

Essential Insight.mesh* – Wireless Condition Monitoring

Bently Nevada* Asset Condition Monitoring



wSIM device with Zone 0 battery module and Zone 0 External Power Module



"Prowler" portable wireless data collector kit

ISA100
Wireless
COMPLIANT



Description

The Essential Insight.mesh¹ wireless condition monitoring platform is a wireless data acquisition system that is fully integrated with System 1* software. A typical system requires a manager gateway, wSIM* devices - wireless sensor interface modules, and repeaters that create a robust, auto forming mesh network. Each wSIM device has four channels that can each be individually configured to support vibration and temperature measurements.

The Essential Insight.mesh wSIM devices support the Bently Nevada 200150, 200155 and 200157 accelerometers, as well as our 200125 K-Type, and standard J, T & E-Type thermocouple temperature sensors.

- 200 meter range between devices²
- Static data rate configurable from once per minute to once per day³
- Dynamic data resolution configurable up to 3200 lines
- Dynamic data frequency span is configurable from 0-100Hz up to 0-10000Hz
- Static and Dynamic Data On Demand
- Battery can be replaced in the field, fully intrinsically safe
- Prowler Demo Kit – entire wireless demonstration system in a durable travel case
- Starter and expansion kits available with all necessary wireless components

The Essential Insight.mesh platform is compatible with the ISA100.11a protocol with System 1 integration. The ISA100 protocol is an open, industrial standard providing for interoperability with any other ISA100 wireless device.

The Essential Insight.mesh wSIM and repeater devices have flexible power options that include both a replaceable, integrated Lithium thionyl chloride battery module and External Power Modules with battery backup.

The External Power Module can eliminate the cost of replacement batteries and allow for the selection of more frequent data collection to meet a broader range of applications. The power options provide the flexibility to implement the deployment that best fits the application.

¹ All published specifications are subject to change by the manufacturer at any time and without notice

² Maximum demonstrated unobstructed range

³ Once per minute data collection is limited to one active channel only, will dramatically shorten the battery life, and may not be possible at either high or low temperature extremes.

Channel Types

The wireless sensor network supports the four most essential measurements required for condition based monitoring of motor driven assets:

- Acceleration
- Velocity
- Enveloped Acceleration
- Temperature

Consistent Power and Reporting

While other self-powered wireless systems change their data collection intervals based on available power generated from the asset, the Essential Insight.mesh system sends data collected at fixed collection intervals for true condition monitoring capability.

This consistency is achieved by saving power during sleep cycles, and using a combination of power generated from the energy harvester and battery power when activated during scheduled data collection periods. This ensures that your sensor reports are consistent and reliable as required by a true condition monitoring system.

Starter and Expansion Packages

The Starter and Expansion packages are designed to simplify ordering and deliver cost savings by bundling everything needed to build or expand an Essential Insight.mesh installation into one value priced package. The starter package includes a standalone gateway, four wSIMs, System 1, and all the accessories needed to get started with wireless monitoring. The expansion package makes growing an Essential Insight.mesh installation easy with additional wSIM devices and System 1 licenses.

Prowler Portable Wireless Data Collector Kit

Packaged in a rugged and easily transportable case, the Prowler makes installation truly as easy as wireless should be. Everything in the kit is preconfigured and ready to go in minutes. The included wSIM and Repeater devices are factory provisioned to the included Nivis™ VR900 (non-ATEX) gateway and preloaded with a default configuration. System 1 is installed on the included laptop computer and configured with the gateway and wSIM and Repeater devices. Magnetic mounts are included for both the devices and the included accelerometers. Mount the wSIM device and accelerometers and you are ready to go.

Applications

The Essential Insight.mesh system is intended for use on a variety of auxiliary machine assets including motors, pumps, fans and compressors as required by a comprehensive Condition Based Maintenance (CBM) monitoring system.



Caution

The Essential Insight.mesh platform is a scanning system designed to provide condition monitoring where currently no monitoring or infrequent route based monitoring is available. The measurements are not meant for machinery protection or use as a trip system. Used correctly the measurements can provide a view of asset health and provide an early warning of mechanical fault conditions.

Most common bearing malfunctions initially cause small changes in machine vibration that may be insignificant compared to other sources of vibration (gear-mesh, running speed, etc.). To detect the early signs of a bearing fault the sensor must be properly installed to receive bearing vibration as accurately as possible. Improper installation can degrade the transducer's performance and/or generate signals that do not represent actual machine vibration.

Upon request, Bently Nevada can provide engineering services to determine the appropriateness of housing measurements for the machine in question and/or to provide installation assistance.



Caution

If you plan to install components of this system at heights always use fall protection that meets requirements of local standards, and follow site safety instructions to ensure a safe work environment.

System Features

- Fully integrated with System 1
- Devices are ISA100.11a compliant and Zone 0 rated
- Up to 200 meter range between devices
- Auto negotiating, self-forming, self-healing Mesh Network
- ISA100 networks support devices made by a variety of vendors. Each device is tested to ensure compatibility between devices and manager gateways
- The BN ISA100 gateway, 100M5186, supports up to 100 total devices, resulting in up to 400 sensors supported per gateway.
- Four input ports per wireless sensor device allowing each port to be configured for either vibration or temperature
- Supports acceleration, velocity, acceleration enveloping and temperature measurements
- Up to 5 manager gateways per System 1 DAQ
- Static and Dynamic measurements configurable on a per channel basis
- Dynamic data supports asynchronous waveforms and spectrums on vibration channels
- Automatic self-checking of network health, battery life indicator, transducer status and system status with auto rerouting to optimize all of these parameters
- Zone 0 Battery Power Module provides up to 3 years of power with standard configurations⁴
- External Power Module supporting line power and energy harvester extended power operations
- IEEE 802.15.4 compliant radio used for wireless mesh communications
- Direct Sequence Spread Spectrum (DSSS), frequency hopping operation for interference rejection
- Time Synchronized Mesh Protocol (TSMP) and AES 128 bit encryption used in conjunction with dynamically updated multiple encryption key scheme resulting in highly secure wireless communications

⁴ Standard configuration is defined as static data from all 4 channels every 2 hours and dynamic data from each channel once per day.

System Configuration Options Measurements and Transducer Types Supported

<u>Measurement Type</u>	<u>Units (pk or RMS subunits)</u>
Acceleration	g's or m/sec ²
Velocity	In/sec or mm/sec
Acceleration Enveloping	Env g's or Env m/sec ²
Temperature	°C or °F

<u>Transducers</u>	<u>Measurement</u>
200150 General Purpose (10 Hz - 1 kHz)	Acceleration & Velocity
200155 Low Frequency (1.5 Hz - 10 kHz)	Acceleration & Velocity & Enveloped Acceleration
200157 Enveloping (10 Hz - 10 kHz)	Acceleration, Velocity & Enveloped Acceleration
200125 K-type Thermocouple	Temperature
standard K, J, T & E-Type thermocouples	Temperature

Specifications

Lists of Specifications

All specifications are at +25 °C (+77 °F), unless otherwise specified.

