



VIBRATION ANALYSIS HARDWARE



MX505 Mini-MAXX Enclosure
2 Triaxial Inputs
Product Manual

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INTRODUCTION

CTC's MX505 Mini MAXX Box is a common cable termination point for triaxial sensors to interface with portable data collectors. CTC MX505 Series Boxes provide M12 connector mini-MIL outputs for each channel.

MX505 Overview

The MX505 is a powder-coated aluminum junction box that provides connection for up to two triaxial accelerometers through four-conductor input wiring to a portable data collection unit. Each sensor is wired to M12 connectors via an internal terminal strip that is located on the reverse side of the collection panel. Connections on the terminal strip include an X, Y, and Z input for signal as well as common and the shield drain wire (earth grounded via the enclosure).

Each MX505 features a hinged cover door with a snap latch to protect the M12 connectors when not in use. Located on the inside of the door is a measurement location card used to identify and label each connector. Rated for NEMA 4X (IP66), the box is also resistant to hose-directed fluid and corrosion and is rated for temperatures ranging from -58°F to 180°F (-50°C to 82°C). This Mini-MAXX Box measures 3.54 in. W x 4.53 in. H (89.9 mm W x 115.1 mm H), allowing it to be installed in many locations.



PRODUCT DIMENSIONS

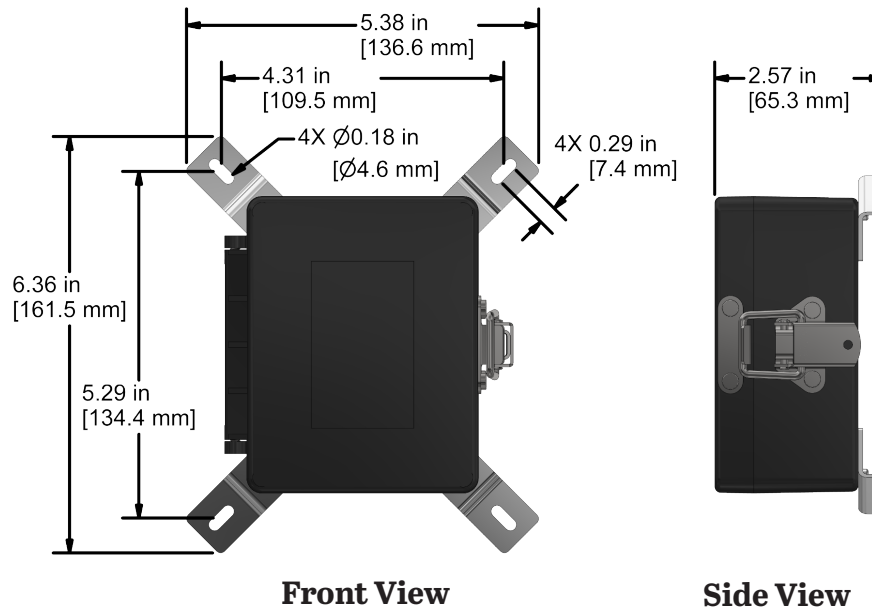


Figure 1. Dimensions



Figure 2. Diagram

MOUNTING INSTRUCTIONS

Independent stainless steel mounting feet are included on the enclosure. Wall anchoring screws are not included.

Note: If you have purchased a MX505 Box without cable entries provided, you should add your own entry prior to mounting the enclosure. CTC does not recommend putting holes in the top of the enclosure as it will cause restricted access to the wire termination connection points and also allow possible moisture ingress.

