ICR-3241

Industrial 4G Router & IoT Gateway

- LTE Cat.4 with 3G/2G fallback
- Carriers support; Verizon, AT&T, T-Mobile, FirstNet (Public Safety)
- Powerful CPU with 1.3 GB storage to host customer SW applications
- 2× SIM with cover, eSIM ready
- 2× Ethernet 10/100, 1× RS232, 1× RS485 and I/O
- Robust metal cover with DIN and Wall mount options
- Operational temperature range from -40 °C to +75 °C
- Backup real time clock
- Sleep mode & Power ignition
- Optional Wi-Fi 802.11ac, 2× 2 MIMO
- Optional Bluetooth v5.1 (class 1)
- Optional GNSS receiver
- E-Mark and EN 50155 Railway compliance

Project-based customization: Chip SIM (MFF2)

Introduction

RoHS COMPLIANT 2002/95/EC   FC   IC

The ICR-3200 4G LTE gateway is the perfect way to connect IP or serial devices via a cellular network. Industrial M2M and IoT applications include SCADA, industrial PCs, HMIs, traffic controllers, CCTV, meters, kiosks, UPS systems, and much more.

With LTE Cat. 4 upload speeds of up to 50 Mbps and download speeds of up to 150 Mbps, the router provides ample bandwidth for high data-demand applications. The device has two SIM card readers for carrier failover redundancy. As an addition the router can be customized for using an embedded SIM.

In addition to its two independent Ethernet ports, serial ports RS232 and RS485, ICR-3200 has built-in digital I/O connectivity, a backup real-time clock, and sleep mode support.

An optional built-in Wi-Fi module is available, supporting 802.11a/b/g/n/ac modes and MIMO, and Bluetooth v5.1. An optional built-in GNSS chipset provides accurate positioning information for the router.

The ICR-3200 places intelligence at the network edge with a powerful Cortex A8 CPU at 1GHz, 512 MB RAM, and 4 GB EMMC FLASH memory in pSLC mode for a long lifetime and critical industrial applications. 1.3 GB of memory space is allocated for customer SW applications and data.

With an open Linux-based ICR-OS operating system and wide possibilities of programming customer SW applications in Python, C/C++ or browser-based flow editor Node-RED, or even Docker containers, the ICR-3200 offers a real open development platform for Industrial IoT applications.

The Advantech existing Router App library (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.

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's status.

The ICR-3200 is easy to manage using WebAccess/DMP a full-featured, cloud-based platform for device management, provisioning, and monitoring. It is ideal for mass deployment and VPN management, enabling secure remote access.

The models ICR-3200-EL support EdgeLink. The comprehensive software platform enables easy integration of industrial protocols and secure and flexible data acquisition. This helps users optimize industrial operations and ensure reliable, secure connectivity between field devices and cloud or SCADA/MES systems.

Bluetooth   Node-RED   docker
C++   ICR-OS   RouterApp   WebAccess/DMP   EdgeLink
python   FIRSTNET Built with AT&T   AT&T   T··Mobile·   verizon

Order Codes

Model no. - Order Codes	Region	FirstNet Certification	2× Ethernet	RS232 RS485	GNSS	I/O	LTE ANT + DIV	2× SIM	WiFi 802.11ac	Bluetooth v5.1 (class1)	EdgeLink Support
ICR-3241	NAM*		✓	✓		✓	✓	✓			
ICR-3241W	NAM*		✓	✓	✓	✓	✓	✓	✓	✓	
ICR-3241-1ND	NAM*	✓	✓	✓		✓	✓	✓			
ICR-3241W-1ND	NAM*	✓	✓	✓	✓	✓	✓	✓	✓	✓	
ICR-3241-EL	NAM*	✓	✓	✓	✓	✓	✓	✓			✓

* - 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: 13-Jan-2026

Specifications

System

CPU	Cortex-A8, 1000 MHz
Memory	RAM – 512 MB eMMC – 4096 MB (838 MB for Router Apps, 512 MB for customer data)
Watchdog	HW Watchdog
RTC	Battery backup RTC

