

ICR-2031

Entry-Level 4G Router



Features

- LTE Cat.4 with 3G/2G fallback
- 1× SIM
- 1× Ethernet, RJ45, 10/100 Mbps
- 1× DI, 1× DO
- Wide operational temperature range
- Wall and DIN mount options
- Linux based OS & SW customization
- Optional WiFi 802.11n



Introduction

Industrial cellular router ICR-2031 is designed for wireless communication in the mobile networks that make use of traditional cellular technologies. The primary purpose of this router is its use in the Category 4 (Cat.4) services on the cellular LTE network. Cat.4 rated ICR-2031 router is capable of achieving better typical speeds in 4G coverage areas where the network is enabled with 20 MHz of contiguous spectrum. The peak downlink data rate for a Category 4 is approximately 150 Mbps. Also in the uplink, LTE Category 4 provides a peak data rate of 50 Mbps. Optional built-in WiFi 802.11 ac,b,g,n with AP, Client and Multirole modes are available.

The router is equipped with one Ethernet port and with digital I/O connectivity (1× DI, 1× DO). The router supports VPN tunnel creation using various protocols to ensure safe communications. The router provides diagnostic functions which include automatic monitoring of the wireless and wired connections, automatic restart in case of connection losses, and a hardware watchdog that monitors the router status.

With open Linux platform and wide possibilities of programming customer SW applications in Python, C/C++. The Advantech existing app library Router Apps (User modules) with apps already developed to enhance specific router functionality including industrial protocol conversions and support of IoT platforms such as MS Azure, Cumulocity, ThingWorx, and others are supported on the router.





WebAccess/VPN



WebAccess/DMP



| Model no. - Order Codes | REGION | 1× Ethernet | I/O | 1× ANT 1× DIV | 1× SIM | WiFi |
|---|--------|-------------|-----|------------------|--------|------|
|  ICR-2031 | EMEA | ✓ | ✓ | ✓ | ✓ | |
|  ICR-2031W | EMEA | ✓ | ✓ | ✓ | ✓ | ✓ |

Specifications

| System | |
|----------------|---|
| CPU | ARM926EJ-S, 600 MHz |
| Memory | RAM - 128 MB NOR Flash - 64 MB (12 MB for Router Apps, 2 MB for customer data) |
| Watchdog | HW Watchdog |
| RTC | Battery backup RTC |
| Interfaces | |
| Ethernet | 1× Ethernet, RJ45, 10/100 Mbps |
| I / O | 1× Digital Input (36V/0.5 mA) 1× Digital Output (Open Drain, 36 V/ 100 mA) (6-pin terminal block together with PWR) |
| Reset Button | Reboot / Factory reset |
| LED Indicators | System, Signal strength, Data activity, SIM status, 2G/3G/4G technology, Input, Output, User, ETH, ETH |

| Environmental | |
|--------------------------|--|
| Power Supply | 9 – 48 V DC (6-pin terminal block together with I/O) |
| Consumption | Idle 1.8 W / Average 2.8 W / Maximum 3.3 W |
| Operating Temperature | -40 to +75 °C |
| Storage Temperature | -40 to +85 °C |
| Humidity | 5 to 95 %, non-condensing |
| IP Cover | IP30 |
| Physical Characteristics | |
| Dimensions | 103 mm x 95 mm x 25 mm |
| Enclosure | Metal Case, Grounding Screw |
| Mounting | Wall mount, * Optional DIN Rail mount |
| Weight | 335 g |

| WiFi - ICR-2031W | |
|------------------|---|
| Antenna | 1× R-SMA connector |
| Standards | IEEE802.11 ac/b/g/n 2.4 GHz / 5 GHz |
| Security | WEP, TKIP, AES, WPA, WPA2, 802.1X |
| Modes | Access Point (up to 8 clients), Station, Multirole STA & AP |

