Introduction
The ICR-4461 is an Ultra-high-speed 5G NR (New Radio) Router & Powerful Edge Computing Gateway focused on the global market. The 5G “gigabit” speed and low latency, and high network availability is a real step to massive IoT and Enhanced mobile broadband (eMBB) applications - Mobile Internet access, Camera and security systems, Industrial systems, and many other high data demand applications. The router supports fallback via LTE (LTE-A Pro) and 3G networks for areas where 5G coverage is not developed yet.

The new router platform “v4” provides intelligence at the network edge with an extremely powerful Cortex A72 CPU at 1200 MHz, 4 GB eMMC memory, 4 MB flash memory, and 1024 MB RAM. The focus on high security underlines using TPM 2.0, and Tamper Button that ensure safe use in critical infrastructure systems.

The ICR-4461 is powered by the ICR-OS Linux operating system that provides a wide range of enhanced networking features. A secure Web interface allows users to configure and manage routers from remote locations. The router supports multiple configuration profiles, automatic firmware updates, etc. The router can be used as a powerful edge computing gateway because of the support of many ways of software customization. Users may insert Linux scripts and add new features by additional applications called Router Apps (User Modules).

Order Codes

<table>
<thead>
<tr>
<th>Model no.</th>
<th>Order Codes</th>
<th>REGION</th>
<th>5× Gigabit Ethernet</th>
<th>4× PoE PSE+</th>
<th>SFP cage (up to 10 Gbps)</th>
<th>RS232 RS485 CAN BUS I/O</th>
<th>GNSS</th>
<th>4× ANT</th>
<th>2× SIM</th>
<th>WiFi 802ac</th>
<th>Operating Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICR-4461S</td>
<td>GLOBAL/NAM</td>
<td>✓ ─</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-40 to +75 °C</td>
</tr>
<tr>
<td>ICR-4461W3</td>
<td>GLOBAL/NAM</td>
<td>✓ ─</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-40 to +75 °C</td>
</tr>
</tbody>
</table>

* Router is compatible with cellular networks in the indicated region. Importer/operator needs to check locale legislation (standards, national Telecom approvals etc.) and compare with standards available for product if possible to operate the router in target region legally.

ICR-4461 is easy to manage using WebAccess/DMP, full-featured cloud-based management, provisioning, and monitoring tool for mass deployment. The WebAccess/VPN is a perfect way how to create secure virtual private networks on the Internet.
Industrial Cellular Routers & Gateways

ICR-4461

Specifications

**System**
- CPU: Quad-Core ARM Cortex-A72, 1200 MHz
- Memory: RAM - 1024 MB, eMMC - 4096 MB (838 MB for Router Apps, 512 MB for customer data)
- Watchdog: HW Watchdog
- RTC: Battery backup RTC
- TPM: Trusted Platform Module (TPM) 2.0

**Interfaces**
- Ethernet: 5× Ethernet (4+1), RJ45, 10/100/1000 Mbps, isolation 1.5 kV
- SFP Cage: 1× SFP cage (up to 10 Gbps)
- Serial Lines: 1× RS232 (Tx, Rx, GND, RTS, CTS), 1× RS485 (A(-), B(+), GND), 1× CAN (CAN_H, CAN_L) (14-pin terminal block)
- I/O: 2× Digital Input (3 mA consumption), 2× Digital Output (Open Drain, 48 V / 500 mA) (14-pin terminal block)
- USB: 1× USB 2.0 Host Connector
- MicroSD Card: 1× Micro SD Card Slot
- Reset Button: Reboot / Factory reset
- LED Indicators: System, 3-level signal strength, Data activity, SIM1/SIM2 status, 3G/4G/5G technology, 2× Input, 2× Output, User, ETH

**GNSS**
- Systems: GPS, GLONASS, BeiDou, Galileo, QZSS, SBAS
- Protocol: NMEA

**Environmental**
- Power Supply: 9 – 48 V DC (2-pin terminal block)
- Consumption:
  - Without WiFi: Idle 4.6 W / Average 6.1 W / Peak 14 W
  - With WiFi: Idle 5.9 W / Average 8.1 W / Peak 16 W
  - PoE PSE without WiFi: Idle 4.9 W / Average 6.1 W / Peak 128 W
  - PoE PSE with WiFi: Idle 6.2 W / Average 8.1 W / Peak 130 W
- Sleep Mode: Yes, 24 mW, 310 mW for PoE PSE
- Operating Temperature: -40 to +75 °C
- Storage Temperature: -40 to +85 °C
- Humidity: 0 to 95 %
- IP Cover: IP30

