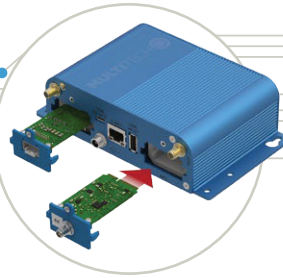
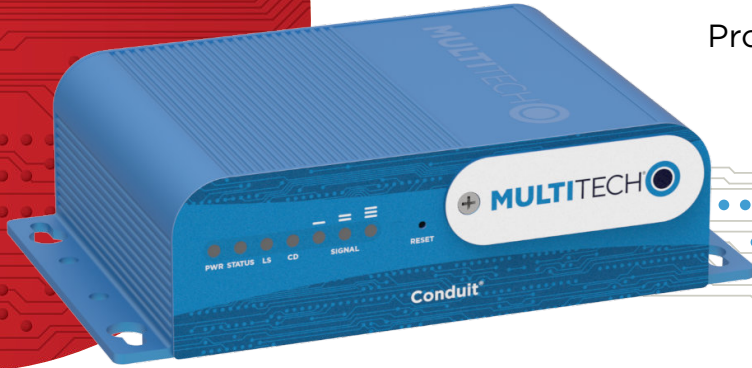


MultiTech Conduit[®]

Programmable Gateway for the Internet of Things
AS923 for Japan



MultiTech Conduit[®] 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[®], 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[™] 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[®] mCard capable of supporting thousands of MultiTech xDot[®] 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.

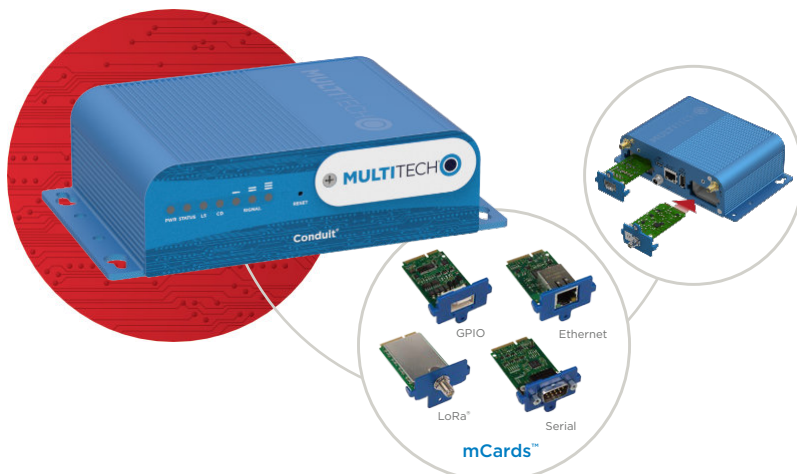
GATEWAY BENEFITS

- Incredible asset management range with LoRa[®] - 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 Japanese 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, mLinux[™]

3

Select Local Connection

Ethernet, Serial, GPIO, LoRaWAN[®]

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 is a new embedded software offering, building on its popular application enablement platform, to deliver programmability, network flexibility, enhanced security and manageability for scalable Industrial Internet of Things (IIoT) solutions.

mPower is the unification and evolution of well-established MultiTech smart router and gateway firmware platforms. In addition to ongoing support of the current feature-sets, gateway customers can enjoy the additional security features currently available on the MultiConnect™ rCell 100 Series.

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.

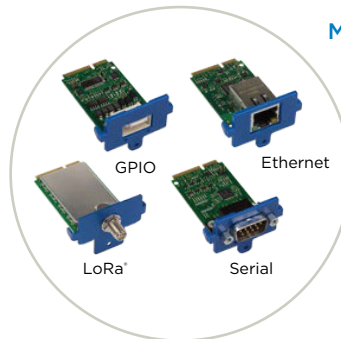
In response to evolving customer security requirements, mPower incorporates a host of new security features including signed firmware validation, enhanced firewall and VPN settings, secure authentication and more.

