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.

ICR-OS   **WebAccess/VPN**   **RouterApp**

C++   **python**   **WebAccess/DMP**

Model no. - Order Codes		REGION	1× Ethernet	I/O	1× ANT 1× DIV	1× SIM	WiFi
	ICR-2031	EMEA	✓	✓	✓	✓	
	ICR-2031W	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: 25-Jul-2024

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)
Consuption	ICR-2031: Idle 1.8 W / Average 2.8 W / Maximum 3.3 W ICR-2031W: Idle 2.1 W / Average 3.6 W / Maximum 4.0 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	135 g

WiFi - ICR-2031W	
Antenna	1× R-SMA connector
Standards	IEEE802.11 ac/a/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

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
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

Accessories

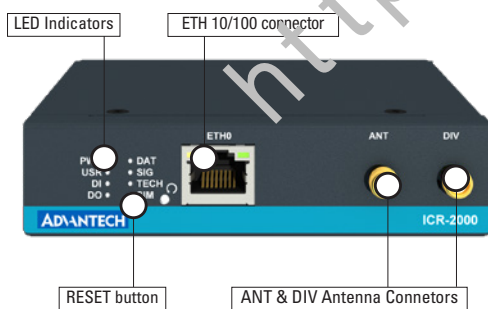| Part Number	Description	Included in the package
CON-ICR2-6-PWR	6-pin PWR / IO connector	✓
	Wall mount kit	✓
BB-DIN-ICR32	DIN Clip	
BB-KD-ETH	Ethernet cross cable, lenght 1.5m	
ANT-LTE5G-025	Antenna 5G/LTE, Terminal, SMA-M	
OPT1-ANT-WFT-06	Antenna Wi-Fi, Terminal	
RPS-ICR2-EU	Power Supply EU, ICR2,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

*For more Antenna accessories visit www.advantech.com

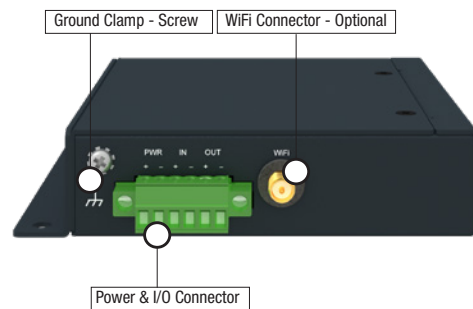| Software	
Operating System	ICR-OS (Linux based)
SW Customization	Router App
Application Development	Open Linux, *Python, BASH, C/C++
Industrial Protocols and IoT	*DF1, *DNP3, *MQTT, *LWM2M
Networking Features and Protocols	DHCP, NAT/PAT, SSH, VRRP, PPPoE, SNMP, SMTP, Dynamic DNS client, DNS proxy, 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

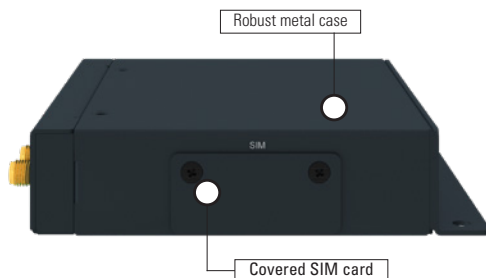*Functionality is available with installed Router App

Views

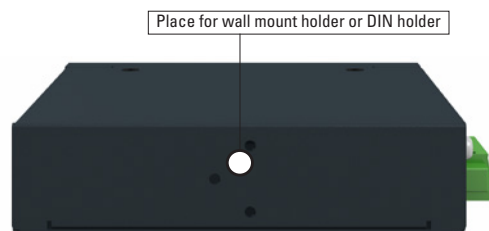### FRONT VIEW

LEFT SIDE VIEW

RIGHT SIDE VIEW

REAR VIEW

Dimensions - Technical Drawing

Version with L holder (Wall mount)

Unit: mm

103
91,1
∅4,5
13,6
1,2
108,6
95
95
25
5,9
25
103

PWR IN OUT
VBI

PWR USR DI DO
DAT SIG TECH SIM
ETH0
ANT DIV
ADVANTECH
ICR-2000
103

Version with DIN holder (*Optional Accessories)

103
51,5
51,5
8,9
103,9
95
95
103,9
25
5,9
25
103

PWR IN OUT
VBI

PWR USR DI DO
DAT SIG TECH SIM
ETH0
ANT DIV
ADVANTECH
ICR-2000
103