Industrial Cellular Routers & Gateways

ICR-1745-EU

5G NR Industrial Connectivity Gateway

Features

- 5G NR Cellular Connectivity, Sub-6GHz
- 3GPP Rel 17 (EU), support both NSA and SA modes
- 2× SIM for redundancy, eSIM(**)
- 5× Ethernet 10/100/1000Mbps
- Terminal block with 1× RS232 + 1× RS485 + 1× DI +1× DO
- Optional 2× 2 Wi-Fi6 (IEEE802.11ax) supports up to 32 clients
- Wide operational temperature range (-30 ~ 75 °C)
- Robust metal cover with wall-mount kit
- Optional DIN-Rail mounting

* The gateway is compatible with cellular networks in the indicated region. The importer/operator needs to check locale legislation (standards, national Telecom approvals, etc.) and compare with standards available for the product if possible to operate the gateway in the target region legally.

** Availability may vary. Please consult your local sales representative for more information.

Introduction

RoHS COMPLIANT 2002/95/EC CE

The Industrial Connectivity Gateway ICR-1745 series is designed for wireless communication to enable the connection of IP devices and serial buses to a 5G NR network. Employing future-proof 5G NR technology, the ICR-1745 series features a low latency in data transmission, ensuring real-time responses and offering robust performance, flexibility, and advanced features to support a wide range of industrial M2M and IoT applications, including environmental monitoring, vending machines, and surveillance.

ICR-1745 Industrial connectivity gateway equipped with five Gigabit Ethernet ports and digital I/O (1× DI, 1× DO) and Serial (1× RS232 + 1× RS485) connectivity. The gateway supports VPN tunnel creation using various protocols to ensure safe communications. It also 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 gateway status.

The ICR-1700 connectivity gateway series is based on a system-on-module design that integrates the ICR-OS operating system directly on the cellular module, resulting in a compact and cost-effective solution. ICR-OS Open Linux platform enables wide possibilities of programming customer SW applications in scripts and C/C++. Gateway supports uploading of certain RouterApps that would extend standard firmware functionalities. The existing app library, ready for free download by customers, already contains developed software apps to enhance specific gateway functionality.

The router 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.

Vertrieb durch AMC

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ICR-OS RouterApp WebAccess/DMP

Order Codes

Model no. - Order Codes		REGION	5× Gigabit Ethernet	Micro SIM slot	eSIM	1× RS232 1× RS485 2× DI/DO	USB	GNSS	WiFi 6 (802.11ax) 2T2R
	ICR-1745W-EU-A	EMEA, APAC, LATAM	✓	2×		✓	✓	✓	✓
	ICR-1745WE-EU-A (**)	EMEA, APAC, LATAM	✓	1×	1×	✓	✓	✓	✓
	ICR-1745-EU-A	EMEA, APAC, LATAM	✓	2×		✓	✓	✓	
	ICR-1745E-EU-A (**)	EMEA, APAC, LATAM	✓	1×	1×	✓	✓	✓	

** Availability may vary. Please consult your local sales representative for more information.

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All product specifications are subject to change without notice.

ADVANTECH iAutomation Premier Partner

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Specifications

System	
CPU	Quad-Core, Cortex A55 up to 2.2 GHz
Memory	RAM: 1 GB eMMC: 4 GB (1GB for RouterApps, 491MB for user data)
Watchdog	Hardware watchdog
Interfaces	
Ethernet	5× Ethernet, RJ45, 10/100/1000Mbps
Serial Lines (Optional)	1× RS232 (Tx, Rx, GND, RTS, CTS) 1× RS485 (Data-, Data+, GND) (10-pin terminal block with Digital I/O)
I/O (Optional)	1× Digital Input (Dry contact) 1× Digital Output (Open Drain, 48 V / 100 mA) (10-pin terminal block together with RS232,RS485)
USB	USB 2.0
Reset Button	Reboot (< 4 s) / Factory reset (> 4 s)
LED Indicators	PWR: green only, blinking while system is ready SIG: green/orange/red for good/fair/poor signal SIM: green/orange for SIM1/2 USR: user define for WiFi, serial, DI/O etc. USR: user define for WiFi, serial, DI/O etc. ETH0 & ETH1 on RJ45

