MultiConnect® rCell 100 Series
Cellular Routers now supporting Global LTE Cat M1 & NB-IoT

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 models
- Designed, manufactured and tested in ISO 13485 facilities
- Remotely hosted device management platform

www.multitech.com/rcell100
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(800)/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 | | |
Packet Data* | Cat. M1: Up to 300 Kb/s Downlink Up to 250 Kb/s Uplink (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 Messaging, Mobile-Terminated SMS, Mobile-Originated SMS | | | |
Voltage | 7V to 32VDC | | | |
Connectors
Cellular | Female SMA | Female SMA | | |
Wi-Fi | Reverse polarity female SMA | N/A | 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 | 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) | AT&T, T-Mobile, Rogers | | EU carriers |
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

<table>
<thead>
<tr>
<th>Models</th>
<th>MTR-H6</th>
<th>MTR-H5</th>
<th>MTR-G3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Performance</strong></td>
<td>HSPA</td>
<td>HSPA+</td>
<td>GPRS Class 10</td>
</tr>
<tr>
<td><strong>Packet Data</strong></td>
<td>Up to 7.2 Mbps downlink, up to 5.76 Mbps uplink</td>
<td>Up to 21.0 Mbps downlink, up to 5.76 Mbps uplink</td>
<td>Up to 85.6K downlink, Up to 85.6K uplink</td>
</tr>
<tr>
<td><strong>Diversity/MIMO</strong></td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td><strong>SMS</strong></td>
<td>Point-to-Point Messaging, Mobile-Terminated SMS, Mobile-Originated SMS</td>
<td></td>
<td></td>
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<td><strong>Voltage</strong></td>
<td>7V to 32VDC</td>
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<td><strong>Connectors</strong></td>
<td>Cellular: Female SMA&lt;br&gt;Wi-Fi: Reverse polarity female SMA&lt;br&gt;Sim: Female SMA&lt;br&gt;GPS: Female SMA&lt;br&gt;LAN: RJ-45, 10/100 BaseT&lt;br&gt;RS-232: DE9&lt;br&gt;Power: 2.5 mm miniature (screw-on)</td>
<td></td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Physical Description</strong></td>
<td>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)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>0.51 lbs (0.231 Kg)</td>
<td></td>
<td></td>
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<td><strong>Environmental</strong></td>
<td>Operating Temperature: -40° to +185° F (-40° to +85° C)</td>
<td></td>
<td>Relative humidity 15% to 93% noncondensing</td>
</tr>
<tr>
<td><strong>Regulatory</strong></td>
<td>RED (EU Economic Area), RCM (Australia/NZ)</td>
<td>FCC Class B (US), IC (Canada), RED (EU Economic Area), RCM (Australia/NZ)</td>
<td>RED (EU Economic Area)</td>
</tr>
<tr>
<td><strong>Safety</strong></td>
<td>IEC60950-1 (EU Economic Area), AS/NZS 60950.1 (Australia/NZ)</td>
<td>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)</td>
<td>IEC60950-1 (EU Economic Area)</td>
</tr>
<tr>
<td><strong>Network</strong></td>
<td>GCF, Telstra, EU carriers</td>
<td>PTCRB, GCF approved module, AT&amp;T, T-Mobile, Telstra, EU carriers</td>
<td>Rogers, Pending: Bell, Telus</td>
</tr>
<tr>
<td><strong>Certifications</strong></td>
<td>MIL-STD-810G: High Temp, Low Temp, Cold Dwell, Random Vibration and Sine Vibration&lt;br&gt;SAE J455: Random Vibration and Sine Vibration</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Build Options Available</strong></td>
<td>B16, B18, B19</td>
<td>B07, B08, B09, B10, Class I Div 2</td>
<td>B16</td>
</tr>
</tbody>
</table>

* 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)

<table>
<thead>
<tr>
<th>Build Number</th>
<th>Power Supply</th>
<th>Cellular Antenna</th>
<th>Ethernet Cable</th>
<th>GPS Antenna</th>
<th>Wi-Fi Antenna</th>
</tr>
</thead>
<tbody>
<tr>
<td>B07</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>B08</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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</tr>
<tr>
<td>B09</td>
<td>X</td>
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<td>X</td>
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<td>X</td>
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<tr>
<td>B10</td>
<td>X</td>
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<tr>
<td>B16</td>
<td>X</td>
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<td>B17</td>
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<tr>
<td>B18</td>
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<tr>
<td>B19</td>
<td>X</td>
<td>X</td>
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</tr>
</tbody>
</table>
## SOFTWARE SPECIFICATIONS

### SECURITY
- Up to 5 concurrent tunnels
- IPSec IKEv1
- OpenVPN
- Cipher suite: DHGroup 14
- Configurable encryption
- Configurable hash
- Configurable TLS 1.0/1.1/1.2
- Encapsulation: ESP
- Key Group: DH2 (1024-bit), DH3 (1536-bit), DH4 (2048-bit), DH5 (2048-bit), DH6 (4096-bit), DH7 (6144-bit), DH8 (8192-bit), DH2 (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 configurable multiple SNMP trap servers and SNMP server configurations for SNMP configurations and SNMP trap servers

### 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 MANAGEMENT
- Authentication protocols for secure PPP connections

### 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
- 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
- Multiple user hierarchy and access rights

### SMS
- Remote device management platform provides device status and information in a clear graphical format.
- Manage, monitor, group, configure and upgrade devices remotely.
- 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 technology 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
- Secure graphical and intuitive web UI (requires user name and password)
- Set up wizard or manual option
- Context sensitive help.
- Documentation and step-by-step directions integrated into the web UI
- Customize support contact information, logos and color schemes

### NETWORKING FLEXIBILITY

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>WAN Failover</td>
<td>Wi-Fi to Cellular</td>
</tr>
<tr>
<td>Dynamic DNS (DDNS)</td>
<td>Automatically updates DNS</td>
</tr>
<tr>
<td>DHCP Server</td>
<td>Supports fixed and dynamic IP addressing</td>
</tr>
<tr>
<td>Bridge Mode</td>
<td>PPP/IP Pass-through</td>
</tr>
<tr>
<td>Clock</td>
<td>Configurable SNTP client</td>
</tr>
<tr>
<td>Serial RS-232</td>
<td>PAD, TCP/UDP client and server</td>
</tr>
<tr>
<td>MODBUS</td>
<td>Pass-through, RTU to TCP and vice versa, TCP slave query</td>
</tr>
<tr>
<td>Persistent Connectivity/Keep Alive</td>
<td>Automatic repair of the cellular PPP connection, Configurable ICMP or TCP ping at specified intervals</td>
</tr>
<tr>
<td>Dial on Demand</td>
<td>Cellular connection only when there is traffic to send</td>
</tr>
<tr>
<td>Wake up on Call</td>
<td>Cellular connection upon a wake up event such as ring, caller ID or SMS</td>
</tr>
<tr>
<td>GPS</td>
<td>Server and client</td>
</tr>
<tr>
<td>Wi-Fi</td>
<td>Server and client</td>
</tr>
</tbody>
</table>

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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