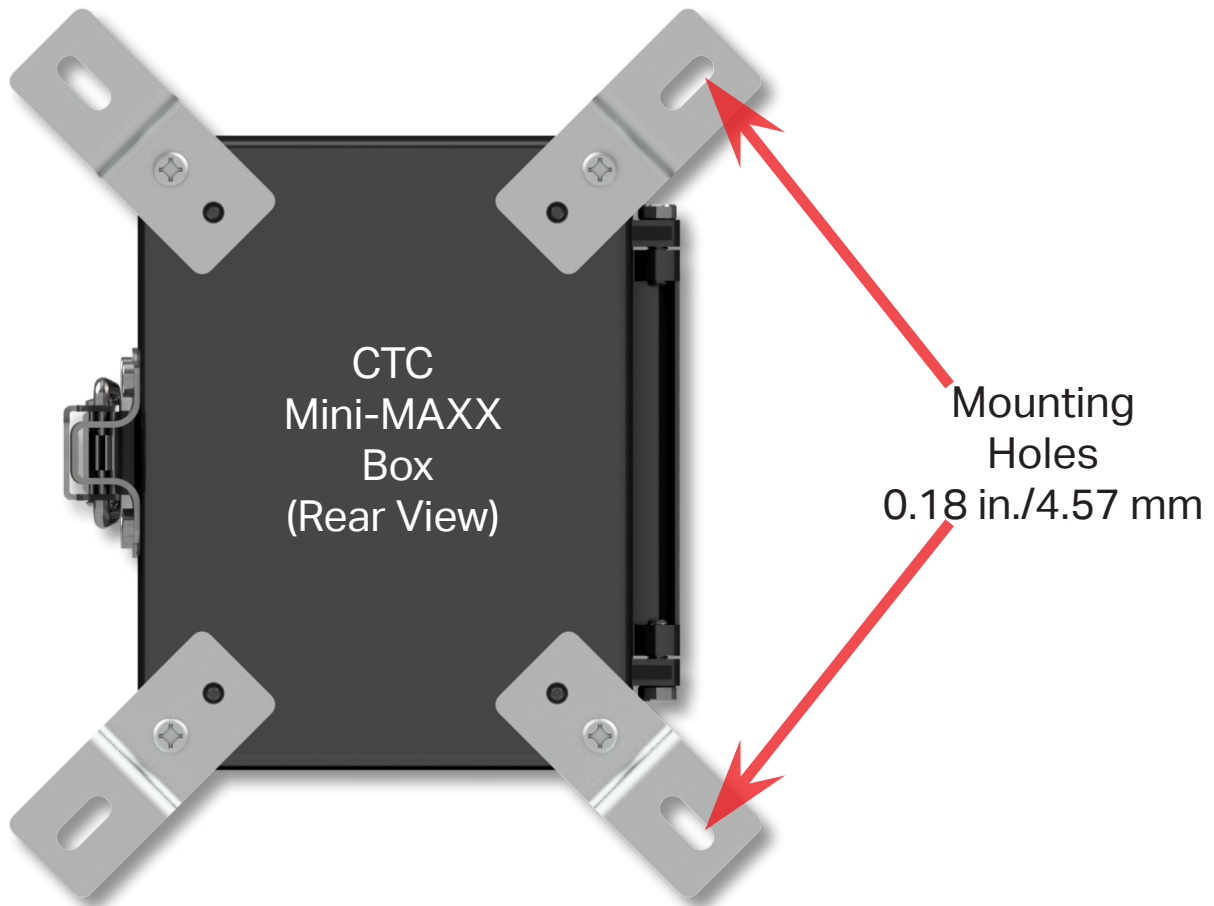


Figure 3. Mounting Bracket Placement

CONDUIT ENTRY

If you are running conduit to your enclosure, ensure the conduit cable entry is located at the bottom of the enclosure when mounted.

Note: To ensure moisture will not flow into the enclosure, a hole should be drilled at the lowest point in the conduit to provide drainage for any moisture.