GNSS	
Antenna	1× SMA female, active antenna, L1, L2, L5 bands
Systems	GPS, GLONASS, BDS, Galileo, QZSS
Protocol	NMEA
Ac Time-to-First-Fix	Cold start: 8.12 s Warm start: 1.22 s Hot start: 0.82 s

Environmental	
Power Supply	9 – 48 VDC (2-pin terminal block)
Consumption	ICR-1745-EU: Idle 1W / Average 2.7W / Maximum 5W ICR-1745W-EU: Idle 1.6W / Average 4.1W / Maximum 10W
Sleep Mode	No
Operating Temperature	-30 to +75 °C (with WiFi) -40 to +75 °C (without WiFi)
Storage Temperature	-40 to +85 °C
Humidity	5 to 95 %
IP Cover	IP30
Physical Characteristics	
Dimensions	116 × 44 × 113.5mm (4.57" × 1.73" × 4.47")
Enclosure	Metal case + aluminum heatsink with grounding screw
Mounting	Wallmount DIN-Rail (optional)
Weight	ICR-1745W-EU: 655g ICR-1745-EU: 645g 5G/LTE Antenna: 49g (4pcs) WiFi Antenna: 15.4g (2pcs) Wall-mount bracket: 50g

WiFi - optional (**ICR-1745W**)	
Antenna	2× R-SMA connectors
Standards	IEEE 802.11 a/b/g/n/ac/ax 2.4GHz / 5GHz
Data Rate	Up to 1774.5Mbps
Security	WEP, TKIP, AES, WPA, WPA2, WPA3, 802.1X
Modes	Access Point (up to 32 clients), Station, Multirole STA & AP

Cellular Interface	
SIM Slots	2× SIM (Micro SIM – 3FF)
Antennas	4× SMA Female (ANT1-4)
5G NR frequency bands	NSA n1/ n3/ n5/ n7/ n8/ n20/ n26/ n28/ n38/ n40/ n41/ n75/ n77/ n78 Transfer rate: 4.52 Gbps (DL), 730 Mbps (UL) SA n1/ n3/ n5/ n7/ n8/ n20/ n26/ n28/ n38/ n40/ n41/ n75/ n77/ n78 Transfer rate: 4.67 Gbps (DL), 1.25 Gbps (UL)
LTE Parameters	FDD B1/ B3/ B5/ B7/ B8/ B20/ B28/ B32 TDD B38/ B40/ B41/ B42/ B43 Cat 20 (DL), Cat 18 (UL) Transfer rate: 2 Gbps (DL), 211 Mbps (UL)
UMTS Parameters	B1/ B5/ B8 Transfer rate: 42 Mbps (DL), 5.76 Mbps (UL)

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Software	
Operating System	ICR-OS (Linux based)
Application Development	Open Linux, BASH, C
Networking Features and Protocols	DHCP, NAT/PAT, SSH, VRRP, PPPoE, SNMP, SMTP, dynamic DNS client, DNS proxy, VLAN, QoS, NTP client/server, backup routes, port forwarding, host port routing, Ethernet bridging, load balancing, IPv6 dual stack
Industrial Protocols and IoT	*Modbus TCP2RTU, Modbus to MQTT
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 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)
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

*Functionality is available with installed Router App

Standards & Regulations	
Radio	EN 301 908-1, EN 301 908-2, EN 301 908-13, EN 301 908-25, EN 303 413, EN 300 328, EN 301 893, EN 303 687
EMC	EN 301 489-1, EN 301 489-17, EN 301 489-19, EN 301 489-52, EN 610000-6-2, EN 610000-6-3, EN 55032, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6
Safety	EN 62368-1
Cybersecurity	EN 18031-1
National	CE, UKCA
Mechanical	EN 60529, 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
Environmental	REACH, RoHS3, WEEE
Cellular Module Approvals*	Regulatory: CE/ RCM/ GCF

*- 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.

