

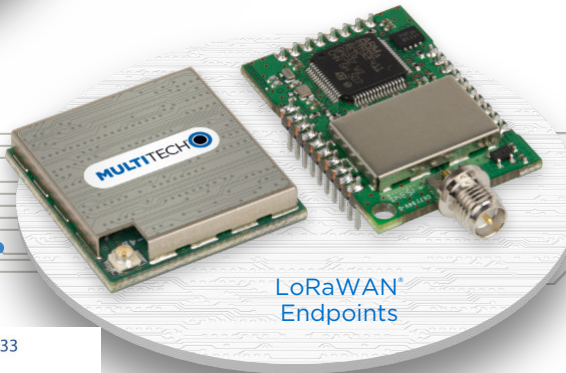
MULTITECH®



LoRaWAN® Gateways



LoRaWAN® Sensors



LoRaWAN® Endpoints



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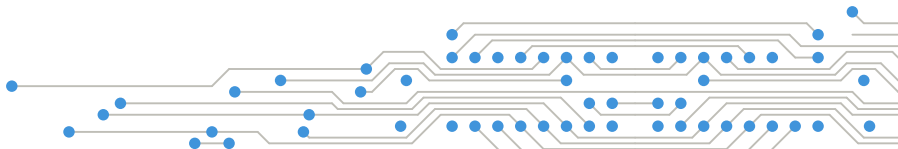
Sensor + Gateway + Cloud
Enabling smart connected products and services with LoRaWAN®

Advancing IoT

MultiTech is committed to the growth and development of the Industrial Internet of Things in order to enable your smart, connected products and services – and has been for more than 50 years.

Our products connect you to your assets, leveraging proven, standards-based sensor and communications technologies and open architectures to bring systems and processes into the future. We provide expert technical support and partner with customers to overcome IoT integration challenges with off-the-shelf and custom products tailored to meet your unique needs.

Plus, our U.S. and global manufacturing operations give us the agility and flexibility to develop and manufacture high quality connected devices optimized for both performance and value.

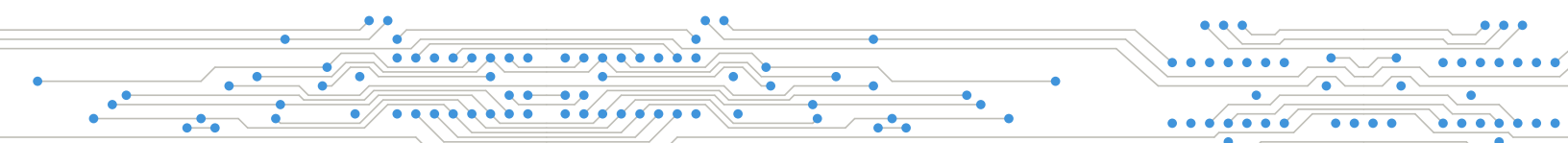


MultiTech Campus
Mounds View,
Minnesota U.S.A.



Why LoRaWAN®

LoRaWAN® is a low-power, wide-area network (LPWAN) protocol intended for wireless, remotely located, often battery-operated, things in local, regional, national or global networks. LoRaWAN provides secure bi-directional communication, mobility and localization services, and seamless interoperability among smart things. Better yet, thanks to its low power consumption and the ability for enterprises to deploy their own private networks for added security, LoRaWAN has the opportunity to facilitate the long-predicted huge IoT growth well before alternative technologies are broadly available.

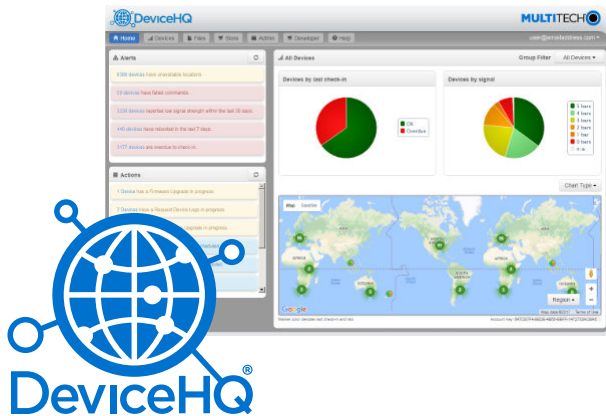


Why MultiTech?

LoRaWAN®- OPTIMIZED EMBEDDED NETWORK SERVER AND KEY MANAGEMENT TOOLSET



MultiTech Lens™ - a revolutionary toolset for secure, distributed, scalable LoRaWAN® enterprise networks, is designed to enable easy and efficient deployment and management of private LoRaWAN networks at scale. Lens provides centralized key management for LoRaWAN end devices, and configuration and control of MultiTech Conduit® gateways. Lens easily executes typical LoRaWAN network management functions such as adding gateways and LoRaWAN end devices in bulk; or creating separate organizations and network segmentation to support different IoT use cases or applications, while providing unique access rights to individual users. Whether it's 10 or 10,000 devices, Lens provides network management at the click of a mouse button in the comfort of your network operations center (NOC) or provisioning and management center.



