MULTITECH®

MultiTech Conduit® 300 Series

LoRa® Technology for Building Management Systems integrated with BACnet™ Connectivity License

MultiTech Conduit® AP 300 Series Access Point featuring the mPower™ Edge Intelligence operating system serves as a gateway or access point that enables connectivity between LoRaWAN® wireless IoT devices and the network or cloud infrastructure. The Conduit AP Access Point offers various wide-area-network communication options, including wired and wireless interfaces, allowing flexibility in connectivity. It supports the LoRaWAN protocol in addition to Ethernet and cellular connectivity options, depending on the specific model and configuration.

BENEFITS

- Integrations with cloud-based LoRa Network Server and IoT Cloud platforms
- Embedded LoRa Network Server for an out-of-box LoRaWAN network
- MultiTech DeviceHQ® device, network and application management
- Global LoRa channel plans
- GCF, PTCRB, and Mobile Network Operator approvals

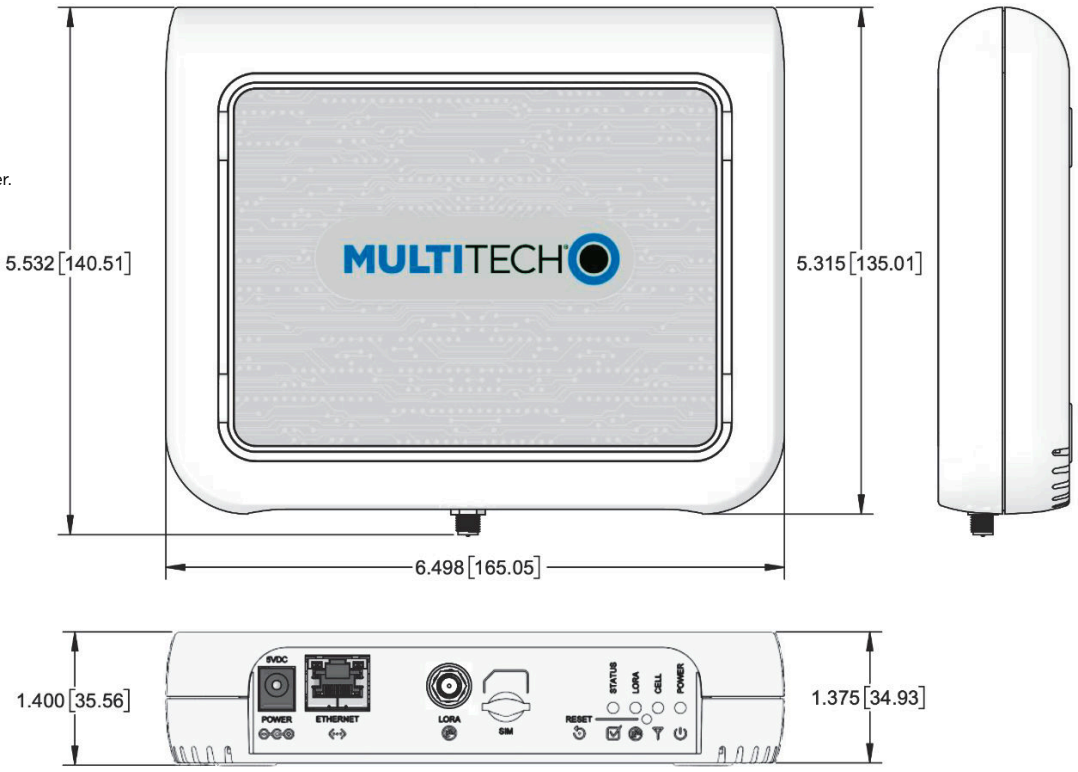
FEATURES

- mPower Edge Intelligence operating system
- Secure Boot, data encryption and dual-image partitioning
- Python, C, C++, JavaScript, Node.js
- SX1303 8-channel LoRa baseband processor
- LoRaWAN 1.0.4 specification compliant (software upgradeable to future releases)
- Listen-Before-Talk
- Internal or External LoRa antenna options
- Configurable UDP and Basic Station Packet Forwarder
- LoRaWAN MQTT Broker application

www.multitech.com/bacnet

HARDWARE DESCRIPTION

Note: Reference ordering information for features and connectors associated with each individual model number.



HARDWARE OVERVIEW

Interfaces		
Back Panel Connectors	Label	Connector Type
DC Power	POWER - 5VDC	2.5mm barrel power jack
Ethernet	ETHERNET	RJ-45 jack (10/100)
SIM Card Holder	SIM	3FF Micro SIM
Reset Button	RESET	Recessed switch
Antenna Connectors	Label	Connector Type
LoRa Antenna (select models)	LORA	Female Reverse Polarity SMA

Product specifications are subject to change without notice. Feature availability differs by model number.

