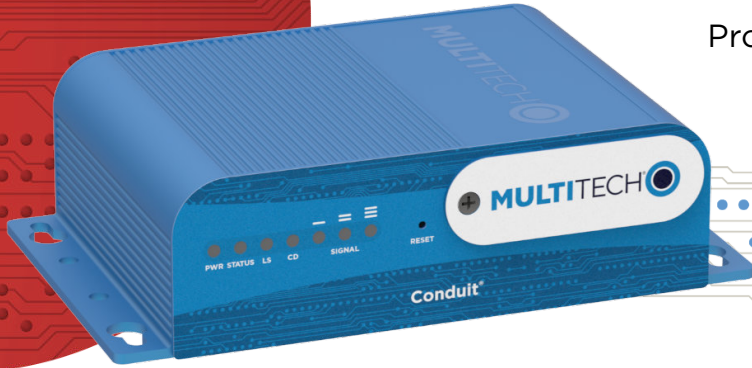


# MultiTech Conduit<sup>®</sup>

Programmable Gateway for the Internet of Things  
AS923 for Japan



**MultiTech Conduit<sup>®</sup>** is the industry's most configurable, manageable, and scalable cellular communications gateway for industrial IoT applications and now supports the AS923 channel plan. Designed specifically to operate in the Japanese market, this Conduit supports Listen Before Talk transmission to ensure regulatory conformance as well as optimum communications performance. Network engineers can remotely configure and optimize their Conduit performance through DeviceHQ<sup>®</sup>, the world's first IoT Application Store and Device Management platform. The Conduit features GNSS and two accessory card slots that enable users to plug in MultiTech mCard<sup>™</sup> accessory cards supporting their preferred wired or wireless interface to connect a wide range of assets locally to the gateway.

Available options include a LoRaWAN<sup>®</sup> mCard capable of supporting thousands of MultiTech xDot<sup>®</sup> long range RF modules connected to remote sensors or appliances. Quick-to-deploy and easy to customize and manage, the Conduit communications gateway realizes your IoT application.

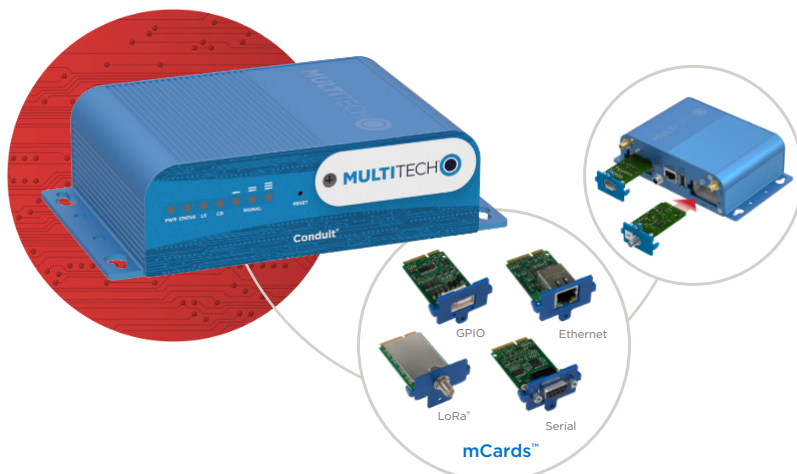
## GATEWAY BENEFITS

- Incredible asset management range with LoRa<sup>®</sup> - up to 10 miles/15 km line of sight, 1-3 miles/2 km thru buildings\*
- GNSS module for LoRaWAN packet time-stamping
- Backhaul options include 4G-LTE Cat 1 cellular or Ethernet for cost effective global deployment
- Quick-to-deploy, manage and scale differentiated services using the DeviceHQ IoT Application Store

\* Represents ideal network configuration and equipment set up. Results vary depending on payload amount, transmission frequency, spreading factor used, as well as terrain, RF interference and obstruction type (e.g., metal, cement, etc.)