DEVICE AND APPLICATION MANAGEMENT

MultiTech DeviceHQ® is a 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 on 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 and customize them for remote devices from anywhere.

MPOWER™ EDGE INTELLIGENCE

mPower™ Edge Intelligence is MultiTech's embedded software offering used on programmable gateways and smart routers and helps deliver 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. It also provides 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 incorporates a host of security features including signed firmware validation, enhanced firewall and VPN settings, secure authentication and more.

SUPPORT

We consider ourselves an extension of your team and we are absolutely committed to your success. We recognize that creating an integrated solution can be challenging, so we don't just provide expert technical support, we work in partnership with our customers throughout the integration process. If off-the-shelf products don't meet your needs, we offer customization services to create a solution optimized for your unique requirements.



MultiTech Products for LoRaWAN®

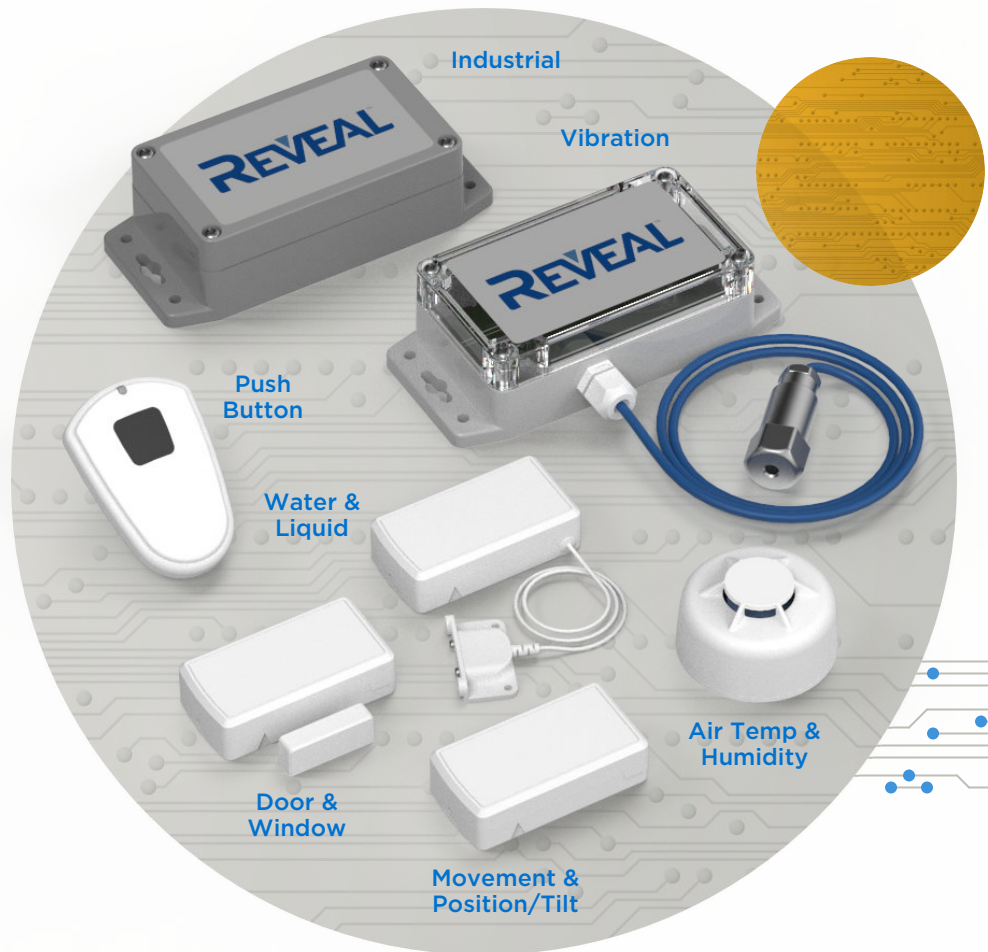
Leveraging the power of LoRa® technology, MultiTech has created a portfolio of gateways, modules and LoRa enabled sensors which together enable your IoT applications in a myriad of outdoor and indoor use cases. These products were designed to ensure the quickest route to market based on your needs, programming capabilities, preferred use of resources and business focus, in order to deliver a fast return on investment and low total cost of ownership.

LoRaWAN Sensors:

REVEAL™

The MultiTech Reveal™ family of sensors deliver critical asset information in real time so you understand what's going on and can react quickly when needed.

Reveal sensors typically have 4 to 9dB better radio performance than other LoRa-based sensors on the market for longer range and outstanding reliability. We are meticulous about low-power design and configurability to ensure exceptional battery life. Plus, over-the-air sensor and gateway configuration enables remote system optimization, reducing or even eliminating field-service calls.



Console LoRaWAN Management Service

This fully integrated device management console enables automatic provisioning, monitoring, and configuration of sensors in the field as well as data visualization and notifications. Plus, the API allows you to develop your application "on top of" console and still leverage all of its capabilities.



LoRaWAN Gateways:

Gateways provide the door for multiple "things" to connect to the Internet.

