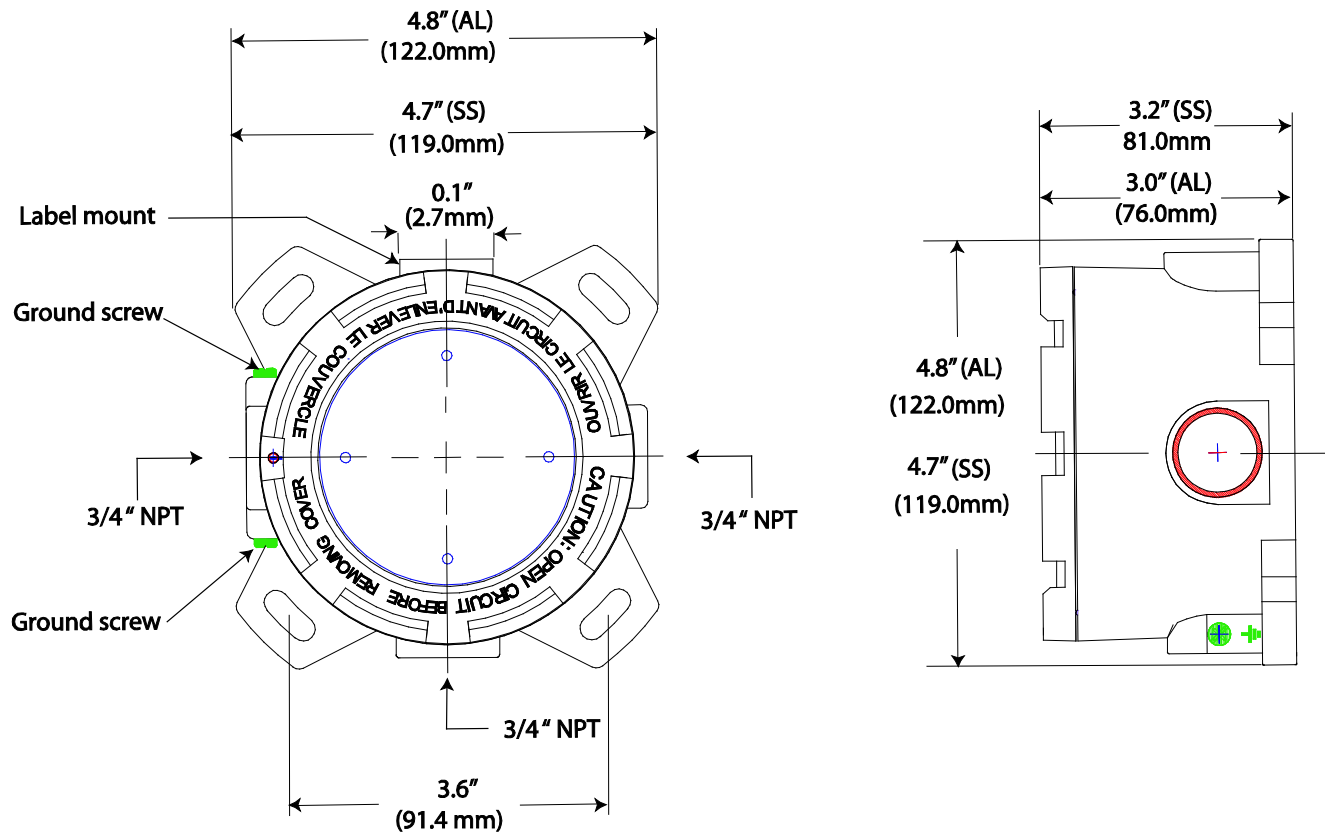
Section 2: Installation

2.1 Unpacking and inspection

Carefully remove all of the components from the packaging and verify them against the enclosed packing list. Inspect all components for any obvious damage such as broken or loose parts. If you find any components missing or damaged, notify your local Net Safety representative or the factory immediately.

2.2 Dimensions

Figure 2-1 Dimensional Drawing



*M20 and 1/2-in. NPT threads also available

2.3 Mounting

Three (3) conduit entries located on the junction box body are available in 1/2 -14NPT, 3/4-14 NPT or M20 x 1.5 mm thread. Connection of conduit, cable glands, sensors or detectors to these conduit entries should be done so by use of tools. Use a 1.5 mm Hex key to tighten the locking Hex screw securing top cover. The junction box has mounting holes for installing directly on a wall or to a pole as desired.

2.4 Wiring

⚠ WARNING

Failure to follow these installation guidelines could result in death or serious injury. Ensure that only qualified personnel perform the installation.

Electrical shock could cause death or serious injury. Use extreme caution when making contact with the leads and terminals.

