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, 1x RS232, 1x 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 receive
- E-Mark and EN 50155 Railway compliance

Introduction

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 is ready to use internal eSIM (Customization).

In addition to its two independent Ethernet ports, serial ports RS232 and RS485, ICR-3200 has built-in digital I/O connectivity, backup real-time clock and sleep mode support. An optional built-in modules WiFi with 802.11a,b,g,n,ac modes, 2×2 MIMO support and Bluetooth v5.1 are available. Optional built-in GNSS chipset provides information about the accurate position of 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 status.

ICR-3200 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.

Bluetooth™ Node-RED docker python

ICR-OS RouterApp WebAccess/DMP WebAccess/VPN

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)	WebAccess/DMP
	ICR-3241	NAM	✓	✓	✓		✓	✓	✓			
	ICR-3241W	NAM	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	ICR-3241-ND	NAM	✓	✓	✓		✓	✓	✓			✓
	ICR-3241W-ND	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

All product specifications are subject to change without notice.

ICR-3241

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)
Consuption	With WiFi: Idle 2.5 W / Average 4 W / Peak 11 W
Sleep Mode	Yes, 100 mW
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

Cellular Interface	
SIM Slots	2× SIM (Mini SIM – 2FF) with cover, eSIM ready
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)

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, MIL-STD-810G, SAE J1455
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 (planned)
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 (User Modules)*
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, *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 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 Device Provisioning, Monitoring & Management Platform WebAccess/VPN – Advanced Secure Networking Platform

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

Accessories

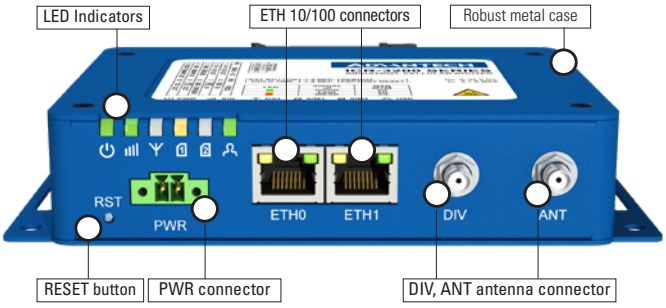
		Included in the package	Optional
Part Number	**Description**		
	Wall mount kit	✓	
BB-DIN-ICR32	DIN clip	✓	
BB-CON-ICR32-10	Serial / IO connector	✓	
BB-CON-WR2	PWR connector	✓	
ANT-LTE5G-025	Antenna 5G/LTE Terminal		✓
BB-AW-A2458G-FSRPK	Antenna Wi-Fi 2.4 & 5 GHz		✓
BB-AP-AGNSS-SMA	Ant GPS/GLONASS, magnetic, cable 3m, SMA-M		✓
BB-RPS-v2-WR2-EU	Wall mount Power Supply 12V/1A, EU plug		✓
BB-RPS-v2-WR2-UK	Wall mount Power Supply 12V/1A, UK plug		✓
BB-RPS-v2-WR2-US	Wall mount Power Supply 12V/1A, US plug		✓
BB-RPS-v2-WR2-AUS	Wall mount Power Supply 12V/1A, AUS plug		✓

