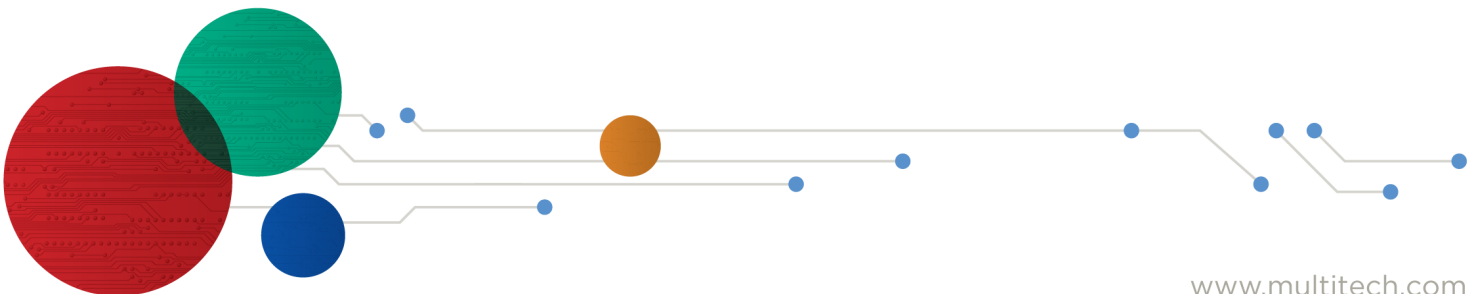




Conduit[®] Base Station IP67

Getting Started Guide for Brazil



Conduit IP67 Base Station Getting Started Guide for Brazil

Part Number: S000735, Version 1.0 Models: MTCDTIP-266A-915, MTCDTIP-266A-915-NLANT MTCDTIP-266L-915, MTCDTIP-266L-915-NLANT

Where A is for Application Enablement Platform (AEP) and L is for the mLinux gateway; and 915 is the LoRa frequency.

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Chapter 1 – Conduit® IP67 Base Station

The Conduit IP67 Base Station (MTCDTIP) is a LoRa IoT gateway device designed for outdoor deployments.

Installation

An installation guide ships with the MCDTIP and is also available at www.multitech.com and www.multitech.net.

Advanced Information

- For additional information on the mLinux platform, go to <http://www.multitech.net/developer/software/mlinux/>
- For additional information on the AEP platform, go to <http://www.multitech.net/developer/software/aep/>

Related Documentation

Installing the Device

An installation guide ships with the MCDTIP and is also available at <https://www.multitech.com/brands/multiconnect-conduit-ip67>.

Getting Started with mPower Models

Devices that ship with mPower have -2xxA in the model number.

- (S00727) mPower™ Edge Intelligence Conduit AEP Software Guide includes steps for configuring your device and provides details on the user interface.
- <http://www.multitech.net/developer/software/aep/> links to advanced information including getting started with LoRa devices and creating custom apps.

Note: Some users may have mLinux models converted to mPower. These will have mLinux model numbers.

Getting Started with mLinux Models

Devices that ship with mLinux have -2xxL in the model number.

- [Getting Started with mLinux models](#) information is available on the multitech.net developer website.
- <http://www.multitech.net/developer/software/mlinux/> links to details about using mLinux

LoRa References

- <http://www.multitech.net/developer/software/lora/> links to LoRa information.

Chapter 2 – Specifications and Related Information

Base Station Specifications

Base Station specifications depend on the hardware configuration for your model.

All Models

| Category | Description |
|-----------------------------|---|
| General | |
| USB | USB Port with Type A Receptacle, USB Interface is CDC-ACM compliant |
| SIM | Micro-SIM Holder |
| Physical Description | |
| Weight | V1.5: 5.15 lbs (2.34 kg) |
| Dimensions | Refer to Dimension Drawing. |
| Environment | |
| *Operating Temperature | -30° C to +70° C |
| Humidity | 20%-90% RH, non-condensing |
| Power Requirements | |
| Input Power | Power over Ethernet 37-57 Volts DC. |

*Please consult with MultiTech if interested in extended temperatures.