Interfaces

Ethernet	2× Ethernet, RJ45, 10/100 Mbps, Isolation 1.5 kV
Serial Lines	1× RS232 (Tx, Rx, RTS, CTS, GND) 1× RS485 (A(-), B(+), GND) (10-pin terminal block)
I / O	1× Digital Input 1× Digital Output (10-pin terminal block)
Reset Button	Reboot / Factory reset
LED Indicators	System, 3-level signal strength, Data activity, SIM1/SIM2 status, 2G/3G/4G technology, User, ETH

Bluetooth - optional

Antenna	Shared R-SMA WiFi antenna connector
Version	Bluetooth 5.1, class 1 (Bluetooth Low Energy), Bluetooth®SIG Qualification
Data rate	1 Mbps (GFSK), 2 Mbps (ϖ/4-DQPSK), 3 Mbps (8-DPSK)

Environmental

Power Supply	9 – 36 V DC (2-pin terminal block)
Consumption	With WiFi: Idle 2.5 W / Average 4 W / Maximum 11 W `HW Rev 1.0` With WiFi: Idle 2.6 W / Average 4.3 W / Maximum 5.8 W `HW Rev 2.0`
Sleep Mode	Yes, 100 mW `HW Rev 1.0` , 20 mW `HW Rev 2.0`
Operating Temperature	-40 to +75 °C
Storage Temperature	-40 to +85 °C
Humidity	5 to 95 %
IP Cover	IP30

Physical Characteristics

Dimensions	31.2 × 94 × 129 mm
Enclosure	Metal Case, Grounding Screw
Mounting	Wall Mount kit, DIN Rail
Weight	ICR-3241 - 457g ICR-3241W - 477g

WiFi - optional

Antenna	2× R-SMA connectors, 2×2 MIMO
Standards	IEEE802.11 ac/a/b/g/n 2.4 GHz / 5 GHz
Security	WEP, WPA, WPA2, WPA3, 802.1X
Modes	Access Point (unlimited clients), Station, Multirole STA & AP

GNSS - optional

Antenna	Active, 1× SMA connector
Systems	GPS, GLONASS, BeiDou, Galileo, QZSS
Protocol	NMEA
Ac Time-to-First-Fix	Cold 35 s, Warm 26 s

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	UL/EN/AS/NZS 62368-1
Mechanical	EN 60068-2-27, EN 60068-2-64
Climatic	EN 60068-2-2, EN 60068-2-1, EN 60068-2-14, EN 60068-2-78, MIL-STD-810G, SAE J1455
Transportation	E-Mark, EN 45545-2
Railway	EN 50155 compliant
Carrier Approval	Verizon, AT&T, FirstNet, T-Mobile
National	FCC, IC
Environmental	REACH, RoHS3 and WEEE compliant
Cellular Module Approvals*	Regulatory: GCF, FCC, PTCRB, IC Carrier: Verizon, AT&T, FirstNet, T-Mobile, U.S. Cellular, Rogers, Telus

*Approvals are valid for the integrated cellular module inside the router only. Cellular module approvals are not always applicable for the whole router – see "Standards and Regulations" chart for complete router approvals available.

Software	
Operating System	ICR-OS (Linux based)
SW Customization	Router App
Application Development	Open Linux, *Python, BASH, C/C++, *Node-RED, *Docker
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
Industrial Protocols and IoT	*Modbus RTU/TCP gateway, *IEC 60870-5-101 to 104 gateway, *DF1, *DNP3, *MQTT, *LWM2M
Security	HTTPS, SSH, SFTP, DMZ, Firewall (IP Filtering, MAC address filtering, Inbound and outbound Port filtering) VPN Tunneling – WireGuard, OpenVPN, IPsec with IKEv1 and IKEv2, GRE, L2TP, PPTP Authentication – RADIUS, TACACS+, 2FA, *SCEP Encryption – DES, 3DES, AES, RSA up to 4096, Ed25519, MD5, SHA
Firmware Management	Automatic firmware updates – server, locally via LAN or remotely via WAN Over-the-Air cellular module firmware updates
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 script & 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/DMP – Remote Monitoring, Management & VPN Platform *EdgeLink – Platform enables easy integration of industrial protocols and secure and flexible data