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

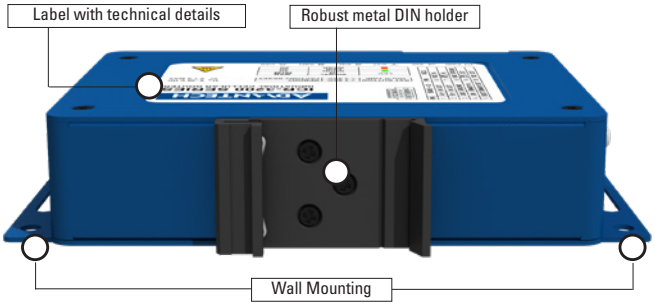
ICR-3241

Views

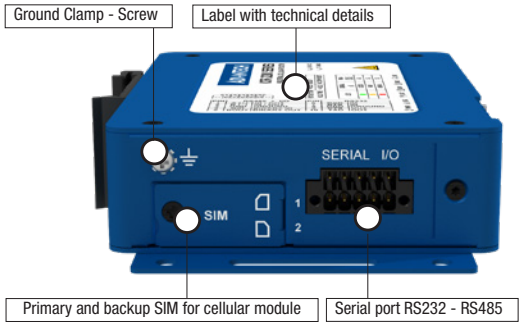
FRONT VIEW



REAR VIEW



LEFT SIDE VIEW



RIGHT SIDE VIEW

ICR-3241 - VERSION WITHOUT WIFI AND GPS

LEFT SIDE VIEW

ROUTER WITHOUT SIM COVER