BN ISA100 Manager Gateway

100M5186

Note

FCC & IC Compliance

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference.
 - This device must accept any interference received, including interference that may cause undesired operation.
-

Input voltage

Power connector located on the back of the chassis

90 to 264 VAC

Input Power

10 watts maximum

Communication Interfaces

IEEE 802.15.4

Ethernet

10 Base T or 100 Base TX Ethernet, auto-negotiating

Mesh Radios Supported

Supports a maximum of 100 wireless device in any combination of wSIM or repeater devices

Status LEDs

Power – Indicates manager gateway powered

Radio Network – Indicates RF radio operation

Antenna Type

½ Wavelength Dipole

Antenna Gain

2 dBi

ERP (output power without any antenna)

10.7 dBm

ERP (output power w/ included antenna)

12.7 dBm

Housing Materials

Housing: Powder coated 5052-H32 Aluminum

19 inch rack-mount faceplate: 14 gauge powder coated ROHS stainless steel

Optional Antenna with 75 ft (23 m) Cable BN P/N 185519-01

Freq: 2400 – 2500 MHz

Gain: 6 dBi Omni Directional

Cable Attenuation: 6.8 dB at 2.5 GHz

Polarization: Vertical

Impedance: 50 Ohm

Weight: 0.24 lbs (0.1 kg)

Length: 12 in (30 cm)

Base Diameter: 1.27 in (3.22 cm)

Material: Fiberglass

Radome Diameter: 0.75 in (1.9 cm)

Wind Survival: >150 MPH

Operating Temperature: -40°C to 85°C (-40°F to 185°F)

Optional ATEX Zone 1 Antenna with 25 m (82 ft) Cable BN P/N 185519-02

Freq: 2300 – 2500 MHz

Gain: 5 dBi Omni Directional

Polarization: Vertical

Impedance: 50 Ohm

Length: 250 mm

Radome Diameter: 0.75 in (1.9 cm)

IP Rating: IP66

Operating Temperature: -40°C to 60°C (-40°F to 140°F)

Certification:

II 2 GD EEx e II T6

Certificate: Sira 06 ATEX 3198X

Specifications and Ordering Information
Part Number 185301-01
Rev. F (05/13)

**Optional FM-Approved
Antenna with 5 m (16 ft)
Cable
BN P/N 185519-03**

Freq: 2300 – 2500 MHz
Gain: 5 dBi Omni Directional
Polarization: Vertical
Impedance: 50 Ohm
Length: 205 mm
Radome Diameter: 0.75 in (1.9 cm)
IP Rating: NEMA 4X
Operating Temperature:
-40°C to 60°C (-40°F to 140°F)
Certification:
Class I Div 1 Group ABCD
Class II Div 1 Groups EFG T6
Certificate: 3037549

Note

Any changes or modifications not expressly approved by Bently Nevada, Inc. could void the user's authority to operate the equipment.

To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that permitted for successful communication.

Ethernet Cable Length

Maximum 100 meters (328 feet)
Category 5, twisted pair

**wSIM - Wireless Sensor Interface Module
185410**

**General Environment,
Storage and Transport:**

Operating Temperature: -30°C to +65°C (-22°F to 149°F)
Humidity: 95% non-condensing
Vibration: 5 g's pk any axis
Designed to meet IP67

Infrared

9600 baud

**Communication
Interfaces**

IEEE 802.15.4

Antenna Type

¼ Wavelength Monopole

Antenna Gain

1.414 dBi

ERP

185410 : 10.96 dBm

Materials

Housing: 10% glass fiber Polycarbonate with TPE antenna enclosure and LED windows

Mounting base: 304/304L Stainless Steel

Battery Pack

Screw Torque

10 in-lbs

Sensor Inputs

Four sensor inputs per device

Sensor inputs sampled sequentially

Sensors Supported

200150, 200155, & 200157 Accelerometers

200125 K-Type Thermocouple

J, K, T & E - Type Thermocouples

**Acceleration A/D
Resolution**

16 bits (14 Effective number of bits)

**Temperature
A/D Resolution**

24 bits (21 Effective number of bits)

Scan Rates (per channel)

Static Data Rate: 1 min to once per day

Dynamic Data Rate: Once per day to once per every 30 days

Static and Dynamic Data on Demand

Temperature Channel

Full Scale Range

J - Type:
-209°C (-344°F) to 1199°C (2190°F)

K - Type:
-199°C (-326°F) to 1369°C (2496°F)

E - Type:
-199°C (-326°F) to 999°C (1830°F)

T - Type:
-199°C (-326°F) to 399°C (750°F)

Temperature

Channel Accuracy

±5°C from ideal input

Short Circuit

Current Limit

20 mA maximum

Hardware Frequency

Response (3 dB corners)

1/3 Hz to 20 kHz

Refer to transducer specifications
for more information

Direct Filter

Non - Integrated

4-pole High-pass 1.5 Hz to 10 kHz
4-pole Low-pass, 15 Hz to 10 kHz

Integrated

4-pole High-pass 10Hz to 10 kHz
4-pole Low-pass, 100 Hz to 10 kHz

Asynchronous Waveforms

(Software Configurable)

Spectral Lines

100
200 (200 Hz span or greater)
400 (400 Hz span or greater)
800 (1000 Hz span or greater)
1600 (2000 Hz span or greater)
3200 (5000 Hz span or greater)

Frequency Spans

100 Hz
200 Hz
500 Hz
1000 Hz
2000 Hz
5000 Hz
10000 Hz

Sample Rates

256 Hz
512 Hz
1280 Hz
2560 Hz
5120 Hz
12800 Hz
25600 Hz
51200 Hz

Enveloping Filter

4-pole High-pass, 1.5 Hz to 10 kHz
2-pole Low-pass, 15 Hz to 10 kHz

Enveloped Waveforms (Software Configurable)

Frequency Spans

100 Hz
200 Hz
500 Hz
1000 Hz
2000 Hz
5000 Hz
10000Hz

Sample Rates

256 Hz
512 Hz
1280 Hz
2560 Hz
5120 Hz
12800 Hz
25600 Hz

Spectral Lines

100
200
400 (200 Hz span or greater)
800 (500 Hz span or greater)
1600 (500 Hz span or greater)
3200 (1000 Hz span or greater)

Repeater

185450

The repeaters have the same specifications as the wSIM devices except that they do not contain and support 4 transducer input channels.

Zone 0 Power Modules

185547-XX

The Zone 0 Power Module is offered with two configuration options. The Zone 0 Battery Power Module, 185547-01, is a 3-cell, integrated battery module for standalone operation of wSIM and Repeater devices. The Zone 0 External Power Module, 185547-02, offers an external connection for energy harvesting applications or other external power sources while providing integrated battery backup.

Nominal Voltage

3.6 volts

Nominal Capacity

185547-01 : 25.5 Ah

185547-02 : 17.0 Ah

Input Voltage

(185547-02 only)

5Vdc \pm 0.5V

External Power Module for Safe Areas

185548-01

The External Power Module for Safe Areas is designed to accept power from external sources while maintaining battery backup using three, user-replaceable, AA alkaline cells.

Input Voltage

5Vdc \pm 0.5V

Supply Current

0.5 mA typical, 10 mA peak



Warning

The External Power Module for Safe Areas (185548-01) is not certified for use in hazardous areas. It is designed for use in safe areas only. All wSIM and Repeater devices that are used with 185548-01 are only for use in safe areas and are not certified for use in hazardous areas.

Vibration Energy Harvester

Industrial line powered machinery has a repeatable frequency component at 1X line power and 2X line power. The vibration energy harvester is available in four models (50 Hz, 60 Hz, 100 Hz, and 120 Hz) to maximize energy collection on different types of machines where the vibration energy harvester frequency is matched to line frequency (50/100HZ for 50 Hz line and 60/120 Hz for 60 Hz line).

Environmental Limits

Operating Temperature

-30 to 65°C (-22 to 149°F)⁵

Maximum Storage Temperature

-40 to 85°C (-40 to 185°F)

Note: Unit could be damaged if the temperature is taken above the absolute maximum storage temperature specification.