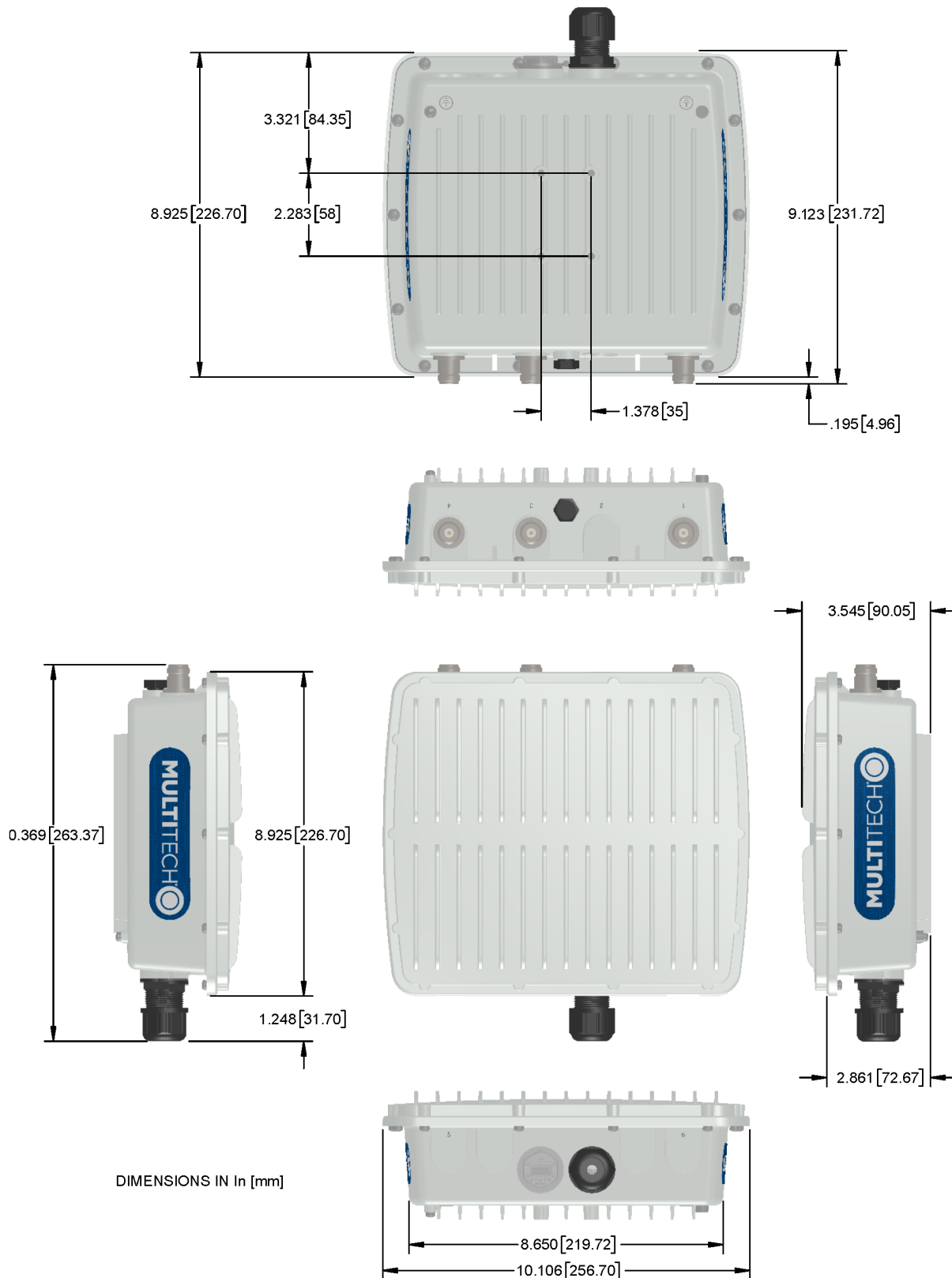
LoRa Specifications

Depending on the model, your device has one or two LoRa radios. If the model number includes -868/2 or -915/2, the device has two LoRa radios.