Do not open the junction box enclosure when in a classified area or when an explosive atmosphere may be present unless the power to the sensor has been removed.

NOTICE

Installation shall be in accordance with the manufacturer's instructions and the National Electrical Code®, ANSI/NFPA 70, the Canadian Electrical Code C22.1, or EN 60079-14, as applicable.

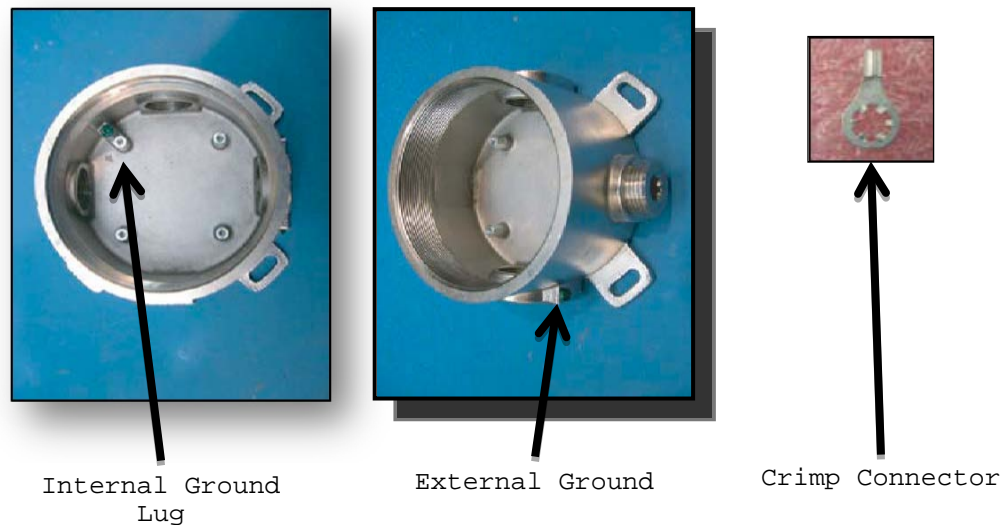
The use of shielded cable is highly recommended to protect against interference caused by extraneous electrical or electromagnetic 'noise'. To meet EN/IEC 61326 EMC requirements, multi-conductor braid shield cable is recommended. Connection of conduit or cable glands should be done so by use of tools.

In applications where the wiring is installed in conduit, the conduit must not be used for wiring to other electrical equipment.

The junction box may be susceptible to ESD. Refer to [Section 3](#) for further information on proper handling of this equipment.

The junction box is equipped with an internal and external ground lug. One crimp connector is provided for each ground lug. On installation, crimp the ground wire to crimp connector and then securely fasten crimp connector to ground lug. See [Figure 2-2](#) below for locations of internal and external grounding lugs.

Figure 2-2 Ground Lug Locations and Crimp Connector



2.4.1 Seals

⚠ WARNING

To fully avoid any environmental exposure, the use of seals is recommended, especially for installations that use high-pressure or steam cleaning devices in proximity to the junction box.

Water-proof and explosion-proof conduit seals are recommended to prevent water accumulation within the enclosure.

Seals should be located as close to the device as possible and not more than 18-in. (46 cm) away; seal all conduits within 18-in. (46cm). Consult local electrical code for specific requirements.

Explosion proof installations may require an additional seal where the conduit enters a non-hazardous area. Ensure conformity with local wiring codes.

When pouring a seal, use a fiber dam to assure proper formation of the seal. Seals should never be poured at temperatures below freezing.

The jacket and shielding of the cable should be stripped back to permit the seal to form around the individual wires. This will prevent air, gas and water leakage through the inside of the shield and into the enclosure.

It is recommended that explosion-proof drains and conduit breathers be used. In some applications, alternate changes in temperature and barometric pressure can cause 'breathing' which allows moist air to enter and circulate inside the conduit. Joints in the conduit system are seldom tight enough to prevent this 'breathing'.

Threaded connections on the enclosure between the housing and conduit pipe need to be sealed with thread tape, such as Teflon tape, or something similar.

The conduit openings are gauged using an L-1 gauge to $+\frac{1}{2}$ to 2 turn tolerance.

NOTICE

Field maintenance or servicing on the junction box is not recommended. If there are any issues, concerns or warranty information required, contact Net Safety.

Section 3: Spare parts and accessories

Part Number	Description
M20R	¾-in. to M20 certified conduit reducer - aluminum
M20R-SS	¾-in. to M20 certified conduit reducer - stainless
CP-AL-002	¾-in. NPT certified conduit plug - aluminum
CP-SS-001	¾-in. NPT certified conduit plug - stainless
UN-MK-31	1-in. pipe mounting bracket (stainless steel)
UN-MK-32	2-in. pipe mounting bracket (stainless steel)
UN-MK-33	3-in. pipe mounting bracket (stainless steel)

Section 4: Electrostatic sensitive device

Definition: Electrostatic discharge (ESD) is the transfer, between bodies, of an electrostatic charge caused by direct contact or induced by an electrostatic field.

