



Conduit[®] Base Station IP67

Getting Started Guide for Chile



Conduit IP67 Base Station Getting Started Guide for Chile

Part Number: S000781, Version 1.0 Models: MTCDTIP-L4N1-266L-915, MTCDTIP-L4N1-266A-915, MTCDTIP-266A-915, MTCDTIP-266A-915/2, MTCDTIP-266L-915, and MTCDTIP-266L-915/2

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Support Portal

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Support

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Europe, Middle East, Africa:	support@multitech.co.uk	+(44) 118 959 7774
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Warranty

To read the warranty statement for your product, visit <https://www.multitech.com/legal/warranty>. For other warranty options, visit www.multitech.com/es.go.

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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/>

Getting Started - 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>.

Operating in Chile

Models Certified in Chile

The following models have been certified: MTCDTIP-L4N1-266L-915, MTCDTIP-L4N1-266A-915, MTCTIP-266A-915, MTCDTIP-266A-915/2, MTCDTIP-266L-915, and MTCDTIP-266L-915/2 .

Required Settings For Chile

To legally operate these devices in Chile, configure the device as follows:

- Select AU915 Channel plan
- Set max LoRa transmit level to 23 dBm

Note: The 23 dBm LoRa transmit level is using the 3 dBi antenna shipped with the device. If using a higher gain antenna, lower transmission power proportionally, not to exceed the 27 dBm limit (500mW).

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](http://www.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)
	V2.1: 5.65 lbs (2.56 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.

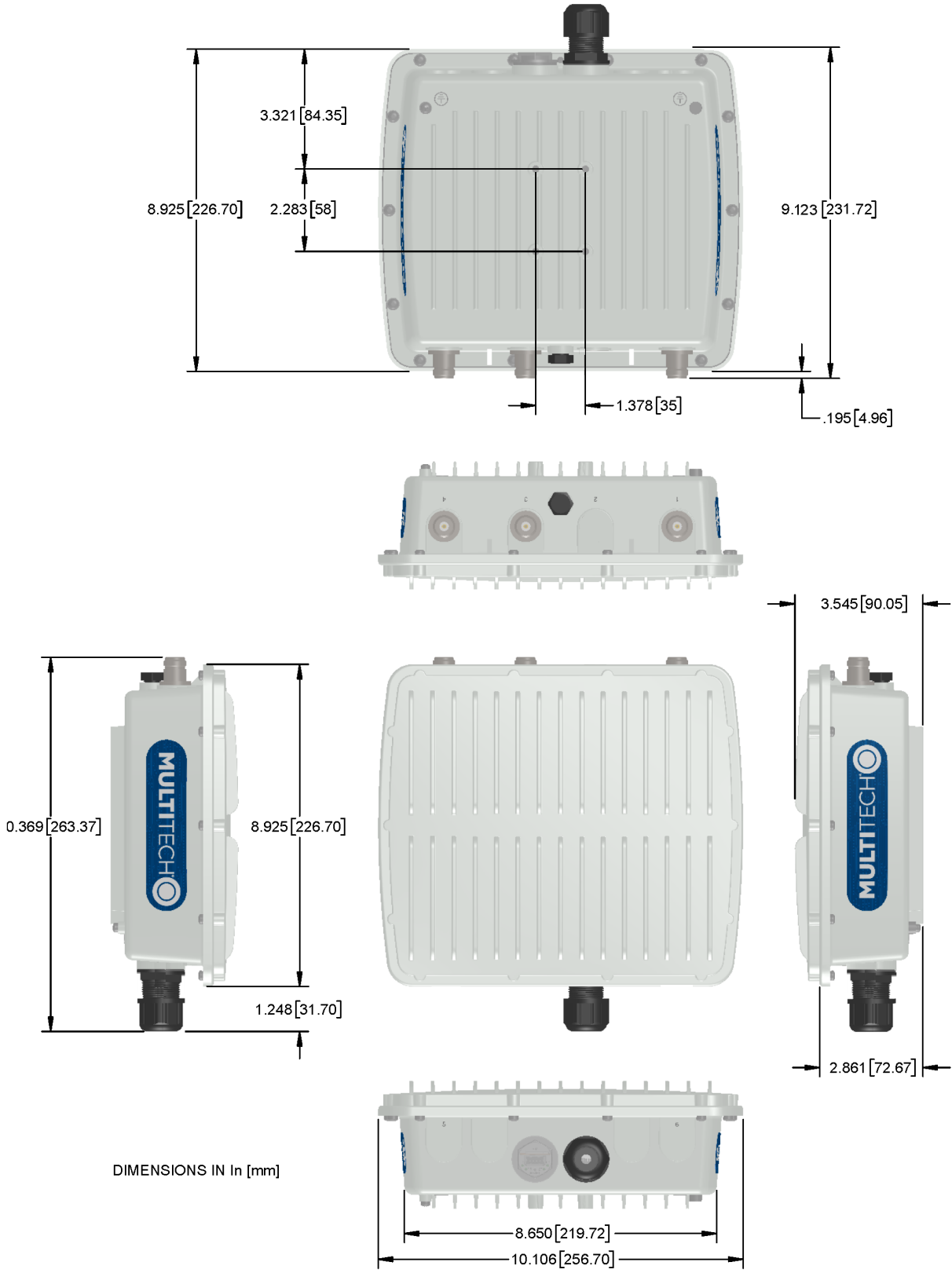
Category	Description
General	
Standards	LoRaWAN 1.0.2 specifications
Radio Frequency	915 MHz ISM band for US, AU, and Canada, 868 MHz for Europe, 865 MHz for India, 923 MHz for Japan, and 920 MHz for Korea
Certifications and Compliance	
EMC and Radio Compliance	EN 55032:2012
	RSS-210
	FCC 15.247
	FCC 15.109
	FCC 15.109(g)
	FCC 15.107
	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	UL 60950-1 2nd ED
	cUL 60950-1 2nd ED
	IEC 60950-1 2nd Ed. Am.1 and Am.2
Environment	IEC/CSA/UL60950-22 and IP67