| Category | Description |
|--------------------------------------|------------------------------|
| General | |
| Standards | LoRaWAN 1.0.2 specifications |
| Radio Frequency | 915 MHz ISM |
| Certifications and Compliance | |

| Category | Description |
|--------------------------|--|
| EMC and Radio Compliance | EN 55032:2012 |
| | ICES-003 |
| | EN 61000-3-3:2013 |
| | EN 61000-3-2:2006 (Amended by A1:2009 and A2:2009) |
| | EN 55022:2010 |
| | EN 300 220-1 v3.1.1 |
| | EN 300 220-2 v3.1.1 |
| | EN 301 489-1 v2.2.0 |
| | EN301 489-3 V2.1.1 (2017-3) |
| Safety Compliance | IEC 60950-1 2nd Ed. Am.1 and Am.2 |

Dimensions



V1.5 Power Draw

Power draw with two LoRa cards and an LTE radio with power over Ethernet:

| Voltage | Cellular Call Box Connection No Data | Measured Current at Maximum Power ¹ | TX Pulse ² (AVG) Amplitude Current for GSM850 or Peak Current for HSDPA | Total Inrush Charge ³ Measured in MilliCoulombs |
|--------------------------------|---|---|---|--|
| 56.0 | 68 mA | 187 mA | 256 mA | 213 mC |
| 42.0 (Safety testing limit) | 88 mA | 246 mA | 316 mA | 230 mC |

Note:

¹Maximum Power: The continuous current during maximum data rate with the radio transmitter at maximum power.

²TX Pulse: The average peak current during a GSM850 transmission burst period or HSDPA connection. The transmission burst duration for GSM850 can vary, depending on what transmission scheme is being deployed.

³Inrush Charge: The total inrush charge at power on.

LoRa Transmission Output Power for MTAC-003

MTAC-003E00 (868 MHz)

Max output 24.5 dBm

| Power | Frequency | Bandwidth |
|----------|--------------|-----------|
| 24.5 dBm | 869.525 MHz* | 125 kHz |
| 13.7 dBm | 868.95 MHz | 250 kHz |

***Note:** Single-channel/high-power mode

MTAC-003U00 (915 MHz)

Max output 27.4 dBm

| Power | Frequency | Bandwidth |
|----------|-----------|-----------|
| 27.4 dBm | 923.3 MHz | 500 kHz |

Chapter 3 – Antennas

Antenna

Depending on the model, your Base Station ships with one or more of the following antennas.

| Manufacturer | Model | Description |
|--------------|----------------|-----------------------------|
| L-Com | HGV-906U | 6dBi Gain IP67 Lora Antenna |
| Pulse | RO8063/21704NM | 3dBi Gain IP67 Lora Antenna |

Pulse Omnidirectional Antenna

| | |
|---------------|--|
| Manufacturer: | Pulse |
| Description: | Omnidirectional antenna 806-960/1710-2170 MHz radome |
| Model Number: | RO8063/21704NM |



Antenna Specifications

| Category | Description |
|----------------------------|---|
| Frequency Range | 806-960 MHz |
| | 1710-2170 MHz |
| VSWR | 2.5:1 Max |
| Gain, Maximum | 3.0 dBi \pm 1 dB at 806-960 MHz |
| | 4.0 dBi \pm 1 dB at 1710-2170 MHz |
| Polarization | Vertical |
| Impedance | 50 Ω |
| Radiation Pattern | 3 dB Beamwidth |
| Horizontal Plane | Omni |
| Vertical Plane - 806-960 | 53° Avg |
| Vertical Plane – 1710-2170 | 39° Avg |
| Dimensions | 15.28 inches (388.5 mm) x 1.45 inches (36.9 mm) |