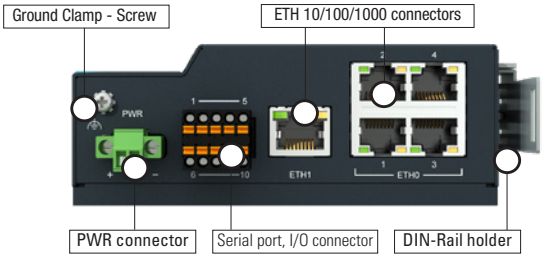
Accessories

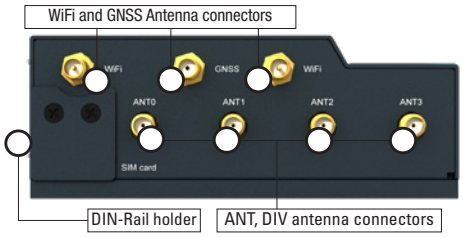
Part Number	Description	Included in the package
1751000532-01	4× LTE/5G Antenna	✓
1751000533-01	2× WiFi, 2.4/5 GHz (for ICR-1745W only)	
1652008574-01	10-pin Serial/ IO connector	
1652002024	2-pin Power connector	
1960115642N001	Wall-mount bracket	
OPT1-DIN-ICR1X-00	Din-Rail bracket (30mm) optional for ICR-1600/1700 series	No
OPT1-RPS-1212-EU	Power Supply, 12V/1A, Open ends, EU plug	
OPT1-RPS-1212-UK	Power Supply, 12V/1A, Open ends, UK plug	
OPT1-RPS-1212-US	Power Supply, 12V/1A, Open ends, US plug	
OPT1-RPS-1212-AUS	Power Supply, 12V/1A, Open ends, AUS plug	
OPT1-ANT-GNS-20	Active GNSS antenna, magnetic base, SMA-M	

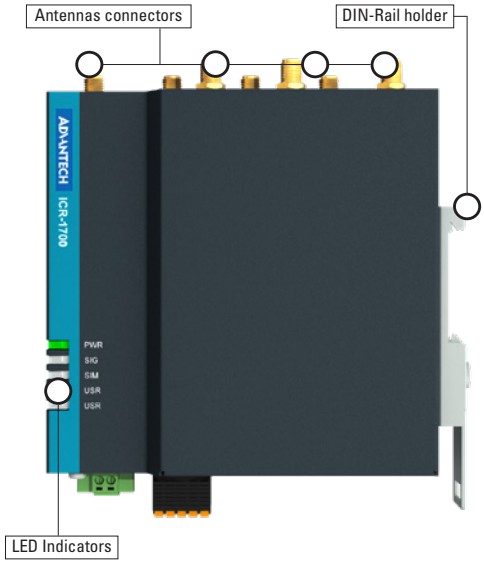
For more Antenna accessories visit **www.advantech.com**

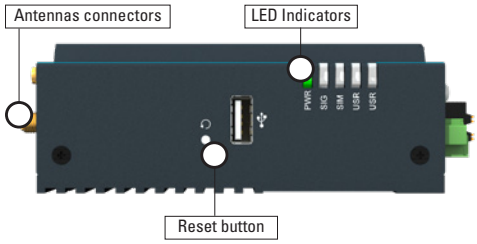
ICR-1745 Views

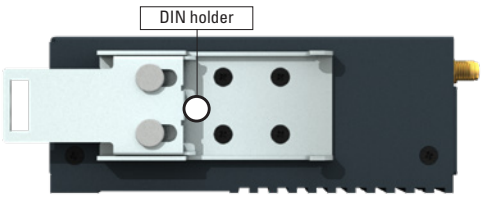
DIN mount (Optional)



