V. 03/19

MULTITECH®
CREATE • CONNECT • COMMUNICATE

MultiConnect® rCell 100 Series

Cellular Routers now supporting Global LTE Cat M1 & NB-IoT

DeviceHQ®

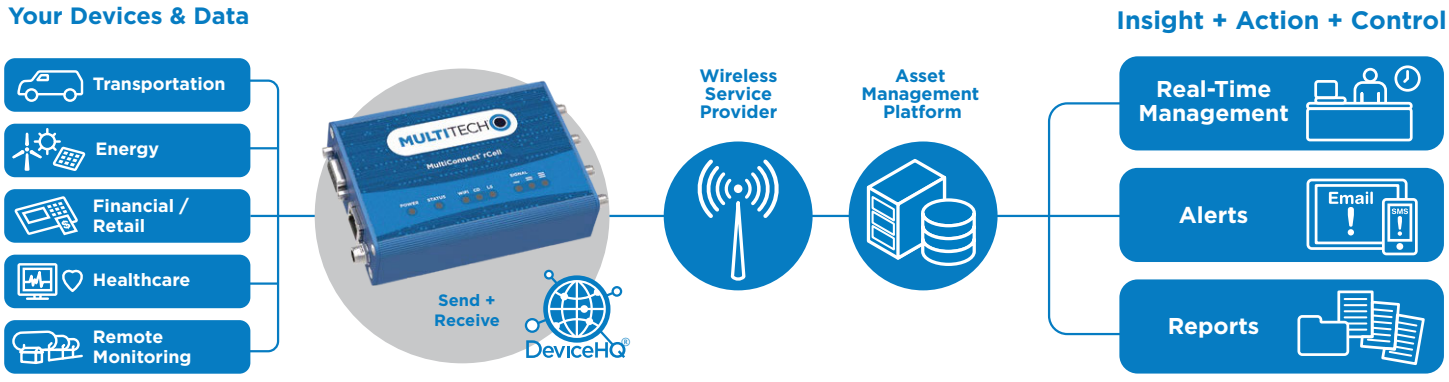
The MultiConnect® rCell 100 Series of industrial cellular routers, optimized for secure M2M (machine-to-machine)/Internet of Things (IoT) applications, offer a robust Ethernet or serial network interface platform ready to deploy. The intuitive user interface and free cloud device management (no recurrent monthly fees) allows for quick configuration and over-the-air upgrades. Enhanced with features such as WAN failover, secure software updates, advanced firewall and routing configuration, and Certificate Management, the MultiConnect rCell 100 Series creates an ideal environment for secure and redundant communications critical to the reliability of remote monitoring systems in a variety of industries.

BENEFITS

- Lowest total cost of ownership
- Long and stable lifecycles
- Certified and carrier approved

FEATURES

- 4G (Cat3, Cat M1 & NB-IoT), 3G and 2G models
- Flexible Web API for developers based on RESTful JSON over HTTPs
- Ruggedized enclosure - Class I Div 2
- Designed, manufactured and tested in ISO 13485 facilities
- Remotely hosted device management platform



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SPECIFICATIONS

Models	MTR-MNG2	MTR-LAT1	MTR-LVW2	MTR-LEU1
Performance	LTE Cat M1 / NB-IoT Dual Mode + 2G Fallback	LTE Cat 3		
Frequency Band (MHz)	3GPP Rel. 13 4G:(MHz)/B1(2100)/B2(1900/ B3 (1800)/B4(AWS1700)/ B5(850)/B8(900)/ B12(700)/B13(900)/ B18(800)/B19(800)/ B20(800)/B26(850)/ B28(700)/B39(1900) 2G:(MHz/B2(1900)/B3(1800) /B5(850)/B8(900)	4G: 700(B17)/850(B5) /AWS1700(B4)/ 1900(B2) 3G: 850(B5)/1900(B2) 2G: 850/1900	4G: 700(B13)/ AWS1700(B4)	4G: 800(B20)/ 1800(B3)/2600(B7) 3G: 850(B5)/ 900(B8)/2100(B1) 2G: 900/1800
Packet Data*	Cat. M1: Up to 300 Kb/s Downlink Up to 375 Kb/s Uplink NB1: Up to 250 Kb/s Downlink (multi-tone) Up to 20 Kb/s Uplink (single-tone)	Up to 100 Mbps downlink/ Up to 50 Mbps uplink (Category 3)		
Diversity/MIMO	N/A	Rx Diversity and MIMO DL 2x2		
SMS	Text & PDU, Point-to-Point	Point-to-Point Messaging, Mobile-Terminated SMS, Mobile-Originated SMS		
Voltage	7V to 32VDC			
Connectors				
Cellular	Female SMA			
Wi-Fi	Reverse polarity female SMA	N/A		
GPS	Female SMA			
SIM	Mini SIM (2FF); 1.8 and 3V			
LAN	RJ-45, 10/100 BaseT			
RS-232	DE9			
Power	2.5 mm miniature (screw-on)			
Physical Description				
Dimensions (L x W x H)	4.17" x 3.0" x 1.15" (10.6 cm x 7.6 cm x 2.9 cm)			
Weight	0.51 lbs (0.231 Kg)			
Chassis Type	Aluminum			
Environmental				
Operating Temperature†	-40° to +176° F (-40° to +80° C)			
Storage Temperature	-40° to +185° F (-40° to +85° C)			
Humidity	Relative humidity 15% to 93% non-condensing			
Certifications				
Regulatory	RED (EU Economic Area) (pending)	FCC Class B (US), IC (Canada)	FCC Class B (US)	RED (EU Economic Area)
Safety	IEC 60950-1 (EU Economic Area) (pending)	UL60950-1 (US), UL 201 (US), cUL60950-1 (Canada)	UL60950-1 (US), UL 201 (US)	IEC60950-1 (EU Economic Area)
Network	AT&T (pending), Verizon (pending), T-Mobile (pending), Rogers (pending) EU Carriers (pending)	AT&T, T-Mobile, Rogers	Verizon	EU carriers
Quality	MIL-STD-810G: High Temp, Low Temp, Cold Dwell, Random Vibration and Sine Vibration SAE J1455: Random Vibration and Sine Vibration			
Build Options Available	B07, B10	B07, B08		