GTT IP67 Wi-Fi Antenna

Manufacturer: GTT
Description: IP67 Wi-Fi Dual-Band N Type Antenna
Model Number: OS-ISMDB-0507-CO



Antenna Specifications

| Category | Description |
|--------------------|--|
| Frequency Range | 2.4 - 2.5 GHz |
| | 5.15 -5.875 GHz |
| VSWR | 2.0: 1 Max |
| Radiation | Omni |
| Gain, Maximum | 4 dB at 2.4 GHz |
| | 6 dB at 5 GHz |
| Polarization | Linear, vertical |
| Impedance | 50 Ω |
| Antenna Efficiency | 60% Minimum |
| Dimensions | 0.9 inches (22 mm) x 7.0 inches (178 mm) excluding connector |

Chapter 4 – Safety Notices

Installation Safety

This information is also available in the Installation Guide , in the box and available at <https://www.multitech.com/brands/multiconnect-conduit-ip67> Select your model to find the correct installation guide for your device, in the box and available at <https://www.multitech.com/brands/conduit-ip67-200>. Select your model to find the correct installation guide for your device.

Warnings and Cautions

Warning and Caution symbols mean potential danger. You are in a situation that could cause bodily injury. Before working on any equipment, be aware of hazards in the installation area and be knowledgeable about electrical circuitry. Be familiar with standard practices for preventing accidents.

For translations of key cautions and warnings, refer Appendix A.



Warning: Only trained and qualified personnel should install, replace, or service this equipment. Installation must comply with local and national electrical codes. Classification of use by: Skilled person

- When installing or replacing the unit, the ground connection must always be made first and disconnected last.
- Disconnect PoE power (Ethernet PoE port) before servicing the device.
- Do not work on the system or connect or disconnect cables during periods of lightning activity.
- This device is not designed or approved to be used in any Hazardous Locations. Do not install or operate device if area is known to be an explosive environment.
- Externally ground this equipment using a customer-supplied ground wire before applying power. Contact an electrician if you are uncertain that suitable grounding is available. Refer to *Installing the Ground Wire* instructions in the Installation Guide (available at <https://www.multitech.com/brands/multiconnect-conduit-ip67>)(available at <https://www.multitech.com/brands/conduit-ip67-200>). All wall mounting installations are subject to the acceptance of local jurisdiction.
- Do not locate antenna near overhead power lines or other electric light or power circuits, or where it can come into contact with such circuits. When installing the antenna, take extreme care not to come into contact with such circuits, because they may cause serious injury or death. For proper installation and grounding of the antenna, please refer to national and local codes.



Warning:

HOT SURFACE DO NOT TOUCH

Note: This symbol is included on the serial label. UL evaluated this device to a safety and outdoor certification temperature of -30c to +70c.

Note: MultiTech recommends inspecting the mounting hardware every 3-6 months to ensure it has not become loose or damaged due to weather conditions (such as lightning or wind) or a corrosive environment (such as saltwater).

Lithium Battery

- A lithium battery (3V, coin cell, CR1632) located within the product provides backup power for the timekeeping. If the device is left powered off, the battery lasts approximately 90 days.
- When this battery starts to weaken, the date and time may be incorrect.
- Battery is not user replaceable. If the battery fails, the device must be sent back to MultiTech Systems for battery replacement.
- Lithium cells and batteries are subject to the Provisions for International Transportation. Multi-Tech Systems, Inc. confirms that the Lithium batteries used in the MultiTech product(s) referenced in this manual comply with Special Provision 188 of the UN Model Regulations, Special Provision A45 of the ICAO-TI/IATA-DGR (Air), Special Provision 310 of the IMDG Code, and Special Provision 188 of the ADR and RID (Road and Rail Europe).

CAUTION: Risk of explosion if this battery is replaced by an incorrect type. Dispose of batteries according to instructions.

Attention: Risque d'explosion si vous remplacez la batterie par un modèle incompatible. Jetez les piles usagées selon les instructions.