## LORA FEATURES

- Certified for Japan AS923 MHz ISM band
- Listen Before Talk for advanced collision prevention
- 1 PPS interface to facilitate LoRa packet time-stamping
- ISM band scanning for optimum LoRa performance



**1**  
Select Wide Area Network  
4G LTE, 3G, 2G, Ethernet

*Simplified Selection & Setup*

**2**  
Select Application Environment  
mPower<sup>™</sup>

**3**  
Select Local Connection  
Ethernet, Serial, GPIO, LoRaWAN<sup>®</sup>

# mPower™

EDGE INTELLIGENCE

**Programmable embedded software provides enhanced security and enables task execution at the edge for reduced latency and cost optimization.**

mPower™ Edge Intelligence embedded software delivers programmability, network flexibility, enhanced security and manageability for scalable Industrial Internet of Things (IIoT) solutions.

mPower simplifies integration with a variety of popular upstream IoT platforms to streamline edge-to-cloud data management and analytics, while also providing the programmability and processing capability to execute critical tasks at the edge of the network to reduce latency; control network and cloud services costs, and ensure core functionality – even in instances when network connectivity may not be available.

mPower software specifications can be found [here](#).

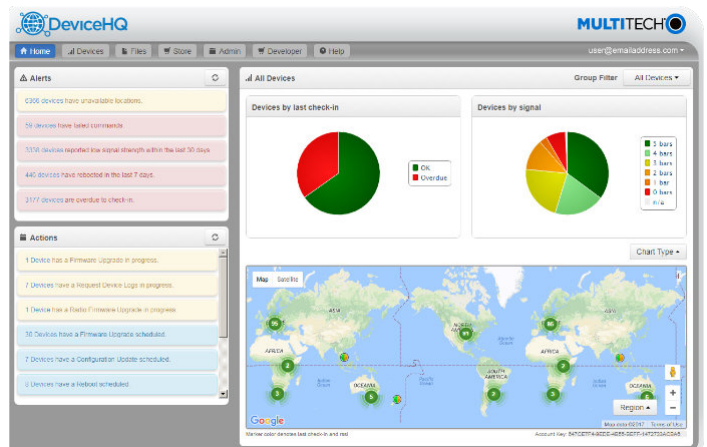
## LENS® Embedded by Network Server & Key Management Toolset for LoRaWAN® Networks

LENS is a hybrid LoRaWAN® network management platform that enables deployment and management of LoRaWAN networks at scale. Designed for private and enterprise networks, LENS provides a site-by-site user account and centralized management for LoRa® end devices, as well as configuration and control of Conduit® gateways. LENS has the capability to assign unique access rights to individual users, add gateways and LoRa end nodes in bulk, or create separate organizations and network segmentation to support different IoT use cases or applications.



**Cloud-based Application Store and IoT Device Management**

MultiTech DeviceHQ® is cloud-based tool set for managing the latest generation of MultiTech devices. It incorporates all the functionality of MultiTech Device Manager, on which so many M2M and IoT applications already rely for remote monitoring, upgrades and configuration of entire device populations – whether one or 1 million. DeviceHQ takes remote device management and maintenance to a new level, by providing an application marketplace, allowing users to browse applications or build their own then easily deploy them to and customize them for remote devices from anywhere.