HIGHLIGHTS

Applications

The MultiConnect rCell 100 Series of cellular routers are used in a wide variety of applications such as digital signage, smart vending, smart energy or home medical monitoring. Because the routers are certified and carrier approved, customers are able to quickly deploy with cellular connectivity to realize new revenue streams, expense reduction or improved service offering.

Wi-Fi/Bluetooth Specifications

The Wi-Fi interface can be set up in 802.11 b\g\n Access Point (AP) or client mode. In AP mode, the router can support up to 5 client connections. The Bluetooth serial interface allows you to set up a transparent data pipe from a Bluetooth device to a remote server. The router can be configured using TCP or UDP protocols and supports client and server modes giving you the flexibility you need for your particular application. RFCOM and SPP profile support. Contact MultiTech about additional Bluetooth profile support.

Security

The MultiConnect rCell 100 Series of cellular routers use IPSec industry standard data encryption to provide high performance, secure LAN-to-LAN VPN connections with 3DES or AES encryption using IKE and PSK key management. Support for five concurrent VPN tunnels. Additionally a private, secure digital signature with integrity check update technique is now available, minimizing file damage, tampering or loading of invalid firmware. MultiTech signs and distributes firmware updates through a secure standard firmware distribution process and verifies the firmware signature before installation of the firmware for maximum device integrity.

Wi-Fi

- 802.11 b\g\n (1x1), 2.5GHz (20MHz BW)
- 11, 54 and 65 Mbps max theoretical throughput, for 802.11 b\g\n, respectively
- 20, 15 and 14.5 dBm output power, for 802.11 b\g\n, respectively
- WEP, WPA, and WPA2 support

Bluetooth

- Version 2.1+EDR
- Power Class 1.5
- Data rate 3 Mbps

SPECIFICATIONS

Models	MTR-H6	MTR-H5	MTR-G3
Performance	HSPA	HSPA+	GPRS Class 10
Frequency Band (MHz)	3G: Tri-band 850/900/2100 2G: Quad-band 850/900/1800/1900	3G: WCDMA/HSDPA/ HSUPA 800/850/900/ AWS1700/1900/2100 2G: GSM/GPRS/EDGE 850/900/1800/1900	Quad-band 850/900/1800/1900
Packet Data*	Up to 7.2 Mbps downlink, up to 5.76 Mbps uplink	Up to 21.0 Mbps downlink, up to 5.76 Mbps uplink	Up to 85.6K downlink Up to 85.6K uplink
Diversity/MIMO	No	Yes	No
SMS	Point-to-Point Messaging, Mobile-Terminated SMS, Mobile-Originated SMS		
Voltage	7V to 32VDC		
Connectors			
Cellular	Female SMA		
Wi-Fi	Reverse polarity female SMA		N/A
GPS	Female SMA		
SIM	Mini SIM (2FF); 1.8 and 3V		
LAN	RJ-45, 10/100 BaseT		
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Humidity	Relative humidity 15% to 93% noncondensing		
Certifications			
Regulatory	RED (EU Economic Area), RCM (Australia/NZ)	FCC Class B (US), IC (Canada), RED (EU Economic Area), RCM (Australia/NZ)	RED (EU Economic Area)
Safety	IEC60950-1 (EU Economic Area), AS/NZS 60950.1 (Australia/NZ)	UL60950-1 (US), UL 201 (US), Class I Div 2 (US and Canada), cUL60950-1 (Canada), IEC60950-1 (EU Economic Area), AS/NZS 60950.1 (Australia/NZ)	IEC60950-1 (EU Economic Area)
Network	GCF, Telstra, EU carriers	PTCRB, GCF approved module, AT&T, T-Mobile, Telstra, EU carriers Rogers, Pending: Bell, Telus	EU carriers
Quality	MIL-STD-810G: High Temp, Low Temp, Cold Dwell, Random Vibration and Sine Vibration SAE J1455: Random Vibration and Sine Vibration		
Build Options Available	B16, B18, B19	B07, B08, B09, B10, Class I Div 2	B16

* Actual performance speeds may be affected by a variety of attributes such as cell tower distance, data loads, packet sizes, etc.
† Device has been tested up to +85° C. UL Recognized @ 40° C, limited by AC power supply. UL Recognized @ 60° C when used with the fused DC power cable, part number FPC-532-DC. Note: The radio's performance may be affected at the temperature extremes. This is considered normal. There is no single cause for this function. Rather, it is the result of an interaction of several factors, such as the ambient temperature, the operating mode and the transmit power.

