ICR-2431

Entry-Level 4G Router

Features

- LTE Cat.4 with 3G/2G fallback
- 2× SIM for redundancy
- 2× Ethernet 10/100 Mbps
- 1× RS232, 1× RS485
- 1× DI, 1× DO
- Wide operational temperature range
- Wall and DIN mount options
- Linux based OS & SW customization
- Optional WiFi 802.11n
- Optional GNSS receiver

Introduction

Industrial cellular router ICR-2431 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-2431 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.

The router is equipped with two independently configurable Ethernet ports (LAN or WAN), 1× serial port RS232, 1× RS485, and with digital I/O connectivity (1× DI, 1× DO). Optional built-in WiFi 802.11 ac/a/b/g/n with AP, Client, Multirole modes or optional integrated GNSS functionality is available.

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 and others are supported on the router.

ICR-OS   **WebAccess/DMP**   **RouterApp**

Order Codes

Model no. - Order Codes	REGION	2× Ethernet 10/100 Mbps	RS232 RS485	I/O	1× ANT 1× DIV	2× SIM	GNSS	WiFi
ICR-2431	EMEA	✓	✓	✓	✓	✓		
ICR-2431W	EMEA	✓	✓	✓	✓	✓		✓
ICR-2431G	EMEA	✓	✓	✓	✓	✓	✓	

* - 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.

ADVANTECH **Industrial Cellular Gateways & Routers**

All product specifications are subject to change without notice.   Last updated: 26-May-2025

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	2× Ethernet (1+ 1), RJ45, 10/100 Mbps
Serial Lines	1× RS232 (Tx, Rx, GND, RTS, CTS) 1× RS485 (A(-), B(+), GND) (7-pin terminal block)
I / O	1× Digital Input (48 V / 0.5 mA) 1× Digital Output (Open Drain, 48 V / 100 mA) (6-pin terminal block together with PWR)
Reset Button	Reboot / Factory reset
LED Indicators	System, Signal strength, Data activity, SIM1/SIM2 status, 2G/3G/4G technology, Input, Output, User, ETH

Environmental

Power Supply	9 – 48 V DC (6-pin terminal block together with I/O)
Consuption	ICR-2431: Idle 1.9 W / Average 2.8 W / Maximum 3.5 W ICR-2431W: Idle 2.2 W / Average 3.6 W / Maximum 4.2 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	ICR-2431: 345 g ICR-2431W, ICR-2431G: 355 g

WiFi - ICR-2431W

Antenna	1× R-SMA connector
Standards	IEEE802.11 ac/b/g/n 2.4 GHz / 5 GHz
Security	WEP, TKIP, AES, WPA, WPA2, WPA3, 802.1X
Modes	Access Point (up to 8 clients), Station, Multirole STA & AP

GNSS - ICR-2431G

Antenna	1× SMA connector, active (50 mA)
Systems	GPS, GLONASS, BeiDou, Galileo, QZSS
Protocol	NMEA 0183
Ac Time-to-First-Fix	Hot start: 2.5 s Warm start: 26 s Cold start: 35 s

Cellular Interface

SIM Slots	2× 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, EN 303 413
EMC	ETSI EN 301 489-1, ETSI EN 301 489-17, ETSI EN 301 489-52, IEC 61000-6-2, IEC 61000-6-3, EN 61000-4-2, EN IEC 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
Transportation	E-mark
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

Software	
Operating System	ICR-OS (Linux based)
SW Customization	Router App
Application Development	Open Linux, *Python, BASH, C/C++
Industrial Protocols and IoT	*Modbus RTU/TCP gateway, *IEC 60870-5-101 to 104 gateway, *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

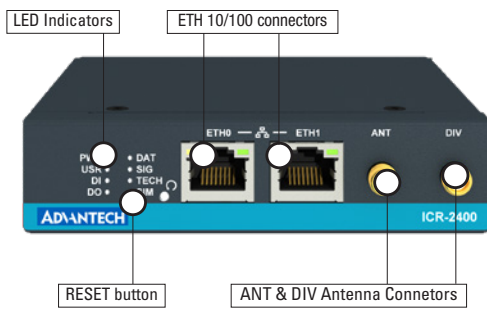*Functionality is available with installed RouterApp