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

ACCESSORIES

MultiTech Conduit® Accessories – From the Gateway to the Endpoint

MultiTech Conduit is the center of an integrated IoT platform and comes with the following options:



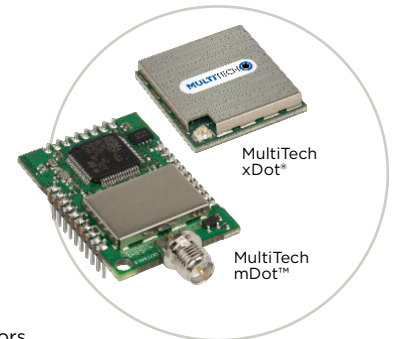
MultiTech mCard™

MultiTech mCards provide the flexibility needed to manage diverse infrastructures, supporting a wide range of interfaces and communication protocols including:

- Multi-Function Serial, GPIO, Ethernet
- LoRa LPWAN

MultiTech mDot™ & xDot® – Connecting the “Things”

MultiTech mDot and xDot are secure, regulatory-certified, Arm™ Mbed™ programmable, low-power RF modules, providing long-range, low bit rate IoT data connectivity to sensors and actuators.



The mDot and xDot are LoRaWAN compliant, providing bi-directional data communication up to 10 miles line-of-sight and 2-3 miles in buildings, using the global sub-GHz ISM radio bands in North America, Europe, and the APAC regions.

The mDot was the first Arm Mbed platform listed on mbed.org that was deployment ready. The mDot supports applications written and compiled in the mbed online environment using developer friendly libraries. Decision making and control can be done at the edge, reducing the need to optimize RF performance and implement complex IoT middleware.

mDots and xDots bring intelligence, reduced complexity and a lower overall bill of material to the edge of the network while supporting a variety of interfaces to connect just about any battery-powered “thing”.

Easily Deploy and Manage Assets Via DeviceHQ™

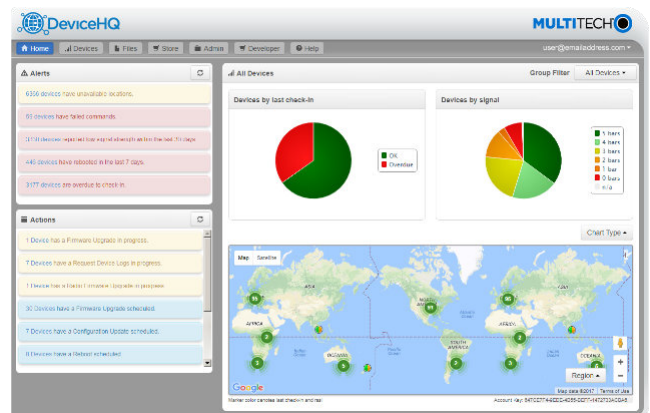


MultiTech DeviceHQ is the M2M industry's first

IoT online application store to enable customers to easily deploy and scale applications to their connected devices. Drag-and-drop tools easily allow customers to create and manage applications for in-field assets. The DeviceHQ application store gives your business the power to innovate operations management and create value-added services.

Benefits

- “Low Touch” asset deployment reduces costs, complexity and time
- Easily scales to your network needs
- Browse and download a wide variety of custom applications tailored to your business needs
- Reduce truck-rolls using remote performance management and asset updates



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 Fallback 2100(B1) / 850(B19) / 1500(B21)	4G No Fallback 2100(B1) / 900(B8)
Processor & Memory	ARM9 processor with 32-Bit ARM & 16-Bit Thumb instruction sets <ul style="list-style-type: none"> • 400 MHz • 16K Instruction Cache • 16K Data Cache • 128X16M DDR RAM • 256 MB Flash Memory 	
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 & mLinux Open source embedded Linux distro based on the Yocto Project Tool chain for creating custom images LoRa network server & packet forwarder Ethernet, Wi-Fi 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# opkg package manager with limited package feed Basic router functionality built-in with Linux Five configurable LEDs Software configurable USB device port Lighttpd web server	mPower Only 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"> • 72-channel u-blox M8 engine • GPS, GLONASS, Galileo, BeiDou, QZSS and SBAS • 3 Concurrent GNSS • Standard Precision GNSS 	
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	
Connectors		
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	Female SMA, 2dBi detachable cellular antennas (Qty 2), GPS (Qty 1)	
SIM	Standard Mini SIM/USIM (2FF)	
Physical Description		
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	
Environmental		
Operating Temperature	-30° to +70° C*	
Storage Temperature	-40° to +85° C	
Humidity	Relative humidity 20% to 90%, non-condensing	
Certifications		
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

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 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.

Installation Support

MultiTech's Installation Support Service delivers priority service with the ability to work one-on-one with an experienced MultiTech technical support engineer, to guide you through the installation process for our products.

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

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