**Physical Characteristics**
- Dimensions: 47 × 110 × 195 mm
- Enclosure: Robust Metal Case, Grounding Screw
- Mounting: Wall Mounting, DIN Rail (optional)
- Weight: 1275 g

**Cellular Interface**
- SIM Slots: 2× SIM (Mini SIMs – 2FF), 1× eSIM Ready
- Antennas: 4× SMA connectors
- 5G NR frequency bands:
  - 5G NSA Bands: n1/n2/n3/n5/n7/n8/n12/n13/n14/n16/n18/n20/n25/n26/n28/n32/n38/n40/n41/n48/n66/n70/n71/n75/n84/n87/n88/n90/n92/n94/n96/n100/n102/n103/n106/n107/n108/n109/n120/n121/n122/n123/n124/n126/n127/n128/n129/n130/n132/n133/n134/n135/n136/n137/n138/n139/n140/n141/n142/n143/n144/n145/n146/n147/n148/n149/n150/n151
  - Transfer rate: 3.4 Gbps (DL), 550 Mbps (UL)
  - 5G SA Bands: n1/n2/n3/n5/n7/n8/n12/n13/n14/n16/n18/n20/n25/n26/n28/n40/n41/n48/n66/n70/n71/n75/n84/n87/n88/n91/n92/n94/n96/n100/n102/n103/n106/n107/n108/n109/n120/n121/n122/n123/n124/n126/n127/n128/n129/n130/n132/n133/n134/n135/n136/n137/n138/n139/n140/n141/n142/n143/n144/n145/n146/n147/n148/n149/n150/n151/n152/n153/n154/n155/n156/n157/n158/n159/n160/n161/n162/n163/n164/n165/n166/n167/n168/n169/n170/n171/n172/n173/n174/n175/n176/n177/n178/n179
  - Transfer rate: 2.4 Gbps (DL), 900 Mbps (UL)
- LTE Parameters:
  - LTE-LAA Bands: B6/B7/B8/B20/B24/B35/B43/B48
  - Transfer rate: 1.6 Gbps (DL), 200 Mbps (UL)
- HSPA+/UMTS Parameters:
  - Transfer rate: 42 Mbps (DL), 5.76 Mbps (UL)

**WiFi** – optional (ICR-4461W3, ICR-4461W3S)
- Antenna: 2× R-SMA connectors, 2×2 MIMO
- Standards: IEEE802.11 ac/a/b/g/n 2.4 GHz / 5 GHz
- Data Rate:
  - Up to 300 Mbps @ 2.4 GHz
  - Up to 867 Mbps @ 5 GHz
- Security: WEP, WPA, WPA2, WPA3, 802.1X
- Modes: Access Point (unlimited clients), Station, Multimode STA & AP
Industrial Cellular Routers & Gateways

ICR-4461

**Software**

<table>
<thead>
<tr>
<th>Operating System</th>
<th>ICR-OS (Linux based)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>SW Customization</td>
<td>Router App (User Module)*</td>
</tr>
</tbody>
</table>

**Networking Features**

- DHCP, NAT, PAT, SSH, VRRP, PPPoE, SNMP, SMTP, Dynamic DNS client, DNS proxy, VLAN, QoS, "DMVPN, NTP Client/Server, "Routing protocols RIP, BGP, OSPF, IS-IS, NHRR, Backup Routes, Port Forwarding, Hot Port Routing, Ethernet Bridging, Load Balancing, IPv6 Dual Stack

**Industrial Protocols and to i**


**Security**

- HTTPS, SSH, FTP, DMZ, Firewall (IP Filtering, MAC address filtering, Inbound and outbound Port filtering)
- VPN Tunneling – WireGuard, OpenVPN, *EasyVPN, IPsec with IKEv1 and IKEv2, GRE, L2TP, PPTP
- Authentication – RADIUS, TACACS+, 2FA, *SCEP
- Encryption – DES, 3DES, AES, RSA, MD5, SHA

**Firmware Management**

- Automatic firmware updates – server, locally via LAN or remotely via WAN

**Diagnostic/Log**

- Status – Signal Strength, Data Usage, Detailed Long Term Statistics
- One CLICK report – Current Configuration, Factory Identification, Routing Table
- Log – System Log, Reboot Log, Kernel Log
- Remote Diagnostics (via SSH)

**Event Engine**

- Startup & Up/Down script (Own rules based on Digital Inputs, Network Parameters, Data Usage, Timer, Power, Device Temperature)
- Report Types: SMS, email, SNMP Trap