*Functionality is available with installed Router App

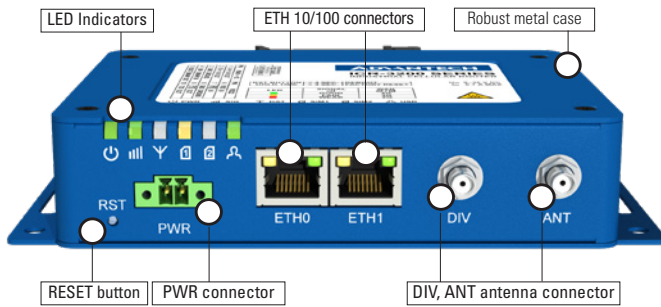| Cellular Interface	
SIM Slots	2× SIM (Mini SIM – 2FF) with cover, *1× Chip SIM (MFF2)
Antennas	2× SMA connector (1× Main, 1× Diversity)
LTE Parameters	Cat.4, 3GPP E-UTRA Release 11 Supported FDD frequencies: B2 (1900 MHz), B4 (1700 MHz), B5 (850 MHz), B12, B13, B14 (700 MHz), B66 (1700 MHz), B71 (600 MHz) Transfer rate: 150 Mbps (DL), 50 Mbps (UL)
HSPA+/UMTS Parameters	Supported frequencies: B2 (1900 MHz), B4 (1700 MHz), B5 (850 MHz) Transfer rate: 4.2 Mbps (DL) / 2.2 Mbps (UL)

*Project-based customization

Accessories

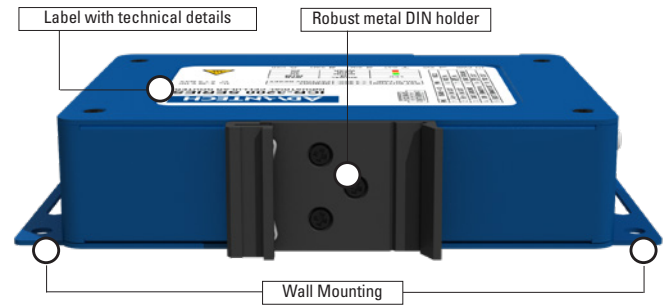| Part Number	Description	Included in the package	Optional
	Wall mount kit	✓	
BB-DIN-ICR32	DIN clip	✓	
BB-CON-ICR32-10	Serial / IO connector	✓	
BB-CON-WR2	PWR connector	✓	
ANT-LTE5G-025	Antenna 5G/LTE, Terminal (2 pcs are recommended for full cellular performance)		✓
OPT1-ANT-WFT-06	Antenna Wi-Fi, 2.4 GHz / 5 GHz/ 6 GHz (2 pcs are recommended for full 2×2 MIMO performance)		✓
OPT1-ANT-GNS-20	Antenna GPS/GLONASS, magnetic, cable 2m, SMA-M		✓
OPT1-RPS-1212-EU	Power Supply, 12V/1A, Open wires, EU plug		✓
OPT1-RPS-1212-UK	Power Supply, 12V/1A, Open wires, UK plug		✓
OPT1-RPS-1212-US	Power Supply, 12V/1A, Open wires, US plug		✓

For more accessories (Antennas, Power Supplies) visit www.advantech.com
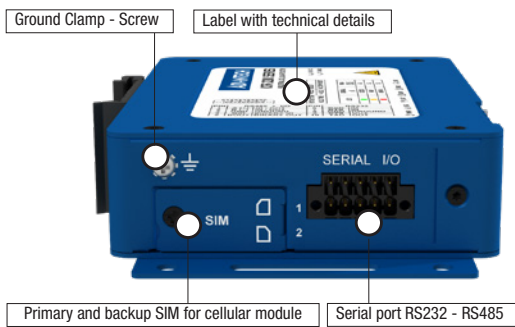
Views

