ICR-3231, ICR-3231W

INDUSTRIAL IoT 4G LTE ROUTER & GATEWAY

+ 4G LTE Cat.4 VPN Gateway for Industrial IoT applications
+ 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
+ Optional Wi-Fi 802.11ac using MU-MIMO technology
+ Optional GNSS receiver
+ 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

The ICR-3200 LTE gateway is the perfect way to connect IP or serial devices to a cellular network. Industrial M2M and IoT applications include kiosks, industrial PCs, HMIs, traffic controllers, meters, 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 such as CCTV or public Wi-Fi hotspots.

In addition to its two independent or switched Ethernet ports, serial ports RS232 and RS485, ICR-3200 has built-in digital I/O connectivity, backup real-time clock and sleep mode support. The device has two SIM readers protected by metallic cover for carrier failover redundancy. As an addition the router is ready to use internal eSIM.

Optional built-in GNSS chipset provides information about the accurate position of the router. An optional built-in Wi-Fi module is also available, with 802.11a,b,g,n,ac modes and MO-MIMO support is appropriate for on-board Wi-Fi transport applications.

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.

The ICR-3200 places intelligence at the network edge with an extremely 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 open Linux platform and wide posibilities of programming customer SW applications in Python, C/C++ or browser-based flow editor Node-RED the ICR-3200 offers a real open development platform for Industrial IoT applications. The Advantech existing 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, ThingWorx and others are supported on the router.

ICR-3200 is easy to install using WebAccess/DMP, a full featured configuration and monitoring tool for mass deployment. The router also supports additional traffic and health monitoring software R-SeeNet.

python™ C++ Node-RED WebAccess/DMP

ORDERING INFORMATION – Antennas & Power Supplies Sold Separately

MODEL NO. - ORDER CODES		REGION	2× ETHERNET	RS232 RS485	GNSS	I/O	LTE ANT + DIV	2× SIM	WI-FI 802ac	2x MIMO
	ICR-3231	EMEA	✓	✓		✓	✓	✓		
	ICR-3231W	EMEA	✓	✓	✓	✓	✓	✓	✓	✓

* Check availability of another models for various world regions at our corporate website or with your local distributor.

All product specifications are subject to change without notice.

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ACCESSORIES - INCLUDED

DESCRIPTION	
Wall mount kit	
DIN clip	BB-DIN-ICR32
Serial / IO connector	BB-CON-ICR32-10
PWR connector	BB-CON-WR2
Quick Start Guide	

ACCESSORIES - SOLD SEPARATELY

ORDER CODE	DESCRIPTION
BB-GA.110.101111	Antenna LTE, Magnet Mount
BB-TG.10.0113	Antenna LTE, Terminal
BB-AW-A2458G-FSRPK	Antenna Wi-Fi 2.4 & 5.8 GHz
BB-AP-AGNSS-SMA	Ant GPS/GLONASS, magnetic, cable 3m, SMA-M
BB-RPS-v2-WR2-AUS	Wall mount Power Supply 12V/1A, AUS plug
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

SPECIFICATIONS

NETWORKING	
Network and Routing	DHCP Server, NAT/PAT, VRRP, Dynamic DNS client, DNS proxy, VLAN, QoS, DMVPN, NTP Client/ Server, IGMP, BGP, OSPF, RIP, SMTP, SMTPS, SNMP v1/ v2c/ v3, Backup Routers, PPP, PPPoE, SSL, Port Forwarding, Host Port Routing, Ethernet Bridging, Load Balancing, IPv6 Dual Stack
Security	HTTPS, SSH, VPN tunnels, SFTP, DMZ, Firewall (IP Filtering, MAC address filtering, Inbound and outbound Port filtering)
VPN Tunnelling	Open VPN client and server and P2P, L2TP, PPTP, GRE, EasyVPN, IPSec with IKEv1 and IKEv2
Configuration	Web server, SSH, Four configuration switchable profiles, Automatic configuration update from server, Backup configuration, Restore configuration
Firmware Management	Automatic firmware updates from the server, locally via LAN or remotely via WAN (HTTP, HTTPS), Over-the-Air cellular module firmware updates
Diagnostic	One CLICK report - current configuration / factory identification / system log / kernel log / reboot log / routing table, Remote diagnostics possible via SSH
Status	Network Status, DHCP Status, IPSec Status, Statistics history for last 60days
Log	System Log, Reboot Log, Kernel Log
Controlling and Diagnostic	SMS, SNMP v1/v2c/v3, Statuses
Event Engine	StartUp script & Up/Down script (Bash, Python), Digital Input, Network Parameters, Data Usage, Timer, Power, Device Temperature. Report Types: SMS, email, SNMP Trap
Industrial Protocols	Modbus RTU/TCP gateway, IEC 60870-5-101 to 104 gateway, DF1, DNP3
Applications Development	Open Linux, Python, BASH, C/C++, Node-RED