## SPECIFICATIONS

Models	MTCDD-LDC3	MTCDD-LSB3
Performance (Cellular Optional)	Category 1 LTE 3GPP Release 13 (10 Mbps peak downlink/5 Mbps peak uplink)	
	NTT Docomo	Softbank
	Diversity	
Frequency Band (MHz)	4G No Falback 2100(B1) / 850(B19) / 1500(B21)	4G No Falback 2100(B1) / 900(B8)
Processor & Memory	ARM9 processor with 32-Bit ARM & 16-Bit Thumb instruction sets <ul style="list-style-type: none"> <li>• 400 MHz</li> <li>• 16K Instruction Cache</li> <li>• 16K Data Cache</li> <li>• 128X16M DDR RAM</li> <li>• 256 MB Flash Memory</li> </ul>	
Packet Data	Up to 100 Mbps downlink, Up to 50 Mbps uplink	
Radio Frequency LoRa	LoRa – a proprietary Digital Spread Spectrum technique / 8-Channel Gateway / 2 x 8-Channel Optional	
Software	mPower Open source embedded Linux distro based on the Yocto Project Tool chain for creating custom images LoRa network server & packet forwarder Ethernet or cellular Cellular PPP, DHCP client & server Firewall configuration via iptables MTAC-GPIO, MTAC-MFSESR RS-232 or RS-485, MTAC-ETH and MTAC-LORA Full root console access via SSH and serial debug port Out of the box support for C, C++, Python, Node.js, Javascript Package upgrade support for Java, Perl, Ruby, Mono C# pkg package manager with limited package feed Basic router functionality built-in with Linux Software configurable USB device port Lighttpd web server	mPower Seamless integration with DeviceHQ, MultiTech's device management platform Cellular Connection Management Enhanced closed source embedded Linux platform Dynamic DNS Secure firewall with NAT and port forwarding Node-RED integration with Built-in application development for: MTAC-GPIO, MTAC-MFSESR and MTAC-LORA, Custom Static Routing Open VPN Graphical web interface for configuration and management Remote Access Configuration backup & restore Easy firmware upgrade through graphical web interface System and network statistics
GNSS/GPS	<ul style="list-style-type: none"> <li>• 72-channel u-blox M8 engine</li> <li>• GPS, GLONASS, Galileo, BeiDou, QZSS and SBAS</li> <li>• 3 Concurrent GNSS</li> <li>• Standard Precision GNSS</li> </ul>	
Antennas	LoRa Omni-directional radiation pattern for 360° / 3 dBi gain / Vertical polarization / Weight: 25.6 grams / 1/8 wavelength dipole configuration / Dimensions: 195 ± 2 x 13mm / Frequency Range: 868-928 MHz / Reverse SMA Male connector Cellular Wideband LTE, 4G, 3G & GSM / 1 dBi gain / Groundplane independent / Linear polarization / Locks in three positions for flexibility / Dimensions: 171 x 18mm (max) / Frequency Range: 690-960/1710-2700MHz / SMA-Male connector GNSS/GPS Magnet mount / Input Voltage: 3.0V±0.3V / Power Consumption: 15mA Typical (+25°C±5°C) 20mA Max (-40°C≈+85°C) / Cable: 1.5DS-QEHV (TA) 5m:Black / Gain: 90°: 3.0dBi MIN 20° -5.0dBi MIN / Polarization: RHCP / Output Connector: SMA-SP-1.5DQEHV / Weight: 25g w/o cable / Frequency Range: 1.575.42±1.023 MHz / Dimensions: 34±0.5mm x 37.4±0.5mm x 12.95±0.5 mm not including black 5m cable	
MTAC LoRa mCard	Listen Before Talk support / SPI interface / LoRaWAN 1.0, 1.0.1 & 1.0.2 support Dimensions - 50.59 mm x 30 mm / 902-928 MHz ISM Band - AS923 MHz compliant	
LoRa Channel Plan Support	Japan 920 - 928 Mhz	
LoRaWAN Protocol Support	LoRaWAN 1.0, 1.0.1 and 1.0.2 supported	
Storage	Micro SD max storage size 32GB (HSMCI), Industrial temp is recommended	
Input Voltage	9V to 32VDC	
	AC Supply / MJSW0901700N-5448 / Input current: 0.6A Max / Input voltage: 90V - 264V / Input frequency: 47-63Hz	
<b>Connectors</b>		
Ethernet	1 RJ-45 Ethernet 10/100 port	
USB	2 USB Ports: USB Host (Type-A), USB Device (Micro-B)	
Serial	1 Debug Serial: USB Micro-B	
Antenna	Cellular, GPS: Female SMA / Wi-Fi, LoRa: Reverse polarity Female SMA	
SIM	Standard Mini SIM/USIM (2FF)	
<b>Physical Description</b>		
Dimensions (L x W x H)	6.35" x 4.23" x 1.69" (161.3 mm x 107.4 mm x 42.8 mm)	
Weight	1.01 lbs (16.2 oz) with two accessory cards installed	
Chassis Type	Metal	
<b>Environmental</b>		
Operating Temperature	-30° to +70° C*	
Storage Temperature	-40° to +85° C	
Humidity	Relative humidity 20% to 90%, non-condensing	
<b>Certifications</b>		
EMC Compliance	Japan: TELEC, Radio/Telecom Biz Act, GITEKI	
Radio Compliance	Japan Giteki, Radio/Telecom Biz Act	
Safety	UL 60950-1 2nd Ed., cUL 60950-1 2nd Ed., IEC 60950-1 2nd Ed	
Network	NTT Docomo, Softbank	
Quality	MIL-STD-810G: High Temp, Low Temp, Random Vibration. SAE J1455: Transit Drop & Handling Drop, Random Vibration, Swept-Sine Vibration. IEC68-2-1: Cold Temp. IEC68-2-2: Dry Heat	

\* UL Listed @ 40° C, limited by AC power supply. UL Recognized @ 70° C when used with the fused DC power cable, part number FPC-532-DC. Installation in outdoor locations or ambient temperature above 40° C or 70° C has not been evaluated by UL. UL Certification does not apply or extend to use in outdoor applications. Optional power must be UL Listed ITE power supply marked LPS or Class 2 rated 12VDC, 5A. Certification does not apply or extend to voltages outside certified range, and has not been evaluated by UL for operating voltages beyond tested range.