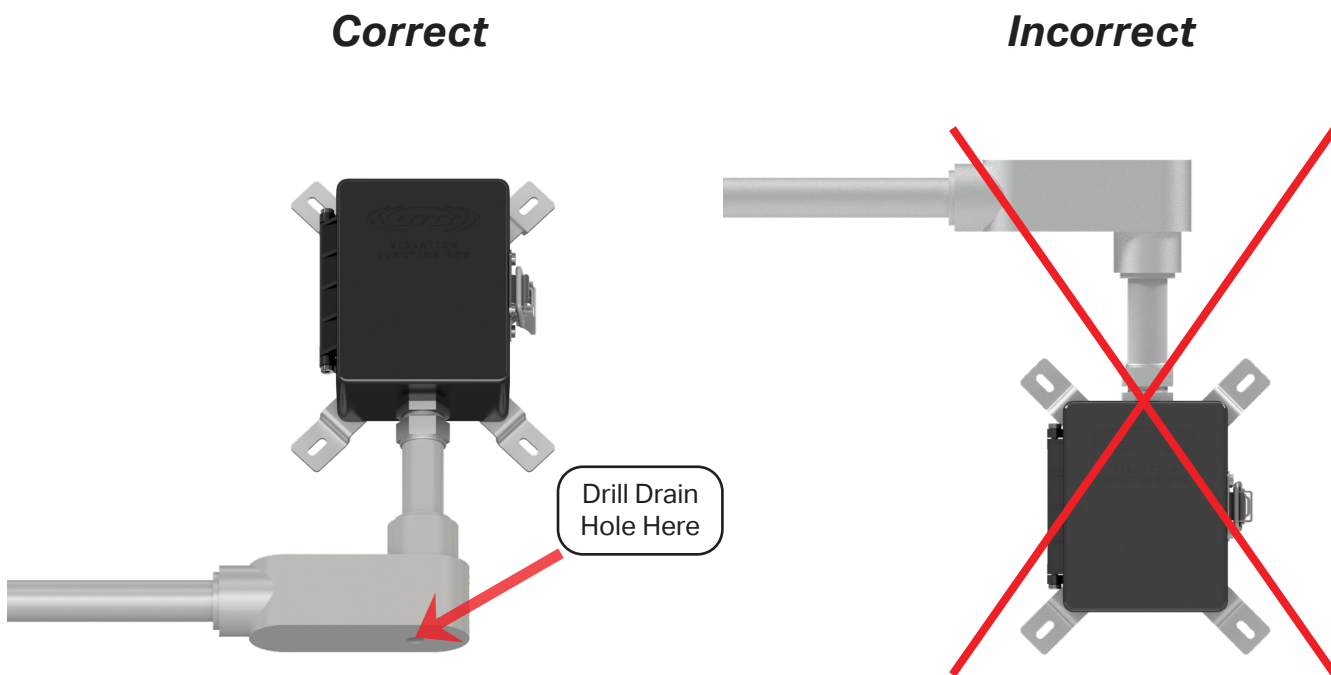


Figure 4. Conduit Entry for Termination box

GROUNDING

Ensure the shield ground wire on the MX505 Series MAXX Box is grounded to earth ground.

A. Mounting to Earth Ground

When mounting an MX505 Series MAXX Box to earth ground (such as an I-Beam), no additional steps are necessary, as the enclosure is grounded internally.