The most common cause of ESD is physical contact. Touching an object can cause a discharge of electrostatic energy. If the charge is sufficient and occurs near electronic components, it can damage or destroy those components. In some cases, damage is instantaneous and an immediate malfunction occurs. However, symptoms are not always immediate—performance may be marginal or seemingly normal for an indefinite period of time, followed by a sudden failure.

To eliminate potential ESD damage, review the following guidelines:

- Handle boards by the sides –taking care not to touch electronic components.
- Wear grounded wrist or foot straps, ESD shoes or heel grounders to dissipate unwanted static energy.
- Prior to handling boards, dispel any charge in your body or equipment by touching a grounded metal surface.
- Ensure all components are transported and stored in ESD safe packaging.
- When returning boards, carefully package in the original carton and static protective wrapping.
- Ensure ALL personnel are educated and trained in ESD Control Procedures.

In general, exercise accepted and proven precautions normally observed when handling electrostatic sensitive devices.



Section 5: Specifications

5.1 Electrical

5.1.1 Conduit entries

3 × ¾-in. NPT

5.2 Environmental

5.2.1 Storage temperature

-55 °C to +85 °C (-67 °F to +185 °F)

5.2.2 Operating temperature

-55 °C to +85 °C (-67 °F to +185 °F)

5.2.3 Metallurgy (housing)

Aluminum (AL6061)
Stainless steel (316)

5.2.4 Ingress protection

IP67
Type 4X

5.2.5 Weight

Aluminum: 2.0 lb, 0.8 kg
Stainless steel: 3.5 lb, 1.6 kg

5.3 Warranty

One (1) year after startup or eighteen (18) months after shipment,
whichever comes first

Section 6: Certifications

6.1 North American


6.1.1 Canada

Class I, Division 1, Groups B, C, and D
Class I, Zone 1, Ex d IIB+H₂
Type 4X
IP67

6.1.2 United States

Class I, Division 1, Groups B, C, and D
Class I, Zone 1, AEx d IIB+H₂
Type 4X
IP67

6.2 ATEX

CE 0575  II 2 G Ex d IIB+H₂ Gb
IP67
FM09ATEX0027U
EN 60079-0:2009, EN60079-1:2007

6.3 IECEX

Ex d IIB+H₂ Gb
IP67
IECEX FMG 12.0019U
IEC 60079-0:2011, IEC 60079-1:2007

Special Conditions for Safe Use:

1. Where necessary for safety, the contents of the enclosure shall comply with the appropriate requirements of relevant standards for electrical apparatus.
2. Rotating machines, or other devices which create turbulence, shall not be incorporated.
3. Primary and secondary cells and batteries shall only be used in accordance with Annex E of IEC or EN 60079-1.
4. Enclosures which can be opened more quickly than the time necessary for the discharge of incorporated capacitors or the cooling of hot components shall be labeled in accordance with the requirements of IEC or EN 60079-0.
5. Oil-filled circuit-breakers and contactors shall not be used.
6. All entry or closure devices when fitted shall satisfy the requirements of Clause 5 of IEC or EN 60079-1, or be specifically evaluated with the apparatus and be suitable for the conditions of use. Threads interrupted by the set screw shall not be counted in

satisfying the requirements of Clause 5 of IEC or EN 60079-1. A thread of engagement of ≥ 5 threads is required and depth of engagement ≥ 8 mm is required.

7. For Group IIA and IIB enclosures, the content of the enclosure apparatus may be placed in any arrangement, provided that an area of at least 20% of each cross-sectional area remains free to permit an unimpeded gas flow and, therefore, unrestricted development of an explosion.
8. For Group IIC enclosures, the content of the enclosure apparatus may be placed in any arrangement provided that an area of at least 40% (or 25%) of each cross-sectional area remains free to permit unimpeded gas flow and, therefore, unrestricted development of an explosion.
9. For the purpose of both of the above, separate relief areas may be aggregated provided that each area has a minimum dimension in any direction of 12.5 mm.
10. The maximum service temperature of the cement/glass shall not exceed 85 °C.
11. Consult the manufacturer if dimensional information on the flameproof joints is necessary.

Section 7: Ordering information

Model	Description
JB-MP	Junction Box
Cover	Description
B	Blind cover
W	Window cover
Conduit	Description
	¾-in. NPT
Housing	Description
-A	Aluminum
-S	Stainless steel

Notes:

EmersonProcess.com/FlameGasDetection

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