| Cellular Interface | |
|-----------------------|--|
| SIM Slots | 1× SIM (Micro SIM – 3FF) |
| Antennas | 2× SMA connector (1× Main, 1× Diversity) |
| LTE Parameters | Supported FDD frequencies: B1 (2100 MHz), B3 (1800 MHz), B7 (2600 MHz), B8 (900 MHz), B20 (800 MHz), B28A (700 MHz) Supported TDD frequencies: B38 (2600 MHz), B40 (2300 MHz), B41 (2500 MHz) Transfer rate: 150 Mbps (DL), 50 Mbps (UL) |
| HSPA+/UMTS Parameters | Supported frequencies: B1 (2100 MHz), B8 (900 MHz) Transfer rate: 42 Mbps (DL), 5.76 Mbps (UL) |
| EDGE/GPRS Parameters | Supported frequencies: B3 (1800 MHz), B8 (900 MHz) Transfer rate: 296 kbps (DL), 236.8 kbps (UL) |

| Standards & Regulations | |
|-------------------------|--|
| Radio | EN 301 511, EN 301 908-1, EN 301 908-2, EN 301 908-13, EN 301 893, EN 300 328 |
| EMC | EN 301 489-1, EN 301 489-17, EN 301 489-52, IEC 61000-6-2, IEC 61000-6-3, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 55032 |
| Safety | EN 62 368-1, IEEE 802.3 |
| National | CE, UKCA |
| Mechanical | EN 60529 |
| Climatic | EN 60068-2-1, EN 60068-2-2, EN 60068-2-14, EN 60068-2-30 |
| Environmental | REACH, RoHS3, WEEE |

Accessories

| Part Number | Description | Included in the package |
|--------------------|--|-------------------------|
| | 6-pin PWR / IO connector | ✓ |
| | Wall mount kit | ✓ |
| | Quick Start Guide | ✓ |
| BB-DIN-ICR32 | DIN Clip | |
| BB-KD-ETH | Ethernet cross cable, length 1.5m | |
| ANT-LTE5G-025 | Antenna 5G/LTE, Terminal, SMA-M | |
| BB-AW-A2458G-FSRPK | Antenna Wi-Fi, 2.4 & 5.8 GHz | |
| RPS-ICR2-EU | Power Supply, ICR2, 12V/1A, 6-pin, EU plug | |
| ACC-KIT-ICR2-001 | ICR-2000 family accessory kit 2× LTE ANT, Power Supply, ETH cable | |

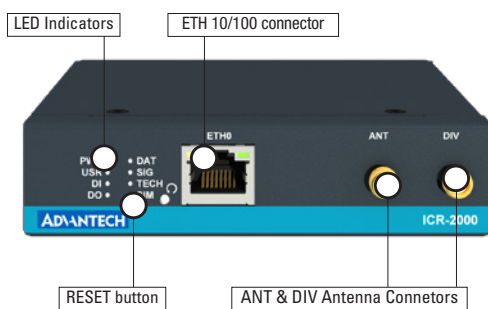
*For more Antenna accessories visit www.advantech.com

| Software | |
|-----------------------------------|--|
| Operating System | ICR-OS (Linux based) |
| SW Customization | Router App (User Modules)* |
| Application Development | Open Linux, *Python, BASH, C/C++ |
| Industrial Protocols and IoT | *DF1, *DNP3, *MQTT, *LWM2M |
| Networking Features and Protocols | 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, NHRP, Backup Routes, Port Forwarding, Host Port Routing, Ethernet Bridging, Load Balancing, IPv6 Dual Stack |
| Security | HTTPS, SSH, SFTP, 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+, *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 One CLICK report – Current Configuration, Factory Identification, Routing Table Log – System Log, Reboot Log, Kernel Log Remote Diagnostics (via SSH) |
| Event Engine | StartUp script & Up/Down script (Own rules based on Digital Inputs, Network Parameters, Data Usage, Timer) 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/DMP – Remote Device Provisioning, Monitoring & Management Platform WebAccess/VPN – Advanced Secure Networking Platform |