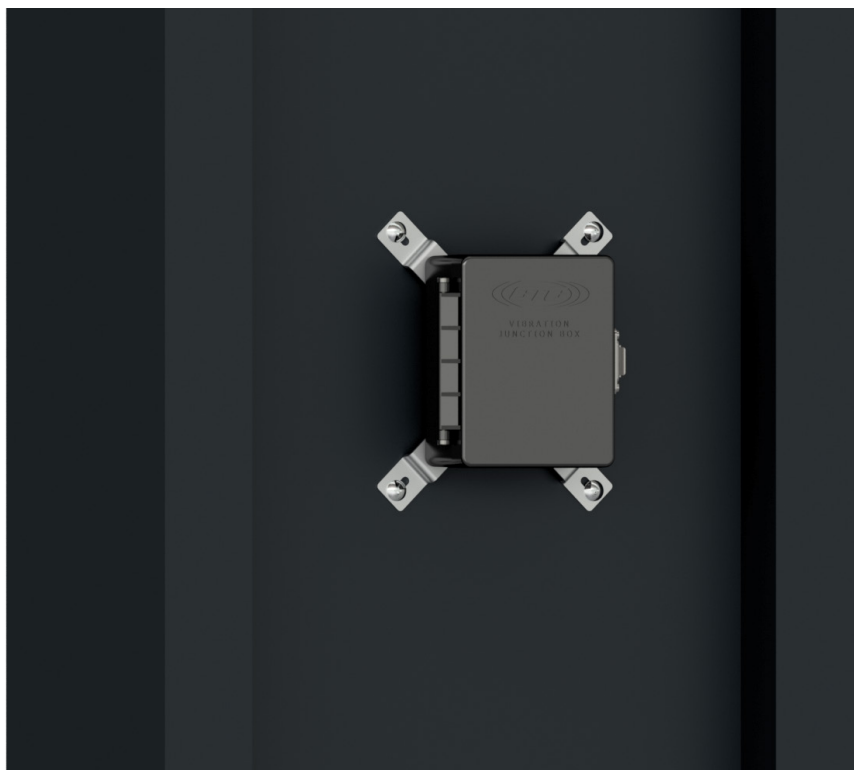


Figure 5. Termination Box (MX505) Earth Ground

B. Mounting to Non-Grounded Structure

When mounting the MAXX Box to a non-grounded structure, ensure the shield ground wire or customer-supplied ground wire is tied to a source of earth ground.

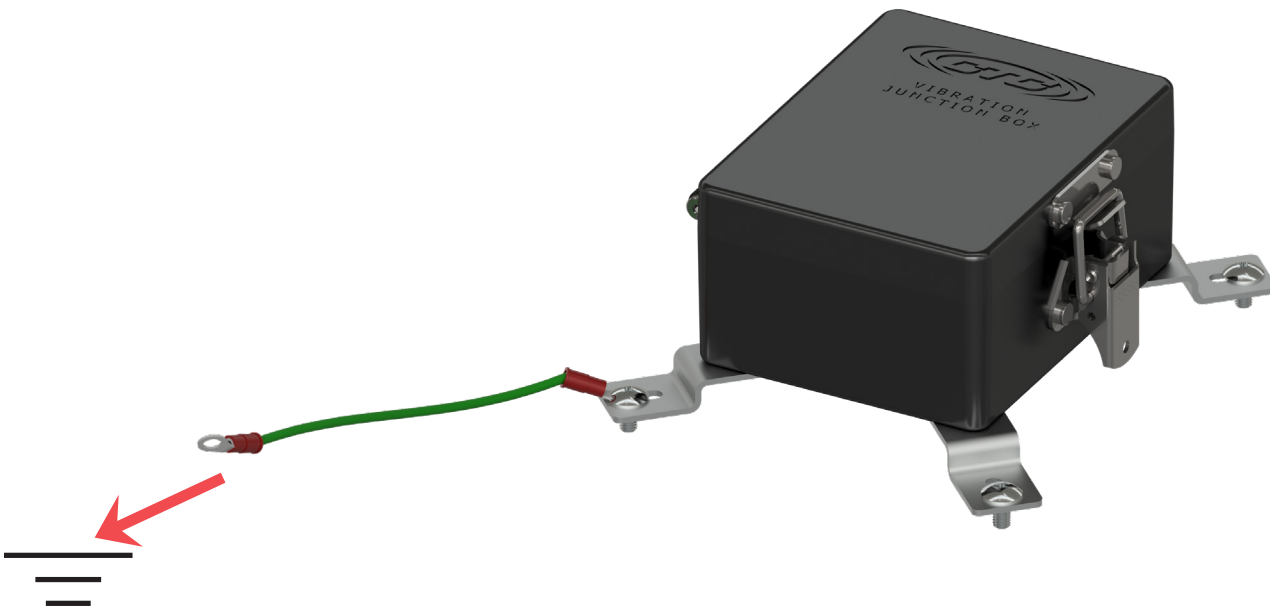


Figure 6. Ground Wire Placement

SENSOR INSTALLATION

Installation of Sensors/Signal Input Cable

1. Feed blunt-cut end through the cable entry at the bottom of the enclosure.
Note: it is recommended that cables are marked on both ends.

For cord grip cable entry, take off the cord grip cover with bushing and run cable into enclosure, hand tighten cord grip cover to base to prevent damage of cord grip.