Operating and Storage Humidity

Manager

Gateway

95% RH, Non-Condensing

100% RH, Condensing when installed in weatherproof housing with power applied

wSIM/Repeater devices and Sensors

100% RH, Condensing when used with cable seals

Vibration

5 g's pk any axis

⁵ Reduced battery life, longer scan intervals and reduced performance at extreme temperature (<-20°C and >60°C)

EMC Compliance

Europe



Directive:
2004/108/EC

Standards:
EN 61000-6-2 Immunity for
Industrial Environments
EN 61000-6-4 Emissions for
Industrial Environments

Australia/New Zealand



C-Tick
IEC 61000-6-2 Immunity for
Industrial Environments
IEC 61000-6-4 Emissions for
Industrial Environments

International

IEC 61000-6-2 Immunity for
Industrial Environments
IEC 61000-6-4 Emissions for
Industrial Environments

Hazardous Area Approvals⁶

North America:



Class I, Zone 0, A/Ex ia IIC T4
@-30°C < Ta < 65°C

Note: Zone 0 approval for North America can be used in Class 1, Div1 & Div2 classified areas as specified in section 501.5 "Zone Equipment" of NFPA 70 (R): National Electric Code (R) 2008 Edition

Europe:



ATEX Directive
II 1 G Ex ia IIC T4 Ga Zone 0
-30°C < Ta < 65°C

International:

IEC
Ex ia IIC T4 Ga
-30°C < Ta < 65°C

Brazil:



DNV 12.0104X
Ex ia IIC T4 Ga
-30°C < Ta < 65°C

KTL:



Ex ia IIC T4 Ga
-30°C < Ta < 65°C

⁶ Zone certification applies only to wSIM devices and Repeaters using the Zone 0 power modules – 185547-XX

RF Operation

Global 2.4 GHz⁷ license-free band suitable for use in North America, Europe and most of Asia with 15 channels nominally sized at 5MHz @ 250 kbps

Range⁸: 200 m

RF Certifications

FCC & IC Compliance

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference
2. This device must accept any interference received, including interference that may cause undesired operation

United States, Canada & International



FCC: XFU-18531002, XFU-18541001,
XFU-18551001,
SQB-VN3104034R45

Federal Communications
Commission (FCC) Document:

wSIM device & Repeater: FCC
CFR47 Part 15B

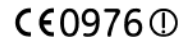
BN ISA100 Gateway: FCC Part 15
section 247

Canada

IC: 8349A-18531002, 8349A-18541001,
8349A-18551001,
6546A-VN3104034R5

RSS-210

Europe



Directive: RTT&E 1999/5/EC

European Telecommunications
Standards Institute (ETSI)

ETSI EN 300 328

ETSI EN 301 489-17

Australia / New Zealand



N21025

C-Tick

AS/NZS 4268

Korean Radio Frequency KC



Clause 3, Article 58-2 of
Radio Waves Act

⁷ 2.4000 – 2.4835 GHz range supported; range adjusted to comply with local country certification requirements

⁸ Actual ranges vary depending on site specific topology, environmental conditions, and network device placement

Ordering Information

Essential Insight.mesh Packages

Essential Insight.mesh Starter Packages

100M3472-01 Indoor Starter Package

Package includes⁹ 100M5186 with 75 foot external antenna, four wSIM devices, one Repeater, zone 0 battery bases, four Unistrut® mounting kits, one magnetic mounting kit, sixteen 200157 accelerometers, eight 4-meter accelerometer cables, eight 6-meter accelerometer cables, sixteen accelerometer epoxy mounting kits, System 1 software, and System 1 licenses

100M3472-03 Outdoor Starter Package

Package includes the same parts as the 100M3472-01 package except the gateway is replaced by the 100M2808 outdoor NEMA 4X gateway, the antenna extension is removed, and the accelerometer cables are replaced by armored cables of the same length. Gateway is for use in safe areas only.

Essential Insight.mesh Expansion Packages

100M3472-02 Basic Expansion Package

Package includes four wSIM devices, zone 0 battery bases, four Unistrut® mounting kits, sixteen 200157 accelerometers, eight 4-meter accelerometer cables, eight 6-meter accelerometer cables, sixteen accelerometer epoxy mounting kits, and sixteen System 1 dynamic point licenses.

100M3472-04 Armored Expansion Package

Package includes the same parts as the 100M3472-02 package except all accelerometer cables are armored.

Prowler Portable Wireless Data Collector Kit

100M3207 Prowler

Kit includes¹⁰ one wSIM and Repeater device, a Nivis™ VR900 (non-ATEX) gateway, a laptop computer, 3 200157 accelerometers, 1 K-type thermocouple, magnetic mounting hardware, and necessary cabling and accessories in a rugged, portable travel case.

Standalone Manager Gateways

100M5186 – BN ISA100 Manager Gateway

100M2808 – Nivis™ VR900, NEMA 4X Enclosure, for use in safe areas only

Distributed Manager Gateways

Honeywell® OneWireless™ Wireless Device Manager

WDMS-PS-KD-000-0000^{11,12} - with 24VDC power supply and documentation kit

Honeywell® OneWireless™ Field Device Access Point¹³

FDAP1-F6-SA-00-F6-SA-00-WM-DD-0 – 6dBi integral antenna, wall mount

FDAP1-F6-SA-00-F6-SA-00-PM-DD-0 – 6dBi integral antenna, pole mount

FDAP1-F8-RS-10-F8-RS-10-WM-DD-0 – 8dBi remote antenna with ten meter extension, wall mount

FDAP1-F8-RS-10-F8-RS-10-PM-DD-0 – 8dBi remote antenna with ten meter extension, pole mount

Yokogawa® Field Wireless Management Station¹⁴

YFGW410-A-C-1-0-D-0-A-A – Single license with 100 device limit and DIN RAIL mounting

YFGW410-A-S-1-0-D-0-A-A – Single license with 200 device limit and DIN RAIL mounting

YFGW410-A-R-1-0-D-1-A-A – Redundant license¹⁵ with 200 device limit and DIN RAIL mounting

Yokogawa® Field Wireless Access Point¹⁶

YFGW510-A-1-1-0-S-1-0-D-1-N-N – G1/2 female, two electrical connections, without blind plugs

YFGW510-A-1-1-2-S-1-0-D-1-N-N – 1/2NPT female, two electrical connections, without blind plugs

YFGW510-A-1-1-4-S-1-0-D-1-N-N – M20 female, two electrical connections, without blind plugs

Optional Antennas for BN Manager Gateways

185519-01 – Optional 6 dBi Antenna, 75 ft (22.9 m) 50 ohm Cable, Surge Protector, Cable Adapter, and Mounting Hardware

185519-02 – Optional ATEX Zone 1 antenna with 25 m (82 ft) cable, Surge Protector, Cable Adapter, and Mounting Hardware

185519-03 – Optional FM antenna with 5 m (16 ft) cable, Surge Protector, Cable Adapter, and Mounting Hardware

wSIM & Repeater devices

185410 – Essential Insight.mesh ISA100 wSIM

185450 – Essential Insight.mesh ISA100 Repeater

¹¹ Not all options are available. New configurations will require a CP workflow.

¹² Default configuration is WDMS-PS-KD-000-0000

¹³ Additional configurations will require a CP workflow

¹⁴ Additional options are available. New configurations will require a CP workflow

¹⁵ Redundant license requires the purchase of two YFGW410 gateways with redundant licenses

¹⁶ Additional options are available. New configurations will require a CP workflow

⁹ Not a complete bill of materials

¹⁰ Not a complete bill of materials

Zone 0 Power Modules

185547-AA Zone 0 Power Module¹⁷

AA: Configuration option

- 01 Zone 0 Battery Power Module
- 02 Zone 0 External Power Module

External Power Module for Safe Areas^{18, 19}

185548-01 – Alkaline battery power module with external power connector.

wSIM / Repeater device Mounting Hardware

Mounting Kits include a hex base and all hardware required to mount the devices as described below.

185585-AA wSIM / Repeater Mounting Kit

AA: Configuration option

- 01 ½-20 direct bolt mount
- 02 M12 direct bolt mount
- 03 Direct mount for strut channel
- 04 Angle mount for strut channel
- 05 Magnetic mount
- 06 Magnetic mount with angle bracket

Energy Harvesters

Vibration Energy Harvesters include a 10-meter, unterminated cable and field-attachable connector.