PORTS, LED, ANTENNAS	
2× Ethernet	RJ45, 10/100 Mbps
2× SIM	Mini SIMs (2FF)
LED indicators	PWR, SIGNAL, DAT, SIM1, SIM2, USR, ETH
2× ANT	SMA connectors
GNSS (GPS, GLONASS) - *optional	SMA connector
2× MIMO WiFi antenna - *optional	R-SMA connector
1× RS232, 1× RS485	(10-Way Terminal block)
I/O	1x Digital Input (On Voltage: 2.7V to 36VDC) 1x Binary Output (10-Way Terminal block)

CPU, MEMORY	
CPU power	2 DMIPS per MHz
RAM	512 MB
Flash memory	2× 256 MB FW 512 MB - User data storage 838 MB - Space for User Modules

MECHANICAL	
Metal case, Metal DIN rail, Wall mount kit	Metal
Enclosure Dimensions	55 × 97 × 125 mm (150mm including DIN)
Weight - ICR-3231	477 g
Weight - ICR-3231W	497 g

CELLULAR MODULE PARAMETERS			
LTE parameters	LTE: Cat.4, 3GPP E-UTRA Release 11 FDD frequencies: 700 MHz (B28A), 800 MHz (B20), 900 MHz (B8), 1800 MHz (B3), 2100 MHz (B1), 2600 MHz (B7) TDD frequencies: 2300 MHz (B40), 2500 MHz (B41), 2600 MHz (B38) LTE FDD bit rates: 150 Mbps (DL) / 50 Mbps (UL) LTE TDD bit rates: 130 Mbps (DL) / 35 Mbps (UL) Supported bandwidths: 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz	EDGE parameters	Supported frequencies: 900 MHz, 1800 MHz Data throughput: max. 236.8 kbps
HSPA+ parameters	HSPA: 3GPP R8 DC-HSPA+ Supported frequencies: 900 MHz, 2100 MHz Bit rates: 42 Mbps (DL) / 5.76 Mbps (UL)	GPRS parameters	Supported frequencies: 900 MHz, 1800 MHz Data throughput: max. 85.6 kbps
UMTS parameters	Supported frequencies: 900 MHz, 2100 MHz Bit rates: 384 kbps (DL) / 384 kbps (UL)		

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SPECIFICATIONS - CONTINUED

POWER, CONSUMPTION, ENVIRONMENTAL, IP COVER	
Power Supply	9–36VDC (2-Way Terminal block)
Power Consumption with WiFi - Idle / Average / Peak / Sleep Mode	2.5 / 4 W / 11 W / 10 mW
Temperature Range – Operating / Storage	-40 to +75 °C / -40 to +85 °C
Humidity – Operating / Storage (noncondensing)	0 to 95 % / 0 to 95 %
Cold Start	-40 °C
Operating Altitude	2000 m / 70 kPa
Enclosure Rating	IP30
Grounding screw	

STANDARDS AND REGULATIONS	
Radio	EN 301 511 v12.5.1, EN 301 908-1 v11.1.1, EN 301 908-2 v11.1.2, EN 301 908-13 v11.1.2, EN 303 413 v1.1.1, EN 301 893 v 2.1.1, EN 300 328 v2.1.1
EMC	EN 301 489-1 v2.2.0, EN 301 489-19 v2.1.0, EN 301 489-52 v1.1.0, EN 301 489-17 v3.1.1, EN 61000-6-2 :2005, EN 61000-6-5 :2015
Safety	EN 60950-1, EN 62368-1, EN 50665

WI-FI	
Antenna Connector	2× R-SMA – 50 Ohms (MU-MIMO)
Supported WiFi Band	2.4 GHz to 2.495, 5.15 GHz to 5.825 GHz
Standards	IEEE 802.11ac Wave 2, 802.11d, 802.11e, 802.11h, 802.11i, 802.11r
Security - Standards	WEP, WPA, WPA2
Security - Encryption	WEP, TKIP, AES
Security - EAP Types	EAP-FAST, EAP-TLS, EAP-TTLS, PEAP-GTC, PEAP-MSCHAPv2, PEAP-TLS, LEAP
WiFi Standards	802.11a, 802.11b, 802.11g, 802.11n, 802.11ac Wave 2 WPA Enterprise, WPA2 Enterprise
Type of Device	Access point, station