At MultiTech, we believe IoT gateways should be smart, rugged and flexible.

That's why we developed the Conduit™ line: the industry's most configurable, manageable, and scalable LoRa gateways for industrial IoT applications.

Backhaul choices to your preferred data management platform include carrier approved 4G-LTE and Ethernet. Network engineers can remotely configure and optimize their Conduit performance through DeviceHQ®, the world's first IoT Application Store and Device Management platform.

Quick-to-deploy and easy to customize and manage, the Conduit communications gateway realizes your IoT application.



Commercial

- Indoor deployment
- Extending LoRa® coverage
- Best indoor coverage & ROI

Industrial

- Indoor industrial settings
- Custom configurations
- Multi-connectivity use-cases



Macro

- Outdoor IP67 use cases
- Ruggedized high reliability
- Extended outdoor coverage

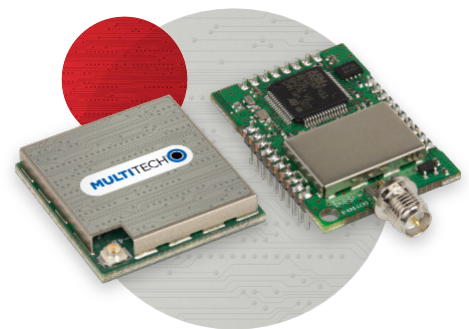
LoRaWAN Modules:

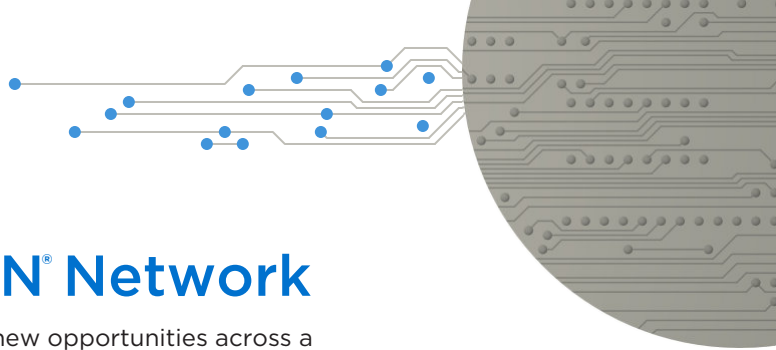
MultiTech mDot™ and xDot™ are secure, regulatory-certified, Arm® Mbed™ programmable, low-power RF modules, providing long-range, low bit rate IoT data connectivity to sensors and actuators.

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 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".





Advantages of a LoRaWAN® Network

LoRaWAN networks, sensors and other devices have created new opportunities across a wide range of industries and use cases. Solutions to complex challenges have changed dramatically in recent years. With LoRaWAN sensors, IoT devices are able to communicate more effectively than ever in remote locations that don't have public cellular access. LoRaWAN sensors offer improved access to data and can be customized to reach the user's network goals.

While technology is constantly improving, the increasing accessibility of LoRaWAN devices has allowed businesses to increase efficiencies, and in turn, reduce operating costs.

LORAWAN PRODUCT REFERENCE GUIDE		GATEWAYS					END-POINTS	
		MultiTech Conduit 300	MultiTech Conduit	MultiTech Conduit AP	MultiTech Conduit IP67	MultiTech Conduit IP67 200	MultiTech xDot	MultiTech mDot
Base Part Number		MTCDT3AC	MTCDT	MTCAP/MTCAP2	MTCDTIP	MTCDTIP2	MTXDOT	MTDOT
LORA CHANNEL PLANS	AS923-1 (915 - 928 MHz)	•	•		•	•	•	•
	AS923-2 (915 - 928 MHz)	•	•					
	AS923-3 (915 - 928 MHz)	•	•					
	AS923-4 (917 - 920 MHz)	•	•					
	AU915 (915 - 928 MHz)	•	•	•	•	•	•	•
	EU868 (863 - 870 MHz)	•	•	•	•	•	•	•
	IN865 (865 - 867 MHz)	•	•					
	KR920 (920.9 - 923.3 MHz)	•	•				•	
	RU864 (864 - 870 MHz)	•	•					
US915 (902 - 928 MHz)	•	•	•	•	•	•	•	
CUSTOM SERVICES FOR MASS DEPLOYMENTS		•	•	•	•	•	•	•
SOFTWARE ENABLED SERVICES	Built-In Network Server	•	•	•	•	•		
	Built-In Packet Forwarder	•	•	•	•	•		
	DeviceHQ	•	•	•	•	•		
	LENS	•	•	•	•	•		
DATA BACKHAUL	Ethernet	•	•	•	•	•		
	WiFi	•	•	•	•	•		
	Cellular (Global module)	•	•	•	•	•		
	Cellular (Region/Country Specific module)		•	•	•	•		
ENVIRONMENT	Indoor (office)			•				
	Indoor (industrial)	•	•					
	Outdoor (IP67)				•	•		

• Available today * Planned † Non-programmable/bit pipe models available

Visit www.multitech.com/products/sensors for sensor specifications.

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