185545-AA Vibration Energy Harvester

AA: Configuration option

- 01 50Hz Frequency
- 02 60Hz Frequency
- 03 100Hz Frequency
- 04 120Hz Frequency

Cables

185546-01 – 10m (32-ft) Vibration Energy Harvester Cable Kit³ (unterminated cable and field installable External Power Module connector)

185549-01 – 10 m (32-ft) wSIM External power module cable (field trimmable)

185555-AA-BB wSIM Accelerometer Cable

AA: Length Option

- 02 2M (6-ft) Length
- 04 4M (13-ft) Length
- 06 6M (20-ft) Length
- 10 10M (33-ft) Length
- 15 15M (49-ft) Length
- 25 25M (82-ft) Length

BB: Armor Option

- 00 No Armor
- 01 Stainless Steel Braided Armor

200152-15 – 15M (49-Ft) Accelerometer Field Trimmable Cable (Must be used with 162438-01 field connector kit)

200152-25 – 25M (82-Ft) Accelerometer Field Trimmable Cable (Must be used with 162438-01 field connector kit)

289304 – USB to Serial Infrared Converter

284988 – Cat5 3M (10-Ft) Cross-over cable

287362 – External Power Module cable connector, spare part.

Accelerometer Mounting Hardware

139153-01 – Accelerometer Epoxy Mounting Kit (Mag Force Kit orderable with 20015x transducers)

02200371 – Accelerometer Magnetic Mount (For temporary accelerometer mounting, requires mounting stud part number 89139-01)

89139-01 – 3/8-24 to 1/4-28 mounting stud

Note: See 20015x Accelerometer data sheet for additional accelerometer mounting options

Transducers

200150 – General Purpose Accelerometer

200155 – Low Frequency Accelerometer

200157 – High Frequency Accelerometer

200125 – K-Type Thermocouple (Must be field terminated with 162438-01 connector kit)

162438-01 – Temperature Connector Kit

Power Supply

287202 – +5Vdc wSIM / Repeater Power Supply

02200794 – +24Vdc Manager Gateway Power Supply

162003 – Power Supply Wiring Harness

00580441 – Rack Mount Manager Gateway Power Connector

¹⁷ The Zone 0 Power Module is certified for use in hazardous areas. See

Hazardous Area Approvals on page 9.

¹⁸ WARNING the External Power Module for Safe Areas, 185548-01, is not for use in hazardous areas.

¹⁹ External Power Modules require an associated cable (185546-01 or 185549-01) to connect to the external power source.

SW Package & Licenses

3060/15 -Mxxxx-Nxxxx – System 1 Essential Insight point licenses (via 3060/00 System1 catalog number)

3060/10 – System 1 Essential Insight/Trendmaster Application Package (via 3060/00 System1 catalog number)

3060/18 – 01 – Essential Insight.mesh Manager Gateway License

Accessories and Tools

185305 – Mag Wand (magnetic switch activator)

285243 – 7/64” T-Handle Hex Key for Battery Screws

289961 – 5/16” L-Handle Hex Key

04500022 - DOW Conring #4 (to insulate connector at wSIM/Repeater end of accelerometer cable)

03839240 - Line Cable Seal. 5.1mm to 6.7 mm (to seal connector at transducer end)

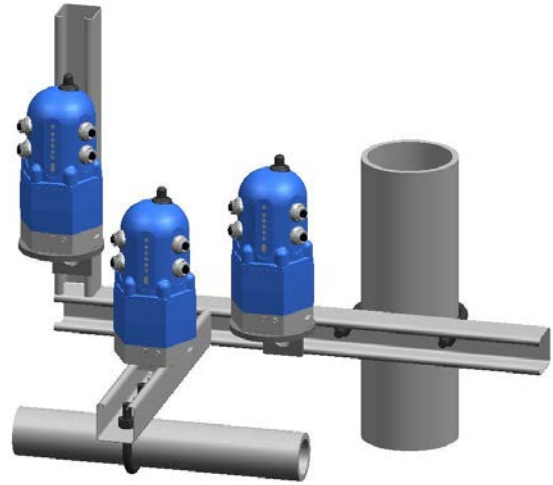
Drawings & Documents

185302-01 – Installation and Operation Manual

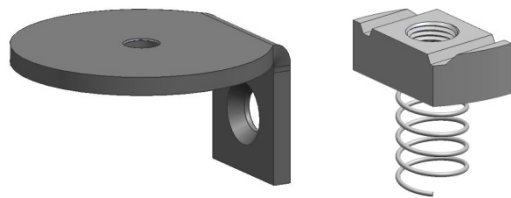
185303-01 – BN Network Protocol Quick Start Card

164985-01 – 20015x Accelerometer Installation Guide

163857 – Wireless Ethernet Application Note



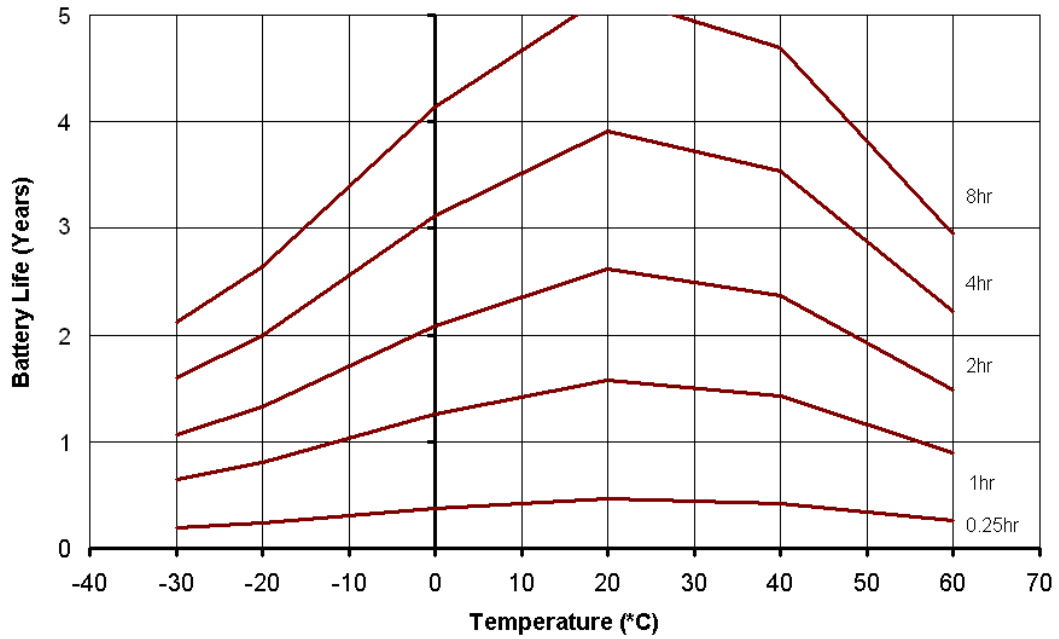
Mounting example using Unistrut® Channel



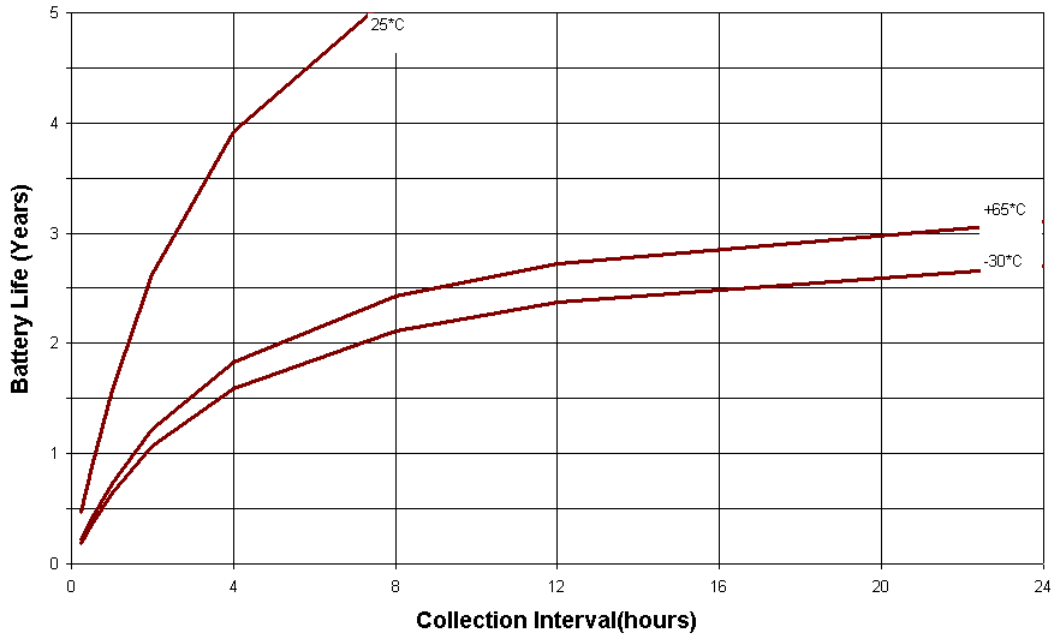
Mounting bracket and retaining nut for Unistrut® Channel