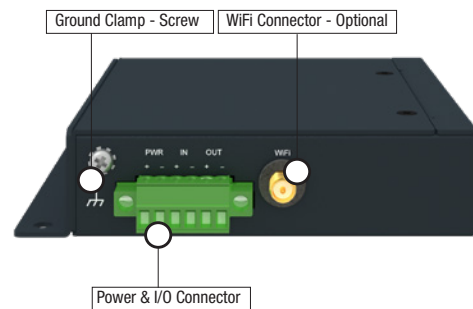
*Functionality is available with installed Router App (User Module)

Views

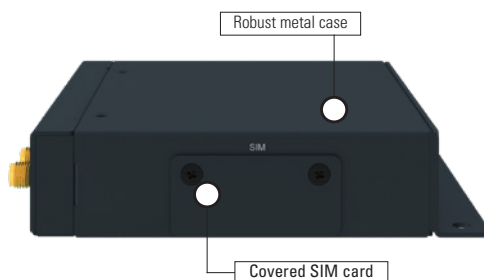
FRONT VIEW



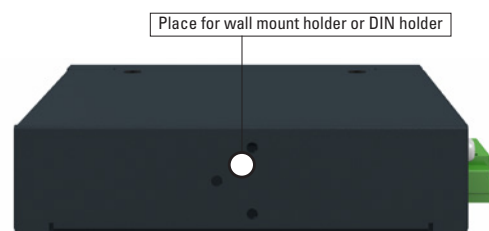
LEFT SIDE VIEW



RIGHT SIDE VIEW



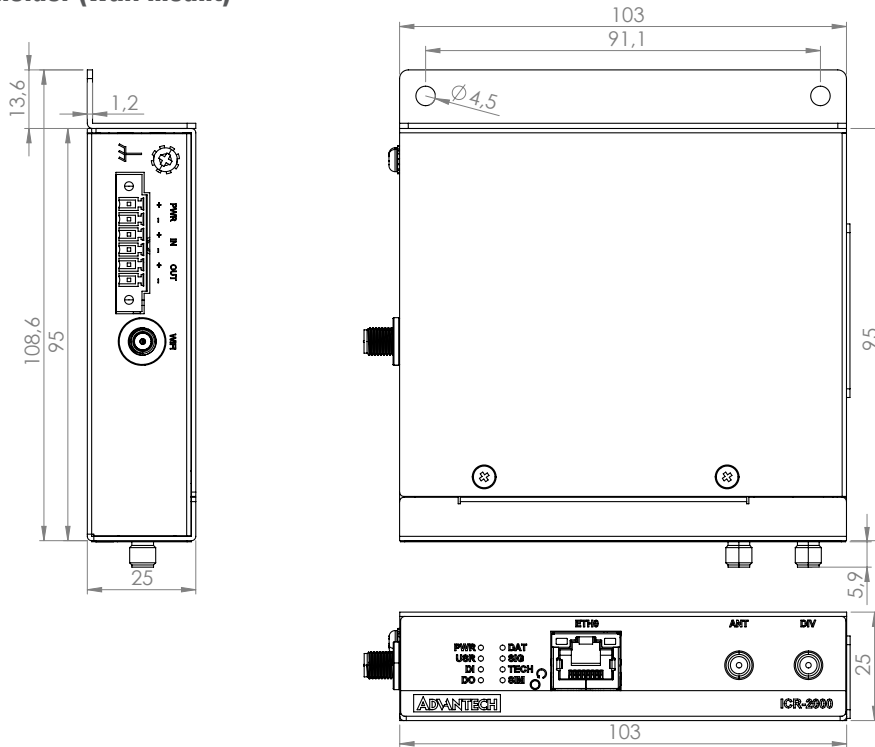
REAR VIEW



Dimensions - Technical Drawing

Version with L holder (Wall mount)

Unit: mm



Version with DIN holder (*Optional Accessories)