HARDWARE SPECIFICATIONS

Model	MTCAP3-LEU7	MTCAP3-LNA7D	MTCAP3-EN
CPU Module	Cortex A7 processor with 32 KB L1 Instruction Cache and 32 KB L1 Data Cache Volatile Memory: 512 MB SDRAM / Non-Volatile Memory: 512 MB NAND flash memory / 568 MHz		
WAN Backhaul Options	LTE Category 4 Ethernet 10/100 BaseT		Ethernet 10/100 BaseT
LoRa	SX1303 baseband processor with SX1250 Tx/Rx front-end		
LEDs	POWER, STATUS, LORA, CELL		POWER, STATUS, LORA
DC power	5 VDC, 2.5A		
Physical Description			
Dimensions (L x W x H)	165 (6.5) x 135 (5.3) x 36 (1.4) mm (in) (See diagram)		
Weight	1.5 kg (3.3 lbs)		
Chassis Type	PC-ABS (polycarbonate-ABS)		
Mounting Options	Desk mount or wall mount		
Environmental			
Operating Temperature	0° C to +70° C		
Storage Temperature	-40° C to +85° C		
Relative Humidity	20% to 90%, non-condensing		
Quality	MIL-STD-810G: High Temperature, Low Temperature, Random Vibration. SAE J1455: Transit Drop & Handling Drop, Random Vibration, Swept-Sine Vibration. IEC68-2-1: Cold Temperature / IEC68-2-2: Dry Heat		
Safety	IEC/UL/cUL 60950-1, IEC/UL/cUL 62368-1		
Warranty	2-Years - www.multitech.com/legal/warranty		

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RADIO CERTIFICATIONS

Region / Model		MTCAP3-LEU7	MTCAP3-LNA7D	MTCAP3-EN
Australia/New Zealand				
LoRa	AS/NZS 4268			●
Canada				
LoRa	ISED RSS-247 issue 2		●	●
Cellular	ISED RSS-102/130/132/133/139		●	
European Union				
	RED Directive 2014/53/EU. Article 3.2	●		●
LoRa	EN 300 220-2 V3.1.1	●		●
Cellular	EN 301 908-1,EN 301 908-2,EN 301 908-13,EN 301 511	●		
United Kingdom				
	2017 No 1206 The Radio Equipment Regulations 2017 Article 6(2)	●		●
LoRa	EN 300 220-2 V3.1.1	●		●
Cellular	EN 301 908-1,EN 301 908-2,EN 301 908-13,EN 301 511	●		
United States				
LoRa	FCC 15.247		●	●
Cellular	FCC 22H,24E,27		●	

Product specifications are subject to change without notice. Feature availability differs by model number.

EMC COMPLIANCE

Region / Model		MTCAP3-LEU7	MTCAP3-LNA7D	MTCAP3-EN
Australia/New Zealand				
EMC	AS/NZS CISPR 32 - Class B			●
MPE	AS/NZS 2772			●
Canada				
Overall	ICES-003 Class B		●	●
European Union				
	CE Mark (EU), Radio Equipment Directive (RED) - 2014/53/EU, Article 3.1b	●		●
General	EN 301-489-1	●		●
General	EN55032, EN55035	●		●
LoRa	EN 301-489-3	●		●
Cellular	EN 301-489-52	●		
United Kingdom				
	2017 No 1206 The Radio Equipment Regulations 2017 Article 6.1(b) CE Mark (EU), UKCA (UK)	●		●
General	EN 301-489-1	●		●
General	EN55032, EN55035	●		●
LoRa	EN 301-489-3	●		●
Cellular	EN 301-489-52	●		
United States				
Overall	FCC 15b .107 and .109 (Class B)		●	●

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LORAWAN SPECIFICATIONS

Fine Timestamp for differential time of arrival
-141dBm sensitivity
125kHz LoRa reception with:
* 8 x 8 channels LoRa packet detectors
* Spreading Factors 5,6,7,8,9,10,11,12
8 packets can be received simultaneously for any spreading factor
125/250/500kHz LoRa demodulator

Model Number			
	Channel Plan	Maximum EIRP	Spectrum Range
-A23UEA Models	US915, AU915, AS923-1, AS923-2, AS923-3, AS923-4	30 dBm	902 - 928 MHz
-A23EEA Models	EU868, IN865	14 dBm - 27 dBm*	863 – 870 MHz

* Maximum EIRP is 14 dBm for most of the band, except 27 dBm at 869.4 – 869.65

CELLULAR WAN SPECIFICATIONS

Models	MTCAP3-LNA7D	MTCAP3-LEU7
Cellular Performance	4G - LTE Category 4	4G-LTE Category 4
Cellular Fallback	3G - HSPA+	3G - HSPA+, 2G - GPRS
Frequency Band (MHz)	**4G:** B2(1900), B4(AWS1700), B5(850), B12(700), B13(700) **3G:** B2(1900), B4(AWS1700), B5(850)	**4G:** B1(2100), B3(1800), B7(2600), B8(900), B20(800), B28A(700) **3G:** B1(2100), B8(900) **2G:** B3(1800), B8(900)
Packet Data (LTE)	Up to 150 Mbps downlink / Up to 50 Mbps uplink	
SIM Card	(1) 3FF Micro SIM	
Mobile Network Operator (MNO) Approvals	North America: United States PTCRB, AT&T, Verizon	Europe: GCF, Europe and United Kingdom Network Operators
Additional Mobile Network Operator Certifications Available (Contact MultiTech for Details)	United States: T-Mobile, US Cellular Canada: Rogers, Telus, Bell	—

Product specifications are subject to change without notice.