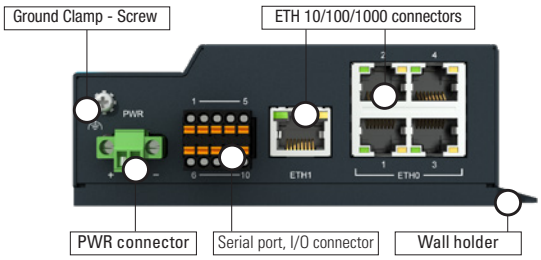


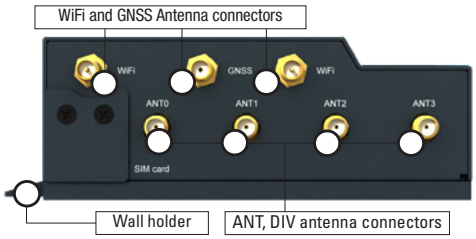


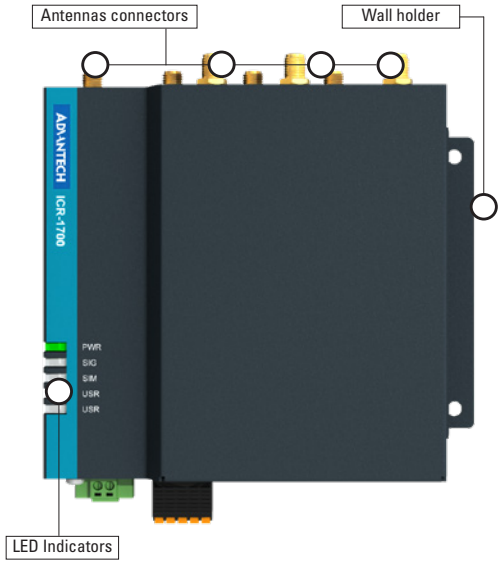


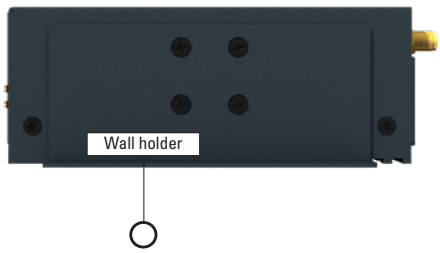


Wall mount