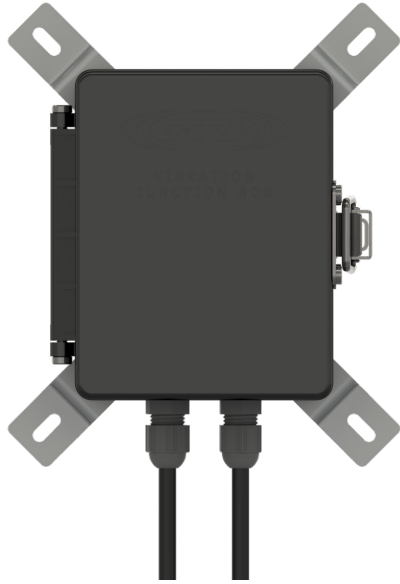


Figure 7. Front View

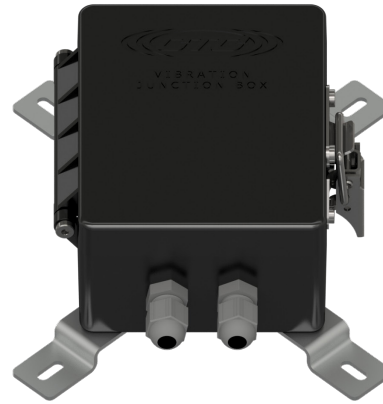


Figure 8. Bottom View

1. Strip outer jacket of cable back 1¼ in. and remove all of the shielding.
2. Separate the internal wires from the shield and twist the shield.
3. Strip red and black insulation back ¼ in.

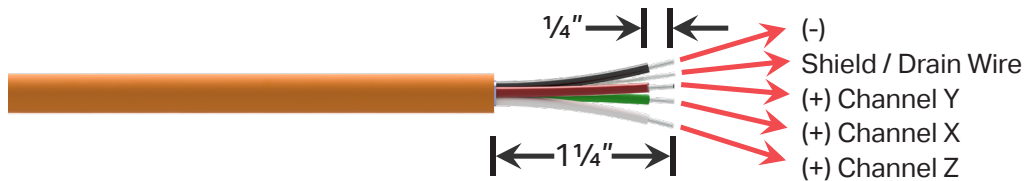
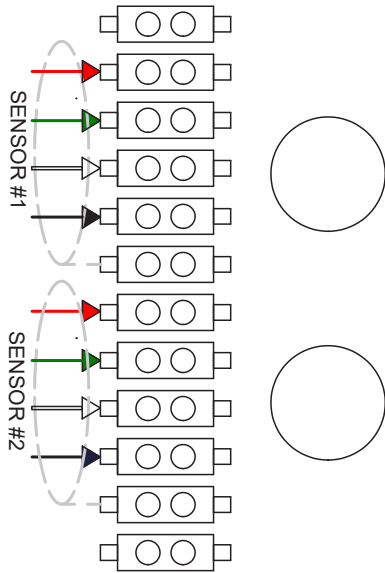


Figure 9. Stripped Wire

4. While viewing the rear of the panel, locate the appropriate channel. Using a mini flathead screwdriver, loosen the three screws for the channel and insert the wires into the termination block. Orientation is as follows:
 - a. Red insulated conductor wire (Y) is connected to the first channel used.
 - b. Green insulated conductor wire (X) is connected to the second channel used.
 - c. White insulated conductor wire (Z) is connected to the third channel used.
 - d. Black insulated conductor wire is connected to (-).
 - e. Shield drain wire is connected to ground (GND).
 - f. Tighten the screw on each wire to hold it in place.

Inputs



Sensor Inputs
Red = Positive Y Axis
Green = Positive X Axis
White = Positive Z Axis
Black = Common
Grey = Shield (Ground)