SOFTWARE SPECIFICATIONS

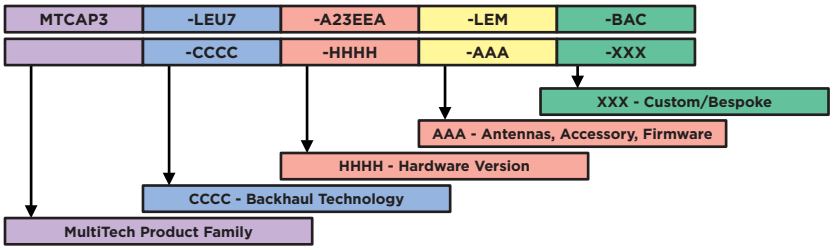
Feature	Description
Operating System	• mPower Edge Intelligence • Yocto based Linux distribution • Customizable web user interface
Software Packages	• Native language support: Python, C, C++, Javascript, Node.js • LoRa Network Server • LoRa Packet Forwarder • LoRaWAN MQTT application
Security	• Secure Boot, Secure file system • Signed firmware authentication / integrity check • VPN: Up to 5 concurrent tunnels • Mac Filtering: Accept, reject, drop or log packets based on MAC address • Firewall Rules: SPI Firewall with configurable DNAT, NAT-T, SNAT
Secure Access	• User-defined password complexity and strength controls • User-defined roles and privileges for device access • RADIUS authentication, user session accounting, and authorization of users • Configurable inactivity timeout period for user interface will automatically logs out users
Secure Connectivity	• OpenVPN: Server and Client (built on OpenSSL) • GRE Tunnels: Allows use of public network to convey data on behalf of two remote private networks • Network-to-Network VPN: Site-to-Site VPNs via Internet Protocol Security (IPsec) tunnels
Notifications	• Time-stamped notifications sent to individuals or groups via E-mail message, SMS message, and/or SNMP trap • Sent messages and message status can be managed by Mail Log, Mail Queue, or Notifications Sent
Debugging	• Command Line: Direct communication to cellular radio using AT commands • Automatic Reboot Timer: Configure device to automatically reboot • TCP Dump, Syslog, Ping, SMTP notifications, Secure Copy Protocol (SCP)
Serial Port Protocols	• Configurable serial terminal connection using TCP, UDP, or SSL/TLS server protocol • Modbus protocol to communicate with serial devices
Management	• MultiTech SaaS DeviceHQ device management protocol • Lightweight Directory Access Protocol (LDAP) • Simple Network Management Protocol (SNMP) • Device configuration restore tool
Payload Management	• BACnet models include licensed software stack for adding LoRaWAN sensors to existing Building Automation and Control Networks * Compatible with various brands of Building Management Systems

Additional information available:
http://www.multitech.net/developer/downloads/
https://www.multitech.com/technology/software-innovation

EMBEDDED APPLICATION LICENSE

Application	Description
Payload Manager	LoRaWAN BACnet Connector

MODEL NUMBER SCHEMA



MultiTech Conduit® AP 300 Series Access Point Ordering Information

Model Category & Model Number	Description	Region	Ethernet	Cellular	LoRa	Accessory Kit
Ethernet Only Models						
MTCAP3-EN-A23UEA-LWM-BAC	Ethernet Only mPower/BACnet Programmable Access Point, 8-channel, 915 MHz w/external LoRa antenna and US Accessory Kit	United States/ Canada	•		•	1
MTCAP3-EN-A23EEA-LEM-BAC	Ethernet Only mPower/BACnet Programmable Access Point, 8-channel, 868 MHz w/external LoRa antenna and EU/GB Accessory Kit	Europe/United Kingdom	•		•	2
Category 4 LTE Models						
MTCAP3-LNA7D-A23UEA-LUM-BAC	LTE Category 4 mPower/BACnet Programmable Access Point, 8-channel, 915 MHz w/external LoRa antenna and Accessory Kit (AT&T, Verizon)	United States/ Canada	•	•	•	3
MTCAP3-LEU7-A23EEA-LEM-BAC	LTE Category 4 mPower/BACnet Programmable Access Point, 8-channel, 868 MHz w/external LoRa antenna and EU/GB Accessory Kit	Europe/United Kingdom	•	•	•	2

Accessory Kit Specifics

Accessory kits differ by model number. All accessory kits include Power supply, Ethernet cable, and mounting bracket.

Accessory & Kit Number	1	2	3
LoRa Antenna	(1)	(1)	(1)
Power Blades	(3) US, EU, GB	(2) EU, GB	(1) US

Visit www.multitech.com for detailed product model numbers

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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

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