Graphs and Figures

Dimensions: inches [millimeters]



Graph 1 - Interval Curves (Battery Life vs. Temperature)



Graph 2 - Temperature Curves (Battery Life vs. Collection Interval, typical configuration)

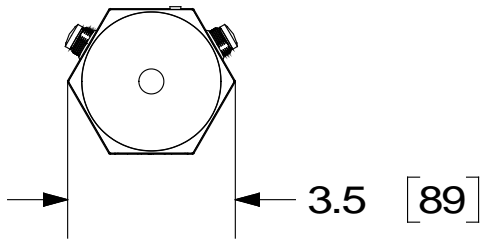
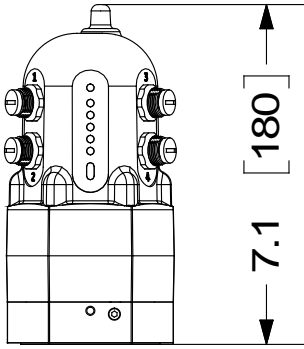


Fig 1 – wSIM device with Battery Power Module and Hex Base

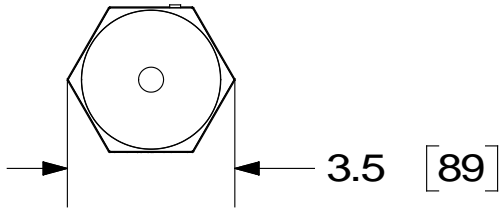
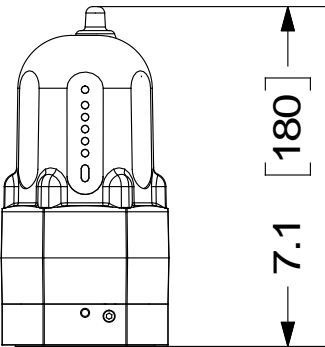


Fig 2 – Repeater with Battery Power Module and Hex Base

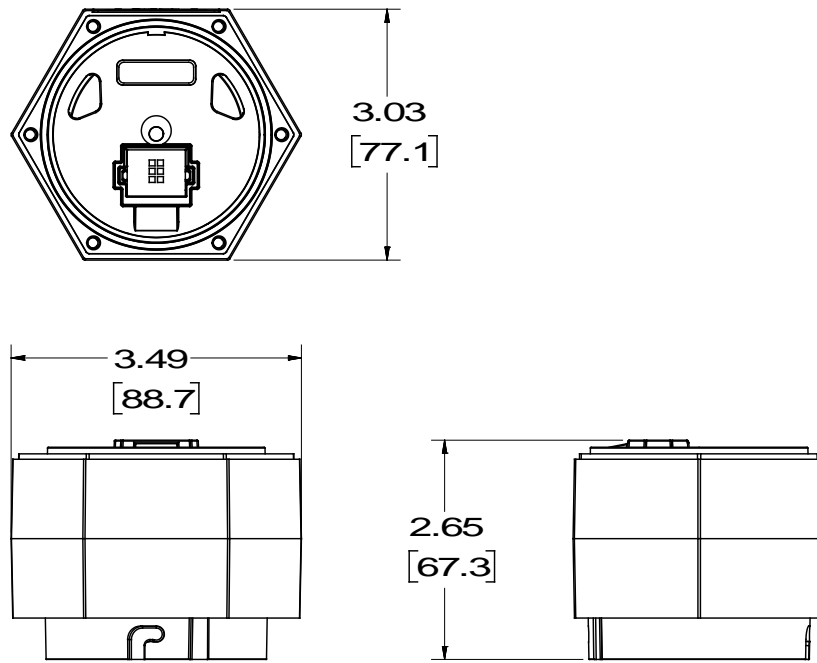


Fig 3 - Zone 0 Battery Power Module, 185547-01

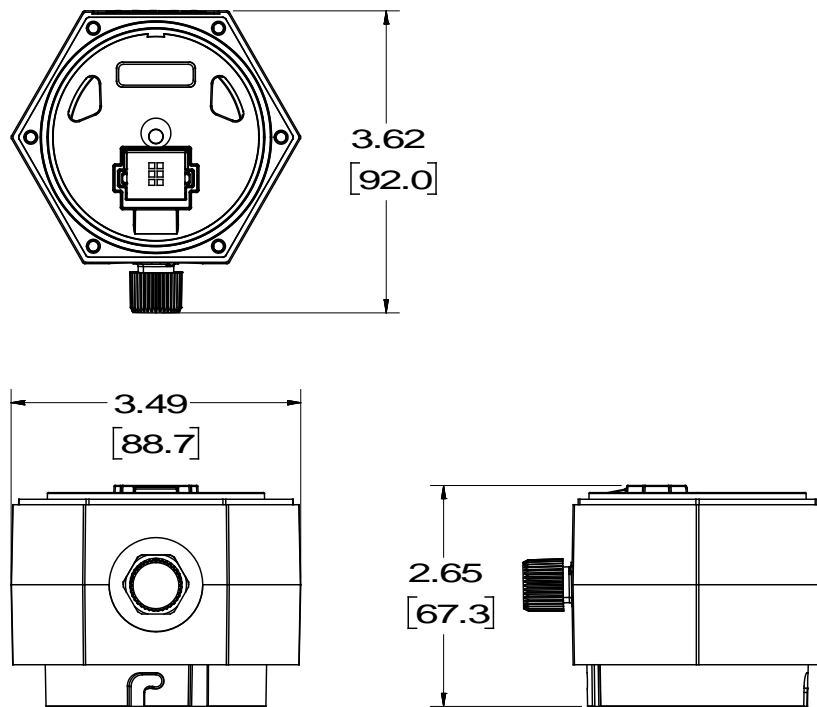


Fig 4 - Zone 0 External Power Module, 185547-02

(External Power Module for Safe Areas, 185548-01, shares identical exterior dimensions)