**Configuration**

- Web server, SSH, Four configuration switchable profiles, Automatic configuration update from server, Backup & Restore configuration

**Advanced Software Tools**

- WebAccess/VPN – Advanced Secure Networking Platform

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**Standards & Regulations**

**Radio**

- FCC part 22H, FCC part 24E, FCC part 27, PTCRB

**EMC**

- EN 61000-6-2, FCC part 15.B, ICES-003 Issue 6

**Safety**

- IEC 62368-1

**National**

- FCC, CE, UKCA

**Carrier Approval**

- AT&T, Verizon, T-Mobile, FirstNet

**Mechanical**

- EN 60068-2-27, EN 60068-2-64, MIL-STD-810G, SAE J1455

**Climatic**

- EN 60068-2-1, EN 60068-2-14, EN 60068-2-78, MIL-STD-810G, SAE J1455

**Environmental**

- REACH, RoHS3, WEEE

**Cellular Module Approvals**

- Regulatory: GCF, FCC, IC, PTCRB
- Carrier: Verizon, AT&T (FirstNet), T-Mobile, U.S. Cellular, Rogers, Telus

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**Accessories**

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BB-DIN-WR2</td>
<td>2-pin PWR connector</td>
</tr>
<tr>
<td>CON-ICR44-14</td>
<td>14-pin Serial / IO connector</td>
</tr>
<tr>
<td>BB-DIN-ICR32</td>
<td>DIN clip (2 pcs are necessary for the mounting)</td>
</tr>
<tr>
<td>BB-DIN-ICR32</td>
<td>DIN clip (2 pcs are necessary for the mounting)</td>
</tr>
<tr>
<td>RPS-ICR4-WR2-M</td>
<td>Wall mount Power supply, 12 V/1.5 A, EU, UK, US, AUS plugs</td>
</tr>
<tr>
<td>RPS-ICR4-WR2-PSE</td>
<td>Wall mount Power supply, 48 V / 1.35 A (65W), (without Power Cord)</td>
</tr>
<tr>
<td>BB-PWRCORD-AUS</td>
<td>AUS Power Cord (for RPS-ICR4-WR2-PSE)</td>
</tr>
<tr>
<td>BB-PWRCORD-EU</td>
<td>EU Power Cord (for RPS-ICR4-WR2-PSE)</td>
</tr>
<tr>
<td>BB-PWRCORD-UK</td>
<td>UK Power Cord (for RPS-ICR4-WR2-PSE)</td>
</tr>
<tr>
<td>BB-PWRCORD-US</td>
<td>US Power Cord (for RPS-ICR4-WR2-PSE)</td>
</tr>
<tr>
<td>BB-KD-ETH</td>
<td>Ethernet cross cable, 1.5 m, Shielded</td>
</tr>
<tr>
<td>BB-AW-A2458G-FSRPK</td>
<td>Antenna Wi-Fi, 2.4 &amp; 5.8 GHz (2 pcs are recommended for full 2×2 MIMO performance)</td>
</tr>
<tr>
<td>BB-AP-AGNSS-SMA</td>
<td>Antenna GNSS, magnetic 3dB, cable 3m</td>
</tr>
<tr>
<td>ANT-LTE5G-025</td>
<td>Antenna 5G/LTE, Terminal (4 pcs are recommended for full cellular 5G performance)</td>
</tr>
<tr>
<td>BB-477860-150</td>
<td>Antenna 4G/LTE MIMO, Screw mount, 4× cable 1.5 m</td>
</tr>
</tbody>
</table>

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For more Antenna accessories visit [www.advantech.com](http://www.advantech.com)
Views

**FRONT VIEW**
- LED Indicators
- WiFi connectors
- ETH 10/100/1000 connectors
- DIV, ANT antenna connector
- PWR connector
- SFP connector
- Robust metal cooler
- LED Indicators

**REAR VIEW**
- SIM and SD card cover
- Robust metal cooler
- LED Indicators
- Wall Mounting

**LEFT SIDE VIEW**
- LED Indicators
- Antennas connectors
- Wall Mounting

**RIGHT SIDE VIEW**
- Antennas connectors
- Robust metal cooler
- Ground Clamp - Screw
- Wall Mounting

**BOTTOM VIEW - WALL MOUNT KIT**
- Wall Mounting

**BOTTOM VIEW - DIN HOLDERS**
- DIN Holders
Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

**Advantech:**
- ICR-4461
- ICR-4461S
- ICR-4461W3
- ICR-4461W3S