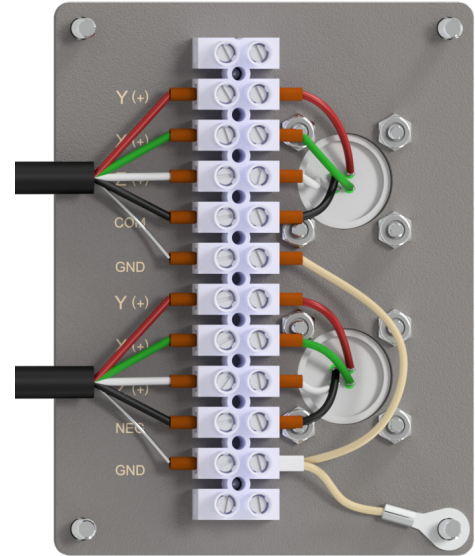


Figure 10. Field Wiring for Four-Conductor Triaxial Sensor Inputs

5. Mark the Measurement Location Card located on the inside front cover with a description of each measurement location.

POST-INSTALLATION TESTING

The TM1018 Accelerometer Verification Meter can be used to verify cable conductivity, sensor location and proper wiring connections. The Verification Meter will indicate if the sensor, cable and/or junction box is in working condition. It will also confirm bias voltage of the accelerometer, which will inform you of the operation of the internal accelerometer amplifier.

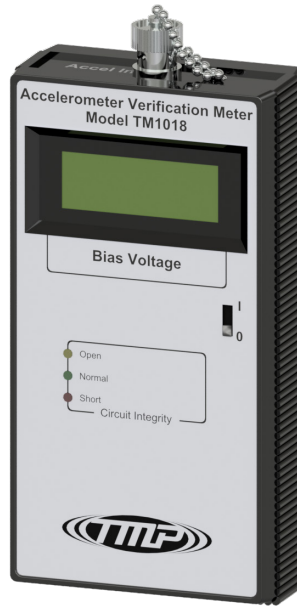
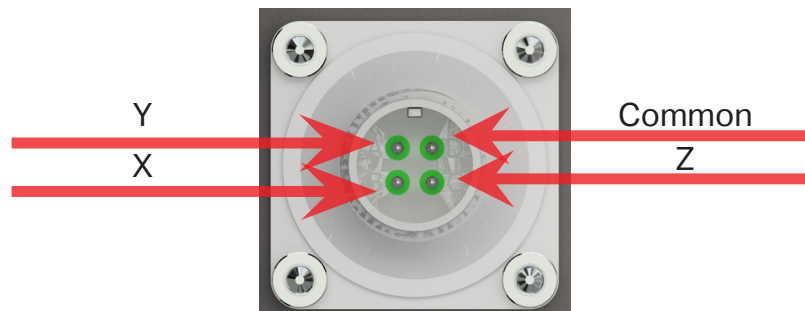


Figure 11. TM1018 Accelerometer Verification Meter

Testing Method:

1. Utilizing two personnel, Person A will be located at the MAXX Box, while Person B will be located at the measurement location.
2. Once positioned, Person A will connect the TM1018 to the Data Collector Output of the desired individual channel as these boxes offer axis X, Y and Z of the Triax Sensor. A "NORMAL" LED reading should be observed. Please Note: a patch cable may be used to aid in the testing.



3. Person B disconnects the cable from the accelerometer, and the TM1018 should respond with an "OPEN" LED. Reconnect the cable to the accelerometer, and the TM1018 should respond with a "NORMAL" LED.
4. Repeat for each measurement location to verify that accelerometer location is properly identified at the termination box.

The following LED Readout indicates the circuit integrity:

1. Green LED: Normal. Indicates proper connection and an output bias will be given, indicating the health of the sensor (4 – 16 V indicates a healthy accelerometer).
2. Yellow LED: Open Circuit. Indicates one of the following:
 - a. Cable connector is not connected to accelerometer.
 - b. Cable is open circuit (broken or not connected at one end).
 - c. Accelerometer is not functioning correctly.
3. Red LED: Short Circuit. Indicates one of the following:
 - a. Water or contamination in the connector.
 - b. Reverse wiring ((+) and (-) leads are reversed).
 - c. Wires in termination box or cable connector (+) & (-) are touching.



WARRANTY & REFUND

Warranty

All CTC products are backed by our unconditional lifetime warranty. If any CTC product should ever fail, we will repair or replace it at no charge.

Refund

All stock products can be returned for a 25% restocking fee if returned in new condition within 90 days of shipment. Stock products qualify for free cancellation if your order is cancelled within 24 hours of purchase. Built-to-order products qualify for a 50% refund if returned in new condition within 90 days of shipment. Custom products are quoted and built specifically to the requirements of the customer, which may include completely custom product designs or private labeled versions of standard products for OEM customers. Custom products ordered are non-cancellable, non-returnable and non-refundable.