Accessories

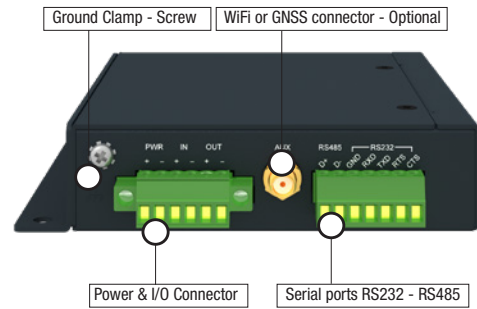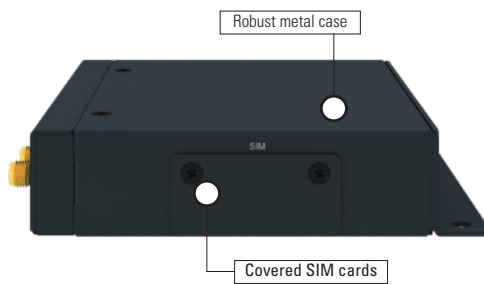| Part Number	Description	Included in the package
CON-ICR2-6-PWR	6-pin PWR / IO connector	✓
CON-ICR2-7-SER	7-pin Serial connector	✓
	Wall mount kit	✓
BB-DIN-ICR32	DIN Clip	
BB-KD-ETH	Ethernet cross cable, lenght 1.5m	
ANT-LTE5G-025	Antenna 5G/LTE, Terminal, SMA-M	
OPT1-ANT-WFT-06	Antenna Wi-Fi, Terminal	
OPT1-ANT-GNS-20	Antenna GNSS, Magnetic mount	
RPS-ICR2-EU	Power Supply EU, ICR2, 12V/1A, 6-pin, EU plug	
ACC-KIT-ICR2-001	ICR-2000 family accessory kit, 2× LTE ANT, EU Power Supply, ETH cable	

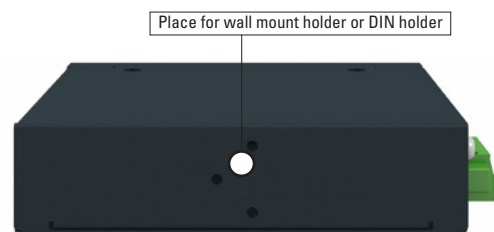*For more Antenna accessories visit www.advantech.com

Views

FRONT VIEW

LED Indicators
ETH 10/100 connectors

RESET button
ANT & DIV Antenna Connetors

LEFT SIDE VIEW

Ground Clamp - Screw
WiFi or GNSS connector - Optional

Power & I/O Connector
Serial ports RS232 - RS485

RIGHT SIDE VIEW

Robust metal case

Covered SIM cards

REAR VIEW

Place for wall mount holder or DIN holder

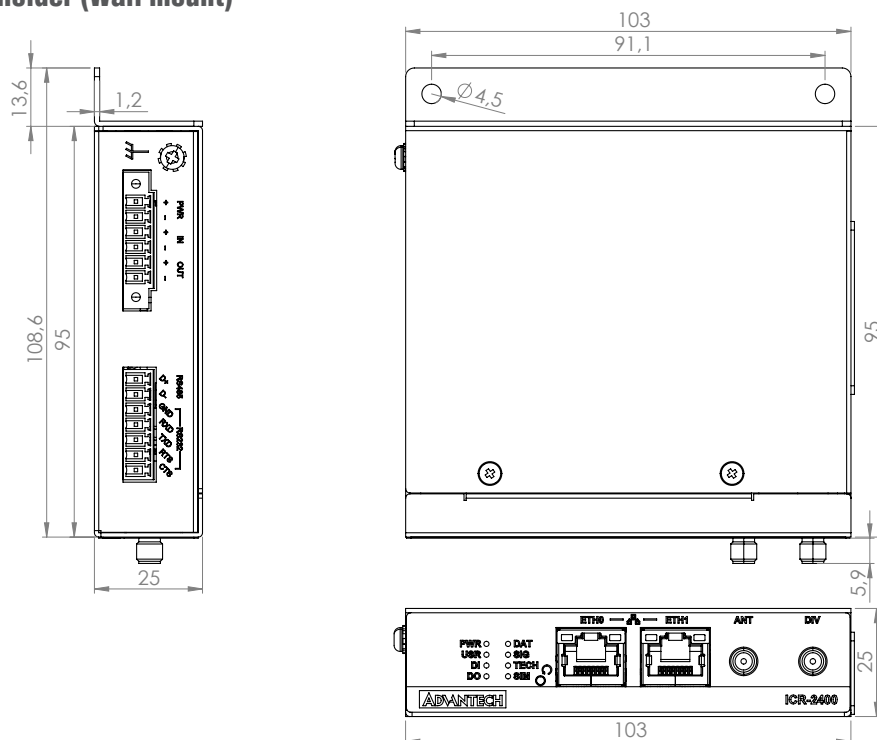## Dimensions - Technical Drawing

Unit: mm

Version with L holder (Wall mount)

Version with DIN holder (*Optional Accessories)