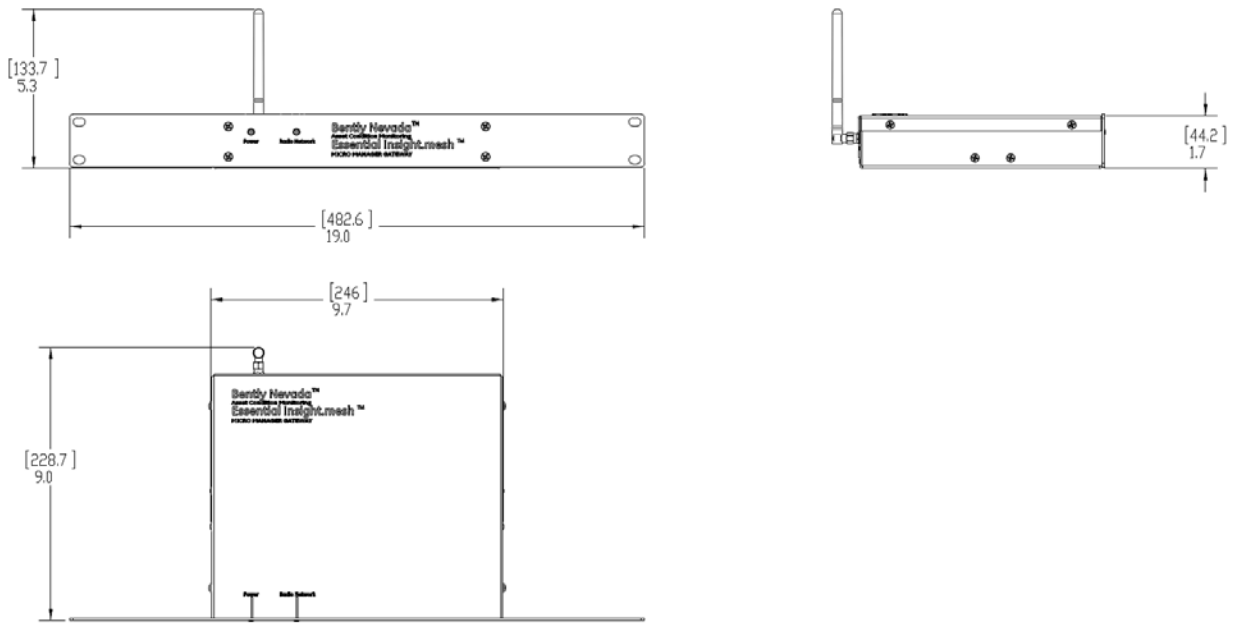


Fig 5 - 19" Rack Mount Manager Gateway

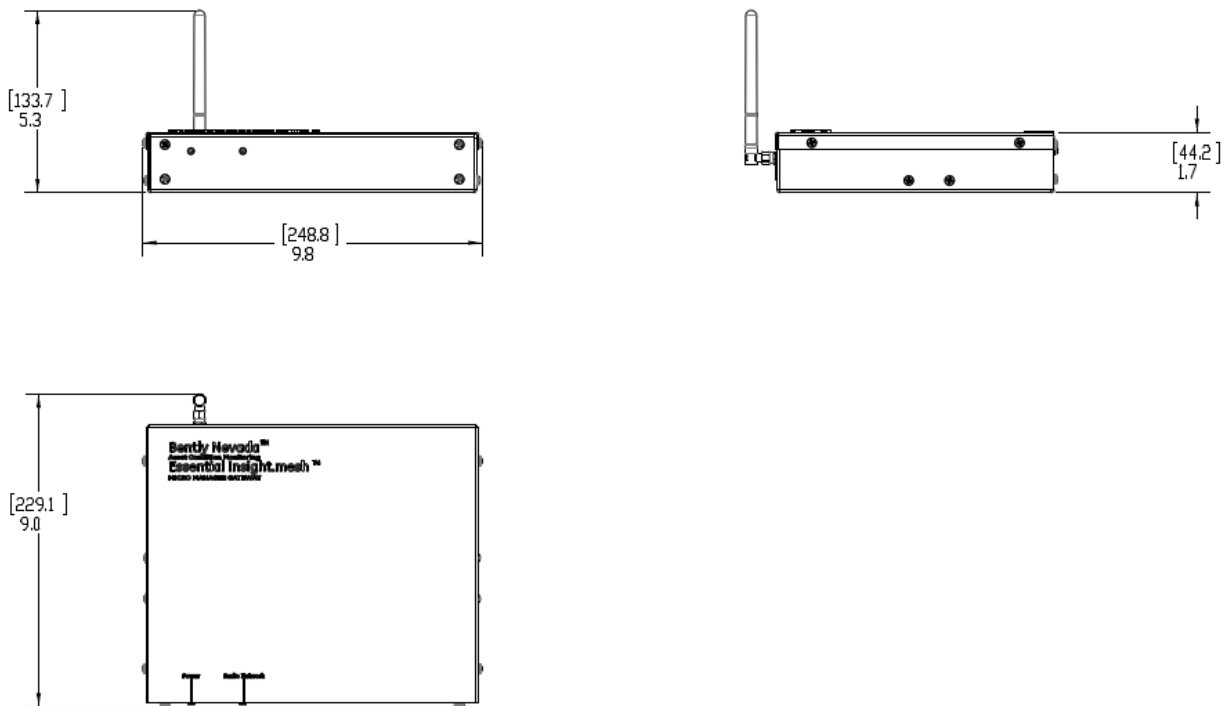


Fig 6 - Desktop Manager Gateway

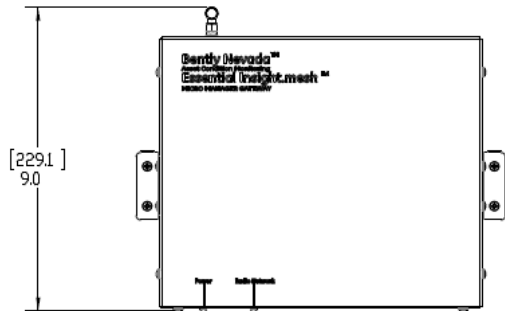
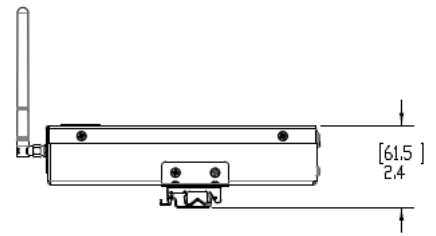
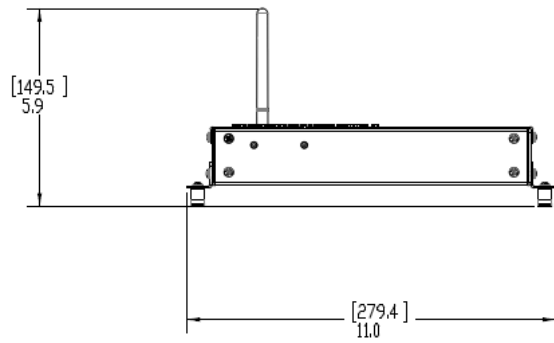