User Responsibility

Respect all local regulations for operating your wireless device. Use the security features to block unauthorized use and theft.

End user must operate product per country laws and rules

Device Maintenance

Do not attempt to disassemble the device. There are no user serviceable parts inside.

When maintaining your device:

- Do not misuse the device. Follow instructions on proper operation and only use as intended. Misuse could make the device inoperable, damage the device and/or other equipment, or harm users.
- Do not apply excessive pressure or place unnecessary weight on the device. This could result in damage to the device or harm to users.
- Do not use this device in explosive or hazardous environments unless the model is specifically approved for such use. The device may cause sparks. Sparks in explosive areas could cause explosion or fire and may result in property damage, severe injury, and/or death.
- Do not expose your device to any extreme environment where the temperature or humidity is high. Such exposure could result in damage to the device or fire. Refer to the device specifications regarding recommended operating temperature and humidity.
- Do not expose the device to water, rain, or spilled beverages. It is not waterproof. Exposure to liquids could result in damage to the device.
- Using accessories, such as antennas, that MultiTech has not authorized or that are not compliant with the device's accessory specifications may invalidate the warranty.

If the device is not working properly, contact MultiTech Technical Support.

Radio Frequency (RF) Safety

Due to the possibility of radio frequency (RF) interference, it is important that you follow any special regulations regarding the use of radio equipment. Follow the safety advice given below.

- Operating your device close to other electronic equipment may cause interference if the equipment is inadequately protected. Observe any warning signs and manufacturers' recommendations.
- Different industries and businesses restrict the use of cellular devices. Respect restrictions on the use of radio equipment in fuel depots, chemical plants, or where blasting operations are in process. Follow restrictions for any environment where you operate the device.
- Do not place the antenna outdoors.
- Switch OFF your wireless device when in an aircraft. Using portable electronic devices in an aircraft may endanger aircraft operation, disrupt the cellular network, and is illegal. Failing to observe this restriction may lead to suspension or denial of cellular services to the offender, legal action, or both.
- Switch OFF your wireless device when around gasoline or diesel-fuel pumps and before filling your vehicle with fuel.
- Switch OFF your wireless device in hospitals and any other place where medical equipment may be in use.

Interference with Pacemakers and Other Medical Devices

Potential interference

Radio frequency energy (RF) from cellular devices can interact with some electronic devices. This is electromagnetic interference (EMI). The FDA helped develop a detailed test method to measure EMI of implanted cardiac pacemakers and defibrillators from cellular devices. This test method is part of the Association for the Advancement of Medical Instrumentation (AAMI) standard. This standard allows manufacturers to ensure that cardiac pacemakers and defibrillators are safe from cellular device EMI.

The FDA continues to monitor cellular devices for interactions with other medical devices. If harmful interference occurs, the FDA will assess the interference and work to resolve the problem.

Precautions for pacemaker wearers

If EMI occurs, it could affect a pacemaker in one of three ways:

- Stop the pacemaker from delivering the stimulating pulses that regulate the heart's rhythm.
- Cause the pacemaker to deliver the pulses irregularly.
- Cause the pacemaker to ignore the heart's own rhythm and deliver pulses at a fixed rate.

Based on current research, cellular devices do not pose a significant health problem for most pacemaker wearers. However, people with pacemakers may want to take simple precautions to be sure that their device doesn't cause a problem.

- Keep the device on the opposite side of the body from the pacemaker to add extra distance between the pacemaker and the device.
- Avoid placing a turned-on device next to the pacemaker (for example, don't carry the device in a shirt or jacket pocket directly over the pacemaker).

Chapter 5 – Brazil Certification

ADENDO AO MANUAL

Modelo: MTCDTIP



05582-19-02742

Para maiores informações, consulte o site da ANATEL www.anatel.gov.br

Este equipamento não tem direito à proteção contra interferência prejudicial e não pode causar interferência em sistemas devidamente autorizados.