-L4N1 Models

Category	Description
General	
Standards	LTE FDD Cat 4, 3GPP release compliant
	HSPA+ 21/GPRS fallback
	USB Interface is CDC-ACM compliant
TCP/IP Functions	FTP, SMTP, SSL, TCP, UDP

Category	Description
Frequency Bands	4G: B2, B4, B5, B12, B13, B14, B66, B71
	3G: B2, B4, B5
Speed	
Data Speed	LTE: 150 Mbps downlink/50 Mbps uplink
	HSPA+: 42 Mbps downlink
SMS	
SMS	Point-to-Point messaging
	Mobile-Terminated SMS
	Mobile-Originated SMS
	SMS over IMS
Certifications and Compliance	
EMC and Radio Compliance	FCC Part 15 Class B
	FCC Part 22H, 24E, 27, 90
Safety Compliance	UL 60950-1 2nd ED
	cUL 60950-1 2nd ED
Network Compliance	PTCRB
Carrier	AT&T/Verizon

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.

Power Draw

Voltage	Measured Current at Maximum Power ¹	TX Pulse ² (AVG) Amplitude Current	Total Inrush Charge ³ Measured in MilliCoulombs
56.0	187 mA	256 mA	213 mC
42.0 (Safety testing limit)	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.

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

Chapter 3 – Antennas

Antenna

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

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 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)

Chapter 4 – Safety Notices

Installation Safety

This information is also available in the Installation Guide.

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.

- 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 IP67 Base Station.
- 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. < 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.



CAUTION:

Power over Ethernet (PoE) Certification does not apply or extend to voltages outside of standard PoE range. Any PoE voltages beyond 0vdc to 60Vdc have not been evaluated by UL or MULTITECH. Nominal PoE voltage is 48Vdc to 57 VDC. The end user supplies the PoE cable. If the cable is to be used outdoors, the cable must be certified for outdoor or burial use.

For models:

MTCDTIP-270x-xxx, MTCDTIP-275x-xxx

- Recommended PoE: 802.3bt-compliant Type 4 Class 7 Power-over-Ethernet (PoE) Powered Devices (PDs) and require PoE Power Supply Equipment (PSE) that is 802.3bt-compliant with minimum 60W output power capability.

For models:

MTCDTIP-266x-xxx, MTCDTIP-xxx-266x-xxx, MTCDTIP-267x-xxx, MTCDTIP-xxx-267x-xxx

- Recommended PoE: 802.3at-compliant Type 2 Class 4 Power-over-Ethernet (PoE) Powered Devices (PDs) and require PoE Power Supply Equipment (PSE) that is 802.3at-compliant with minimum 25.5W output power capability.

Ethernet port is not designed to be connected to a public Telecommunication (PSTN) or any other connection other than IEEE 802.3-2012 power over Ethernet devices.

Do not remove product labels.



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.

Lithium Battery

- A lithium battery (3V, coin cell, CR1632) located within the product provides backup power for the timekeeping. This battery has an estimated life expectancy of ten years.
- 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.

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.
- Do not place the device alongside computer discs, credit or travel cards, or other magnetic media. The information contained on discs or cards may be affected by the device.
- Using accessories, such as antennas, that MultiTech has not authorized or that are not compliant with MultiTech'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).