Fig 7 - DIN Rail Mount Manager Gateway

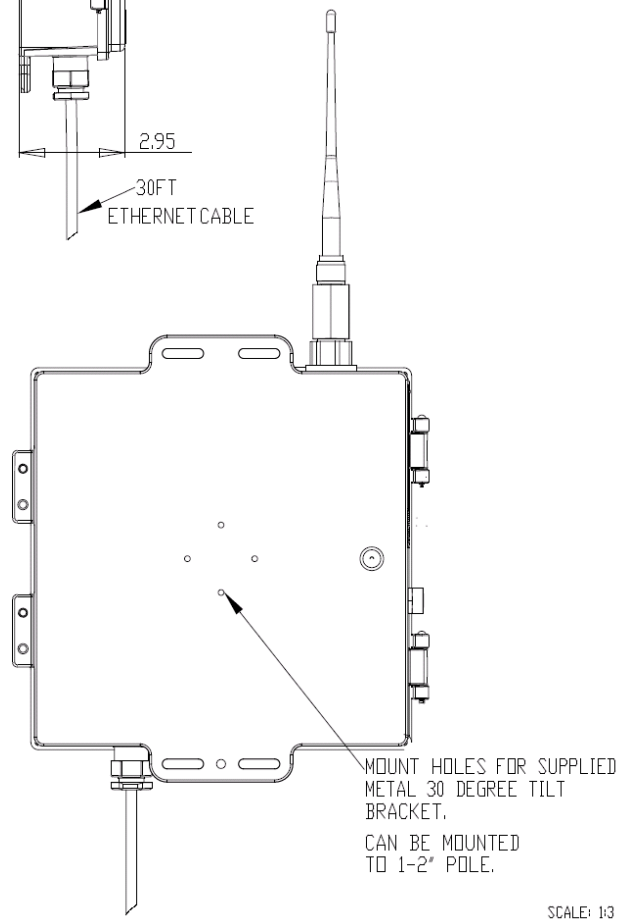
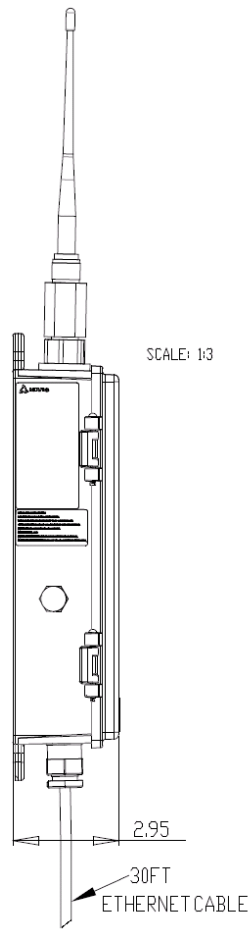
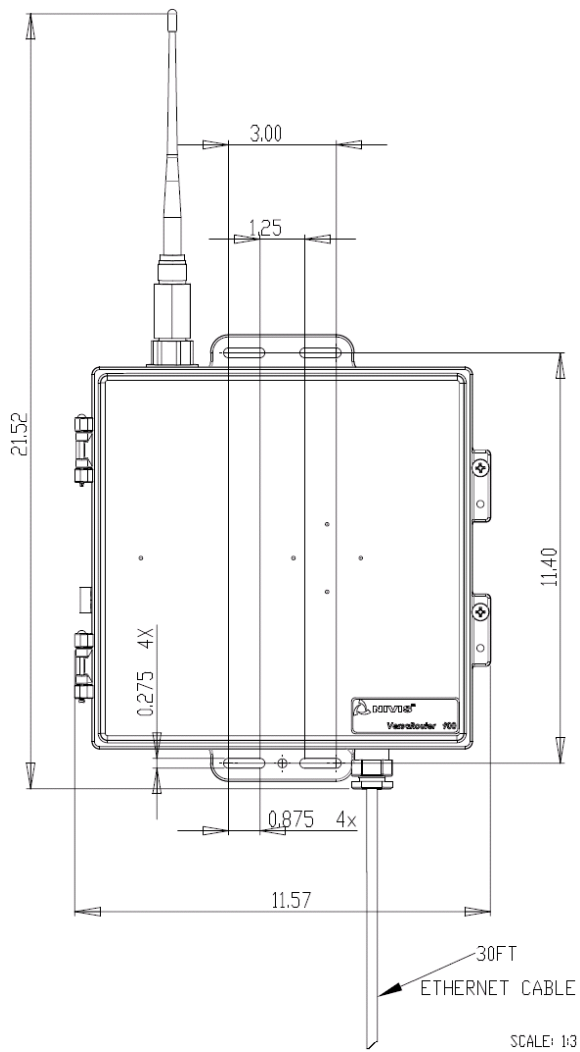


Fig 8 - Nivis™ VR900 NEMA 4X Gateway

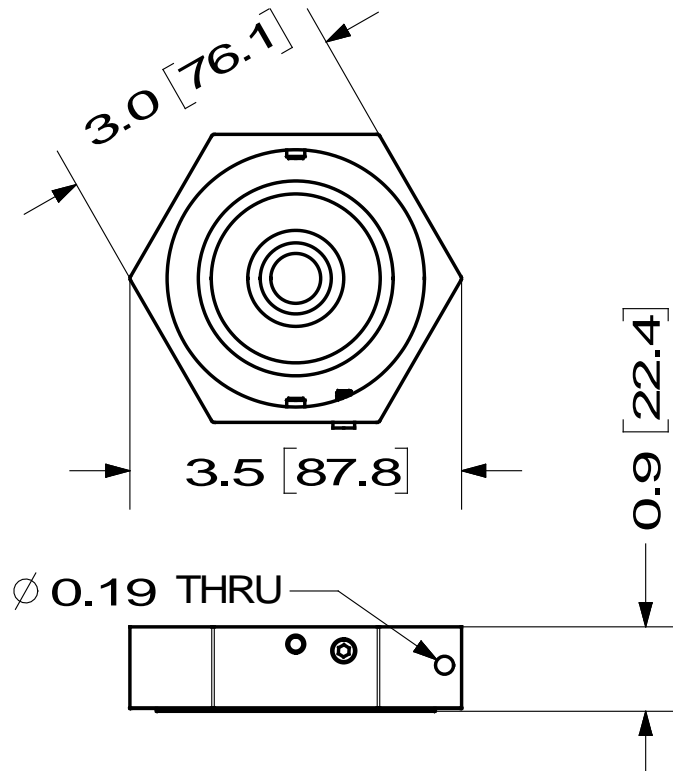


Fig 9 - Hex Base (Stainless Steel)