RIGHT SIDE VIEW

ICR-3241W - VERSION WITH WIFI AND GPS

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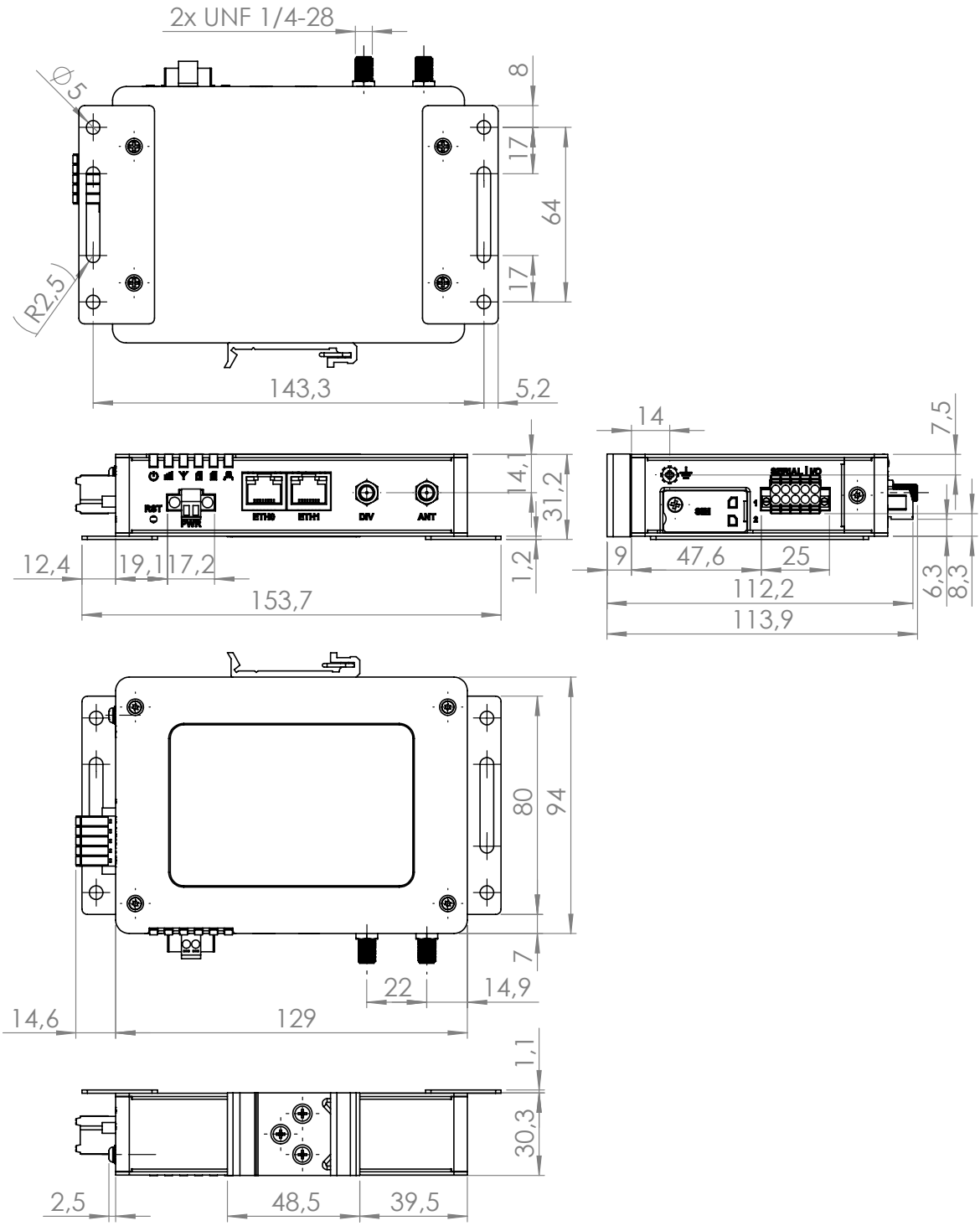
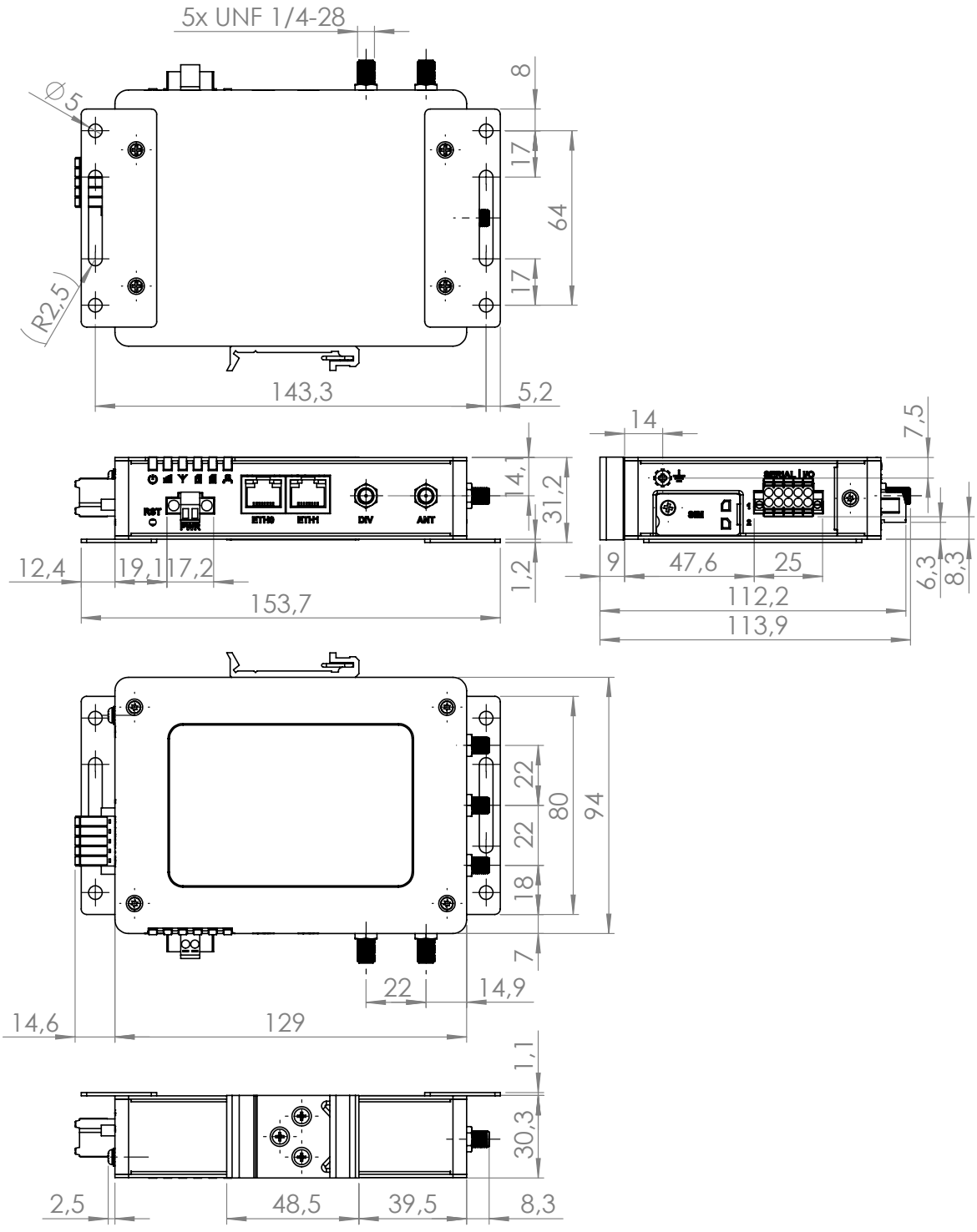
Dimensions - Technical Drawing

Unit: mm



ICR-3241W

Dimensions - Technical Drawing

Unit: mm