GNSS specifications	
Antenna	50ohm - active
Protocols	NMEA 0183
GNSS Systems	GPS, GLONASS, BeiDou, Galileo, QZSS
Frequency	GPS/Galileo/QZSS: 1575.42±1.023MHz GLONASS: 1597.5 – 1605.8MHz BeiDou: 1561.098±2.046MHz
Sensitivity (autonomous)	Tracking: -157dBm Reacquisition: -157dBm Cold start: -146dBm
Acquisition time (autonomous)	Hot start: 2.5 s Warm start: 26 s Cold start: 35 s
Accuracy	< 1.5m

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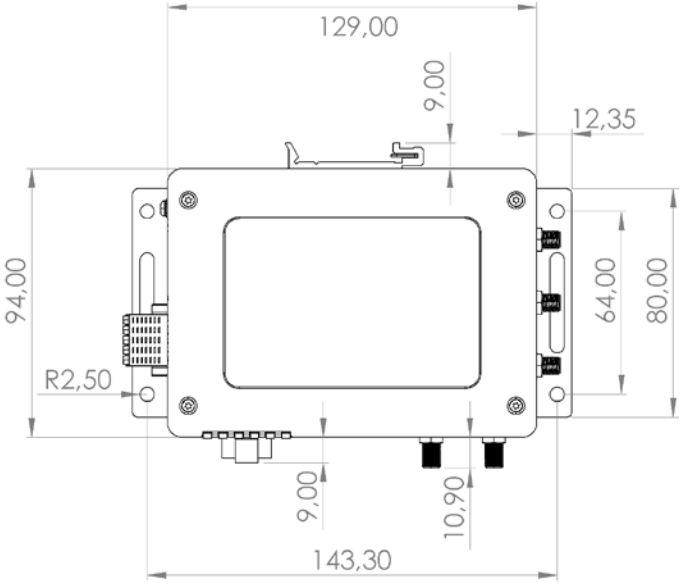
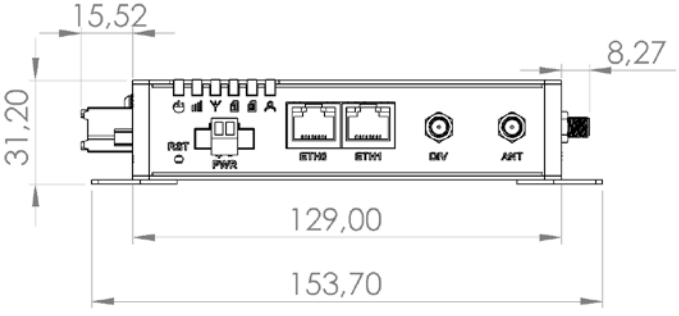
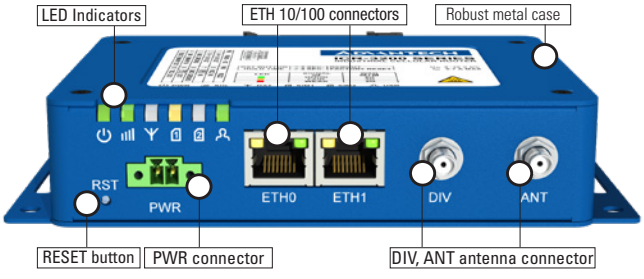
MECHANICAL DRAWING

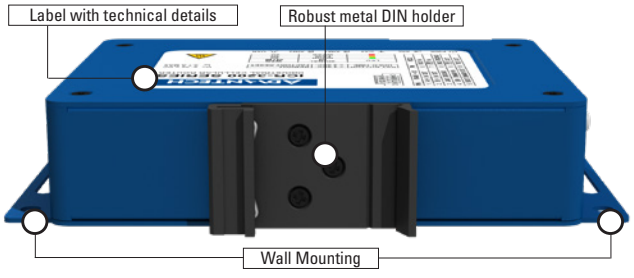




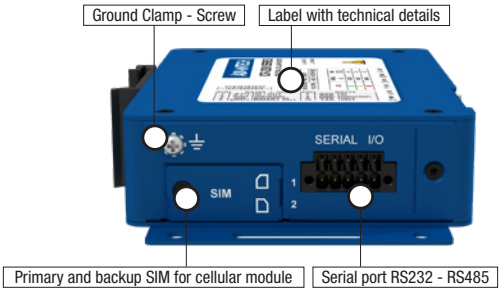
FRONT VIEW



REAR VIEW



LEFT SIDE VIEW



RIGHT SIDE VIEW