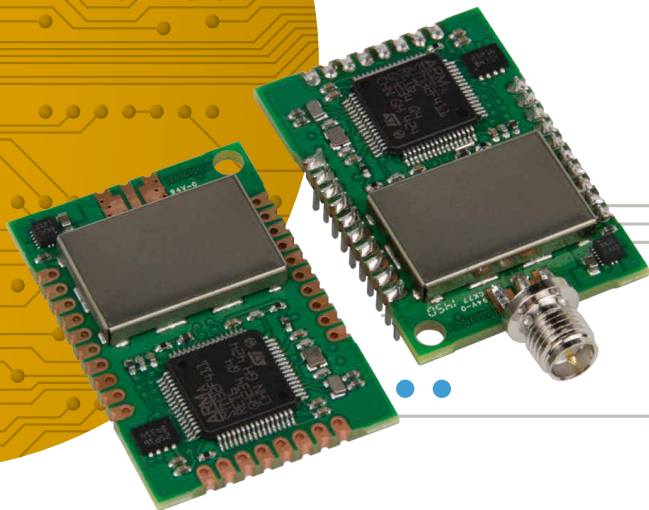


# MultiConnect<sup>®</sup> mDot<sup>™</sup>

Long Range 868/915 MHz LoRa<sup>™</sup> Module



The MultiConnect<sup>®</sup> mDot<sup>™</sup> is a secure, CE/FCC certified, ARM<sup>®</sup> mbed<sup>™</sup> programmable, low-power RF module, that provides long-range, low bit rate M2M data connectivity to sensors, industrial equipment and remote appliances.

The MultiConnect mDot is LoRaWAN<sup>™</sup> 1.0 compliant, providing bi-directional data communication up to 10 miles / 16 km line-of-sight and 1-3 miles / 2 km into buildings, using sub-GHz ISM bands in North America and Europe.

As the first ARM mbed Platform listed on mbed.org that is industry certified and deployment ready, applications can be written and compiled quickly online using developer friendly libraries, downloaded and hosted within the mDot. Decision making and control is distributed to the edge, enabling data to be more actionable without the heavy lift required to optimize RF performance, implement complex M2M middleware and security protocols needed to deploy a low touch install.

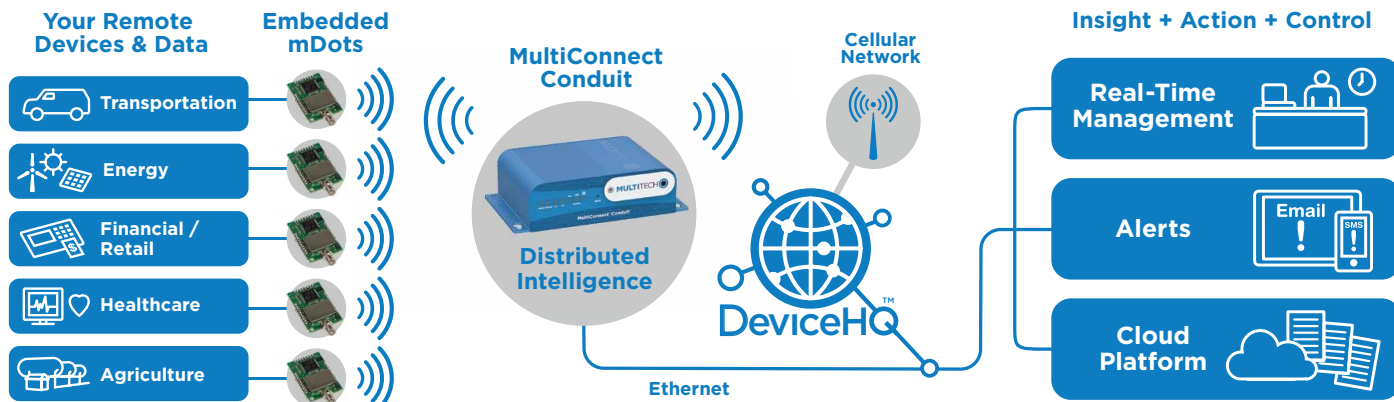
mDots bring intelligence, reduced complexity and a lower overall bill of material cost to the very edge of the network while supporting a variety of electronic interfaces to connect just about any “Thing” for years on battery power.