Documentation and instructions on how to program mLinux Conduits can be found on our developer site at [www.multitech.net](http://www.multitech.net)

## ORDERING INFORMATION

### MultiTech Conduit® with GNSS

Model	Description	Region
MTCDDT-LDC3-246A-JP	LTE Cat 1 mPower Programmable Gateway GNSS w/JP Accessory Kit (NTT Docomo)	Japan
MTCDDT-LDC3-246A-923-JP	LTE Cat 1 mPower Programmable Gateway GNSS w/JP Accessory Kit & MTAC LoRa mCard (NTT Docomo)	Japan
MTCDDT-LSB3-246A-JP	LTE Cat 1 mPower Programmable Gateway GNSS w/JP Accessory Kit (Softbank)	Japan
MTCDDT-LSB3-246A-923-JP	LTE Cat 1 mPower Programmable Gateway GNSS w/JP Accessory Kit & MTAC LoRa mCard (Softbank)	Japan

### MultiTech Conduit® Ethernet Only

Model	Description	Region
MTCDDT-246A-923-JP	Ethernet Only mPower Programmable Gateway w/MTAC LoRa mCard, GNSS, w/JP Accessory Kit	Japan

## RECOMMENDED ACCESSORIES

### MultiTech mCard™

Model	Description	Region
MTAC-LORA-H-923-JP	923 MHz LoRa Accessory Card, with Listen Before Talk (Antenna Sold Separately)	Japan
MTAC-GPIO	GPIO Accessory Card, GPIO Cable Sold Separately	Global
MTAC-MFSER-DTE	Multi-Function Serial Accessory Card - DTE Interface	Global
MTAC-MFSER-DCE	Multi-Function Serial Accessory Card - DCE Interface	Global

### MultiTech mDot™

Model	Description	Region
MTDDOT-923-JP1-XIP-SMA-1	AS923 MHz X1 LoRa SMA w/Programming Header w/ LBT (1 Pk)	Japan

### MultiTech xDot\*

Model	Description	Region
MTXDOT-JP1-A00-100	AS923 MHz LoRa Module w/ LBT UFL/TRC (100 Pk)	Japan
MTXDOT-JP1-A00-1	AS923 MHz LoRa Module w/ LBT UFL/TRC (1 Pk)	Japan

### Developer Kit, Antennas & Accessories

Model	Description	Region
MTMDK-XDOT-JP1-A00	MultiTech xDot Micro Developer Kit-includes AS923 MHz xDot	Japan
AN868-915A-xHRA	868-915 MHz RP-SMA Antenna, 8" (3.0dBi) (1, 10, & 50 packs)	Global
CARSMA-UFL	Reverse SMA-to-UFL Coax RF Cable, 6"	Global
CA-MTAC-GPIO	GPIO Cable for MTAC-GPIO (2.5 ft)	Global
CA9-9-D	DE9M-DE9F Serial Cable (6 ft)	Global
CA-USB-A-MICRO-B-3	USB Cable Type A to Type B Micro (3ft)	Global

Go to [www.multitech.com](http://www.multitech.com) for detailed product model numbers.

## Services & Warranty

MultiTech's comprehensive Support Services programs offer a full array of options to suit your specific needs. These services are aimed at protecting your investment, extending the life of your solution or product, and reducing total cost of ownership. Our seasoned technical experts, with an average tenure of more than 10 years, can walk you through smooth installations, troubleshoot issues and help you with configurations.

## Technical Support Services

At MultiTech, we're committed to providing you personalized attention and quality service while providing you a quick response to your product support needs. We have several options of support for you to choose from.

For additional information on Support Services as well as other service offerings, please contact your MultiTech representative or visit [www.multitech.com/support.go](http://www.multitech.com/support.go)

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