FRONT VIEW

LED Indicators

ETH 10/100 connectors

Robust metal case

RST

PWR

ETH0

ETH1

DIV

ANT

RESET button

PWR connector

DIV, ANT antenna connector

REAR VIEW

Label with technical details

Robust metal DIN holder

Wall Mounting

LEFT SIDE VIEW

Ground Clamp - Screw

Label with technical details

SERIAL I/O

SIM

1

2

Primary and backup SIM for cellular module

Serial port RS232 - RS485

RIGHT SIDE VIEW
ICR-3241 - VERSION WITHOUT WIFI AND GPS

Wall Mounting

LEFT SIDE VIEW
ROUTER WITHOUT SIM COVER

SERIAL I/O

1

2

RIGHT SIDE VIEW
ICR-3241W - VERSION WITH WIFI AND GPS

WiFi2

GNSS

WiFi1

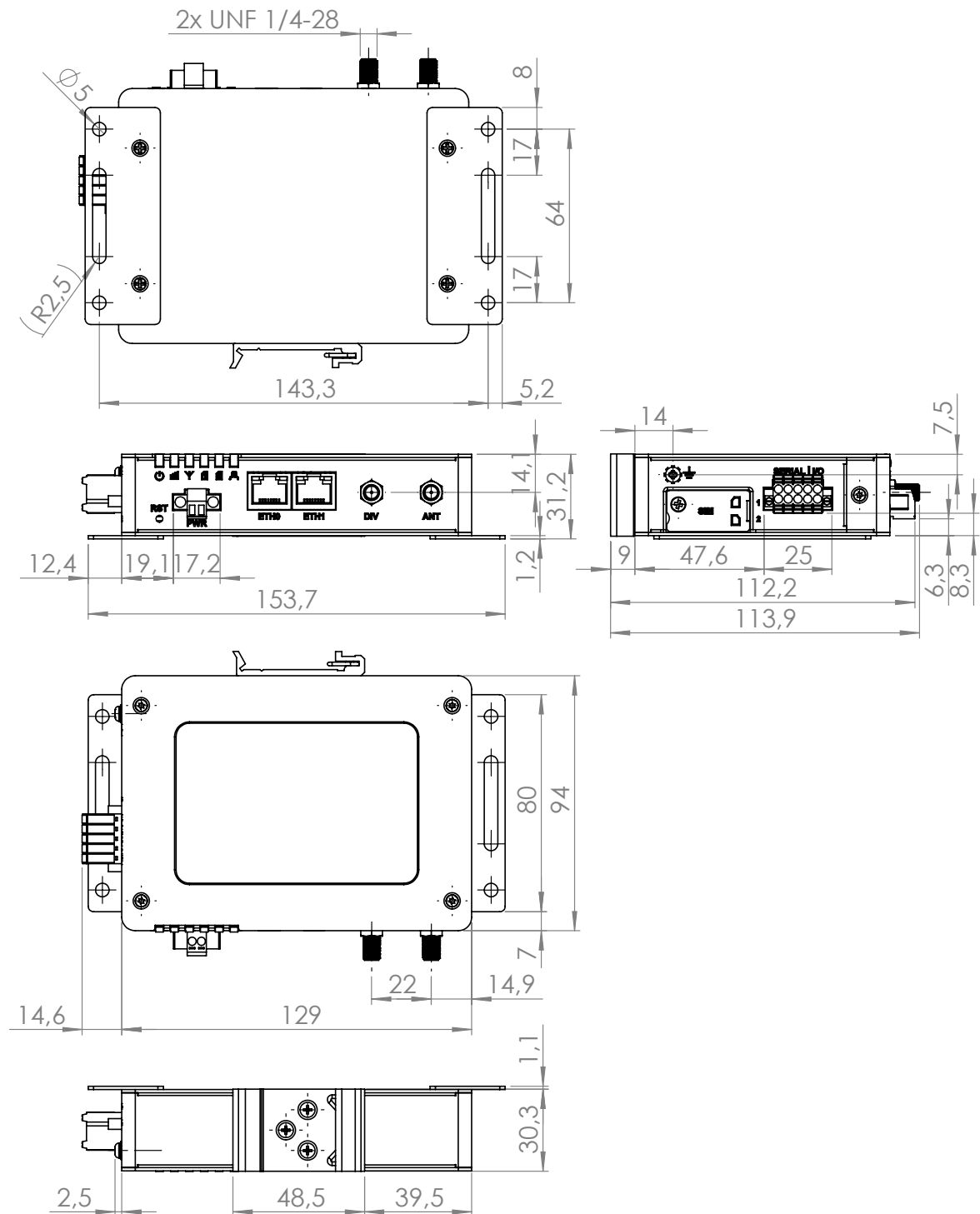GPS, WiFi antennas, Bluetooth

Dimensions - Technical Drawing

Unit: mm

Dimensions - Technical Drawing

Unit: mm