BUILD/ORDERING OPTIONS (for models with accessory kits)

Build Number	Power Supply	Cellular Antenna	Ethernet Cable	GPS Antenna	Wi-Fi Antenna
B07	X	X	X		
B08	X	X	X	X	
B09	X	X	X		X
B10	X	X	X	X	X
B16	X	X	X		
B17	X	X	X	X	
B18	X	X	X		X

SOFTWARE SPECIFICATIONS

SECURITY	
VPN	Up to 5 concurrent tunnels IPSec IKEv1,v2 Open VPN Cipher suite: DHGroup 14 Configurable encryption, Configurable hash, Configurable TLS: 1.0,1.1,1.2 Encapsulation: ESP Encryption Methods: 3DES, AES-128, AES-192, AES-256, Authentication: MD5, SHA-1, SHA-2, SHA2-256, SHA2-384, SHA2-512,. Key Group: DH2 (1024-bit), DH5 (1536-bit), DH14 (2048-bit), DH15 (3072-bit), DH16 (4096-bit), DH17 (6144-bit), DH18 (8192-bit), DH22 (1024-bit), DH23 (2048-bit), DH24 (2048-bit)
MAC Filtering	Accept, reject, drop or log packets based on MAC address
SPI Firewall	Configurable DNAT, NAT-T, SNAT
IP Defense	Denial-of-service / ICMP/Ping flood / Brute force access PPP IP-Pass through mode provides ./24 network masks and regular ./32 network masks Separate Firewall configuration allows setup and management of a trusted list of IP addresses IPv4 Mask settings allow the connected device to obtain LAN settings automatically or the LAN settings can be configured manually. Enables multiple devices to connect to the MTR providing for the unique management and identification of all the devices within the network.
X.509 Certificates	Support generation and/or import of multiple CA certificates through use of SHA-256. User can add and delete user's root certificates in addition to the certificates from the /etc/ssl by application.
PAP/CHAP	Authentication protocols for secure PPP connections
MANAGEMENT	
SNMP	V1,2,3 SNMPv3 and authentication protocols MD5 and SHA1 as well as encryption protocols DES and AES-128. configurable multiple SNMP trap servers and SNMP server configurations enhanced SNMP server Web UI allows configuring SNMPv3 security settings for SNMP configurations and SNMP trap servers
RADIUS	Remote Authentication
HTTP server	Web UI for setup and help
SMS	Trouble shooting commands to store logs to DeviceHQ Remote reboot over SMS Commands to retrieve connection status, radio stats, Ethernet link status APN modification over SMS
Administration	Multiple user hierarchy and access rights
DeviceHQ	Remote device management platform provides device status and information in a clear graphical format. Manage , monitor, group, configure and upgrade devices remotely
Event Notifications (SNMP, SMS, Email) Time Stamped	Active/inactive interface status (serial, Ethernet, Wi-Fi, cellular link) Data traffic stats (Ethernet, Wi-Fi, Cellular) Data usage alerts
API	RESTful JSON over HTTPs
FOTA	Radio firmware update over the air - limited to H5/H6 models
Firmware Updates	Private, secure, digital signature technique to enable transferring the device firmware safely. The technique will defeat attempts to load invalid firmware files or files that have been subjected to damage or tampering. MultiTech signs and distributes the firmware through a secure, standard firmware distribution process, and verifies the firmware signature before it installs the firmware files to ensure integrity.
USER INTERACTION	
User Interface	Secure graphical and intuitive web UI (requires user name and password)
Configuration	Set up wizard or manual option
Help	Context sensitive help. Documentation and step-by-step directions integrated into the web UI
Personalization	Customize support contact information, logos and color schemes
NETWORKING FLEXIBILITY	
WAN Failover	Wi-Fi to Cellular
Dynamic DNS (DDNS)	Automatically updates DNS
DHCP Server	Supports fixed and dynamic IP addressing
Bridge Mode	PPP/IP Pass-through
Clock	Configurable SNTP client
Serial RS-232	PAD, TCP/UDP client and server
MODBUS	Pass-through, RTU to TCP and vice versa, TCP slave query
Persistent Connectivity/ Keep Alive	Automatic repair of the cellular PPP connection Configurable ICMP or TCP ping at specified intervals
Dial on Demand	Cellular connection only when there is traffic to send
Wake up on Call	Cellular connection upon a wake up event such as ring, caller ID or SMS
GPS	Server and client
Wi-Fi	Server and client