## BENEFITS

- Up to 10 miles / 16 km range
- Deep in-building penetration - 1 to 3 miles
- Developer friendly to integrate and quickly deploy assets
- Runs for years on batteries

## FEATURES

- FCC/CE end-certified for use in North America & Europe
- 2-way duplex communication, ideal for emergency and mission critical applications
- Multiple I/O interfaces for most any “Thing”
- Data rates 293bps-20Kbps+ LoRa<sup>™</sup> up to 300Kbps FSK



## SPECIFICATIONS

Model	MTDOT-868		MTDOT-915	
Region	Europe		North America	
Communication	LoRaWAN 1.0 compatible ARM mbed libraries or AT commands for radio control 868MHz and 900MHz			
Interfaces (pin functions are multiplexed)	Up to 16 Digital I/O, Up to 11 Analog Inputs, SPI, I2C, UART (RX, TX, RTS, CTS), USB (OTG Full speed)			
Physical Dimensions	1.0" x 1.47" (25.5 X 37.3 mm)			
<b>Radio Frequency</b>				
Modulation	FSK, GFSK, MSK, GMSK, OOK, LoRa Digital Spread Spectrum			
Frequency	860-1020 MHz			
<b>Performance*</b>				
CPU	STM32F411RET			
Max Clock	100 MHz (configurable to power use)			
Flash Memory	512 KB (400 KB customer usable)			
RAM	128 KB			
<b>Power</b>				
Max Transmitter Power Output (TPO)	14dBm		15dBm	
Max Receive Sensitivity	-137 dBm		-130 dBm	
Link Budget*	151 dB Point-to-Multipoint, 147 dB Point-to-Point		145 dB Point-to-Multipoint, 147 dB Point-to-Point	
* Calculation assumes two 0 dBi antennas. North America: Greaterlink budget possible with higher gain antennas. Europe: This is the maximum link budget. Note: Point-to-Multipoint utilizing MultiTech gateway with MT-LORA accessory card.				
Max Effective Isotropic Radiated Power (EIRP)	10 dBm		36 dBm	
<b>Environmental</b>				
Operating Temperature	-30° C to +70° C (-22° F to 157° F)			
Storage Temperature	-40° to +85° C (-40° to 185° F)			
Relative Humidity	20 to 90% noncondensing			
<b>Certifications</b>				
EMC Compliance	US: FCC Part 15 Class B. EU: EN 55022 Class B, EN 55024. Canada: ICES-003			
Radio Compliance	FCC 15.247, IC RSS-210, EU EN 300 220			
Safety Compliance	UL/cUL 60950-1 2nd Ed., cUL 60950-1 2nd Ed., IEC 60950-1 2nd Ed.			
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			

\* Actual performance speeds may be affected by a variety of attributes such as distance from gateway, data loads, packet sizes, etc.

## HIGHLIGHTS

### Applications

- Manage and harvest sensor data
- Control and monitor assets and devices
- Mesh network replacement

### Operating Modes

- LoRaWAN 1.0 compliant
- Developer friendly ARM mbed libraries provides customization capability for specific applications
- Onboard flash and RAM reduces overall Build of Material costs

## ORDERING INFORMATION

### North American Models

Model	Description	Region
MTDOT-915-X1-SMA	915 MHz XBee LoRa SMA	NAM
MTDOT-915-X1P-SMA	915 MHz XBee LoRa SMA w/Programming Header	NAM
MTDOT-915-X1-UFL	915 MHz XBee LoRa UFL	NAM
MTDOT-915-M1-UFL	915 MHz SMT LoRa UFL	NAM
MTDOT-915-M1-TRC	915 MHz SMT LoRa RF Pad	NAM

### European Models

Model	Description	Region
MTDOT-868-X1-SMA	868 MHz XBee LoRa SMA	Euro
MTDOT-868-X1P-SMA	868 MHz XBee LoRa SMA w/Programming Header	Euro
MTDOT-868-X1-UFL	868 MHz XBee LoRa UFL	Euro
MTDOT-868-M1-UFL	868 MHz SMT LoRa UFL	Euro
MTDOT-868-M1-TRC	868 MHz SMT LoRa RF Pad	Euro

### Developer Kit and Accessories

Model	Description	Region
MTUDK2-ST-MDOT	Developer Kit, includes SMA antenna & USB cable, (mDots sold separately)	Global
AN868-915A-1HRA	868-915 MHz RP-SMA Antenna, 8" (3.0dBi)	Global
CARSMA-UFL	Reverse SMA-to-UFL Coax RF Cable, 6"	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.

## 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](http://www.multitech.com/support.go)

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Produced in the U.S. of U.S. and non-U.S. components. Features and specifications are subject to change without notice.

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