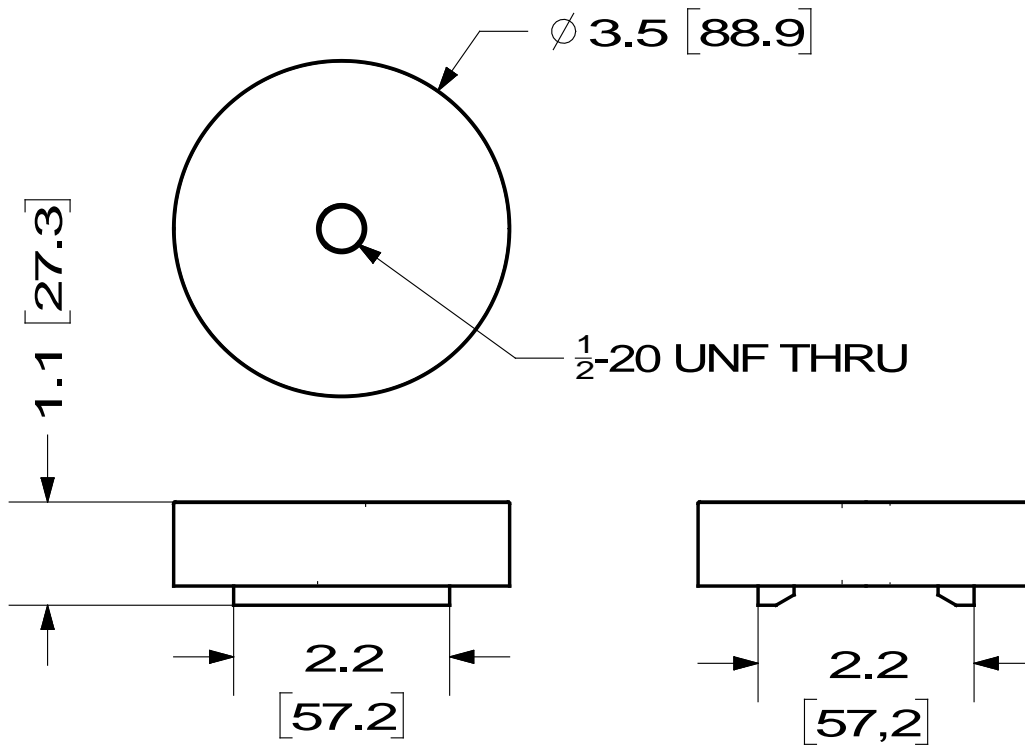


Fig 10 - Magnet Mount

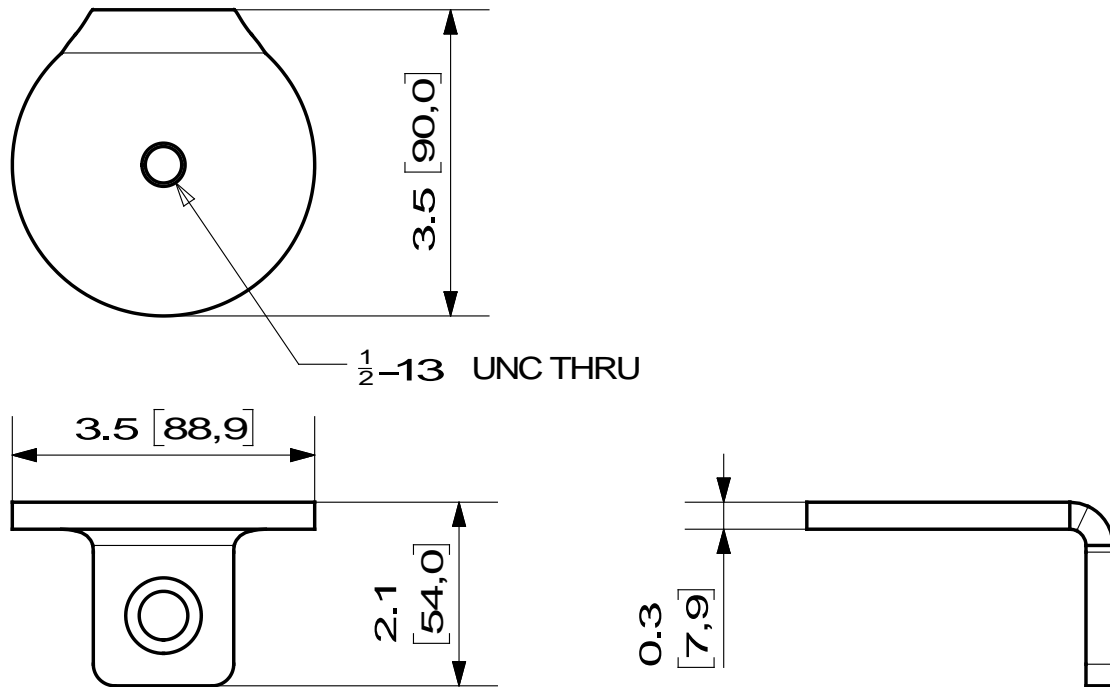


Fig 11 - Right Angle Mounting Bracket for Unistrut® Channel

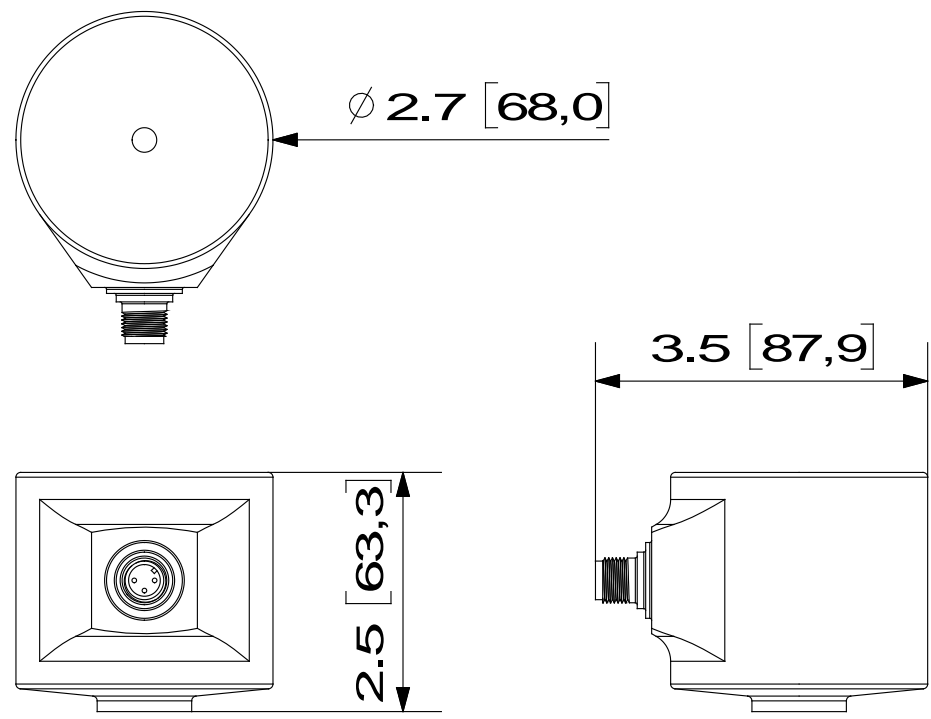


Fig 12 - Vibration Energy Harvester

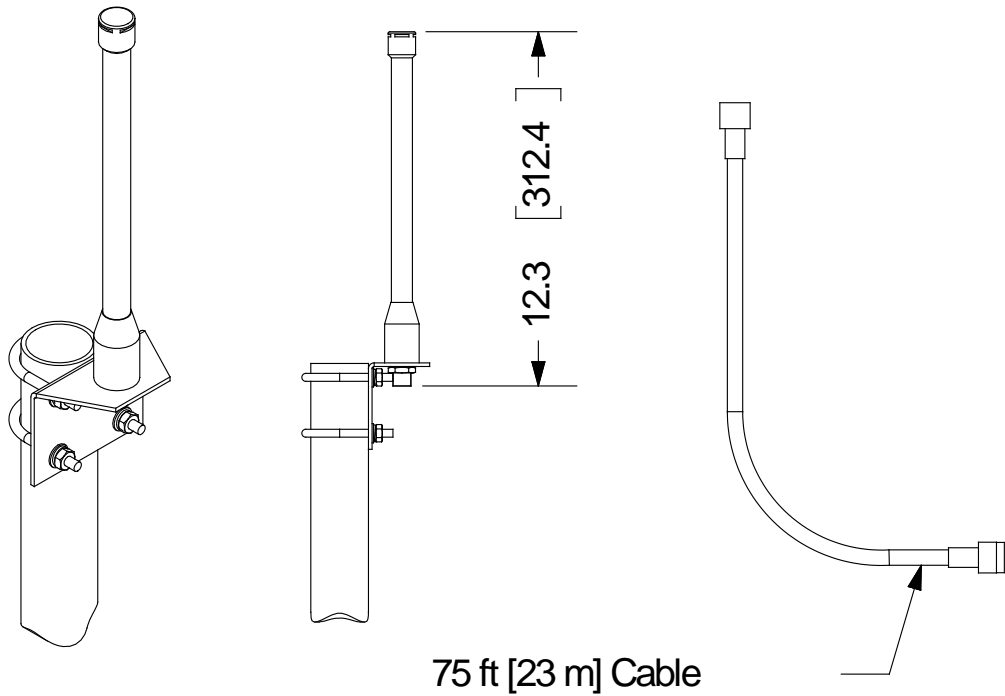


Fig 13 – Optional Antenna and Cable, 185519-01

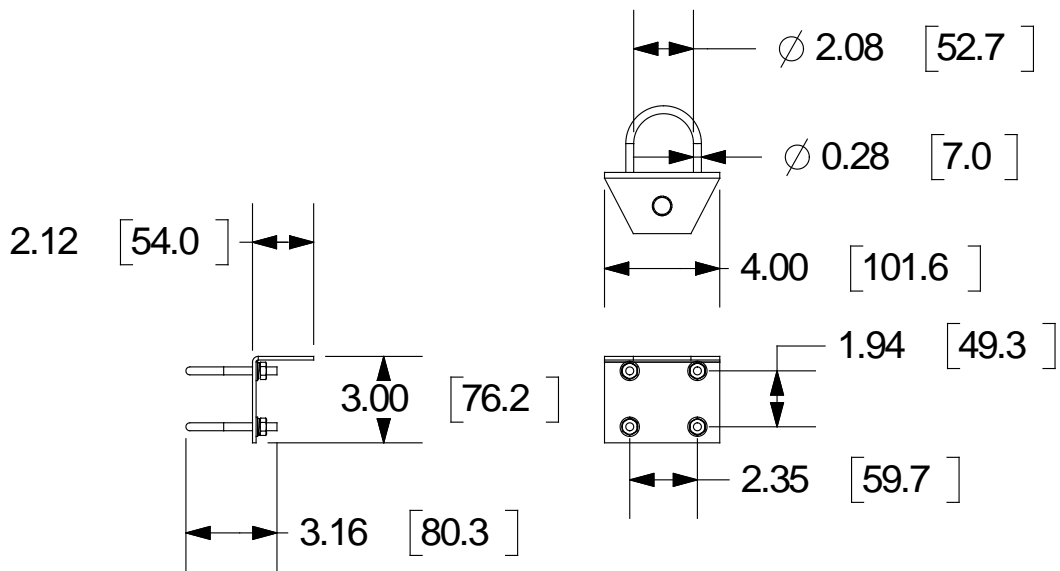


Fig 14 – Optional Antenna and Cable Mounting Hardware, 185519-01

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