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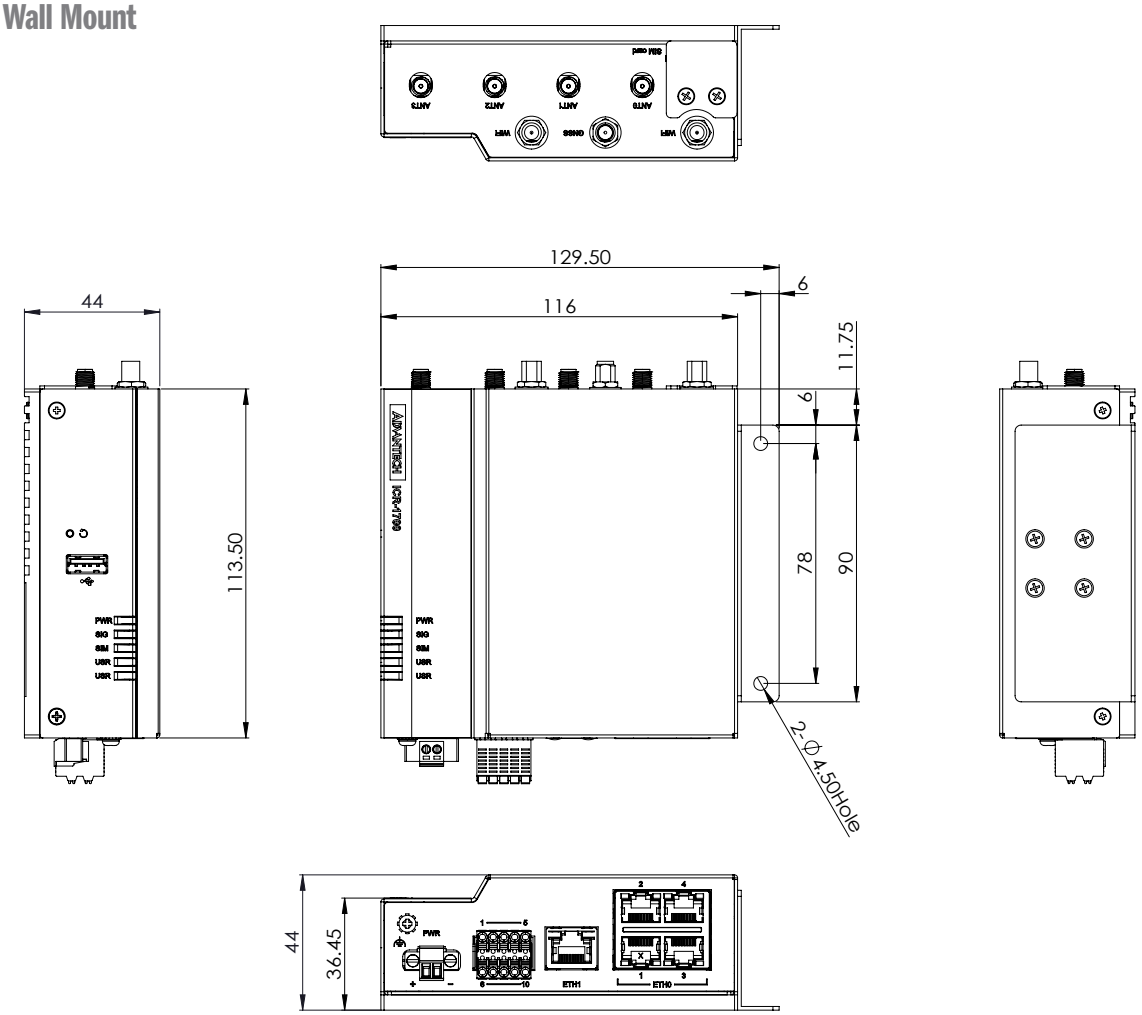
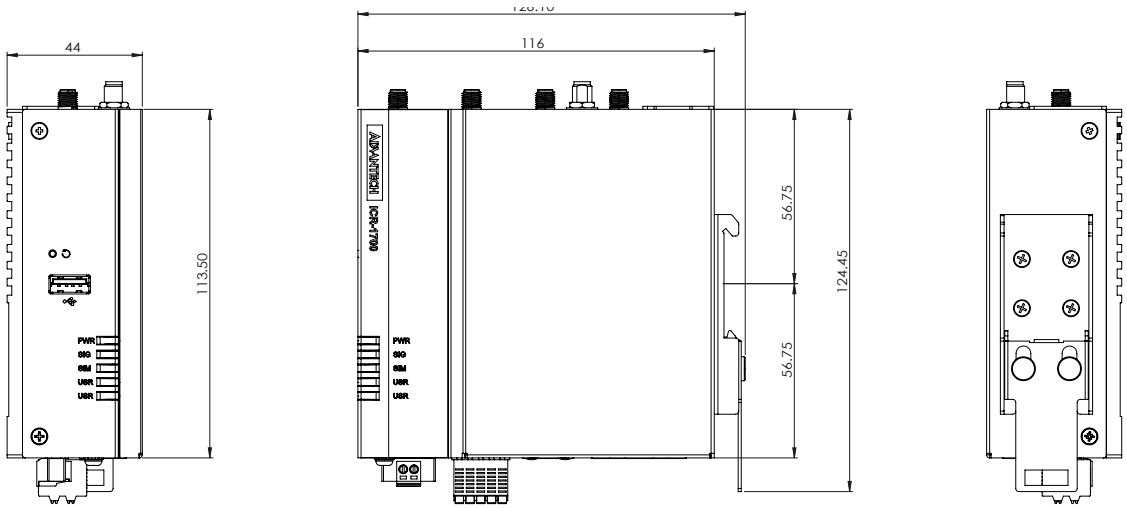
Dimensions - Technical Drawing

Unit: mm

Wall Mount



DIN Mount (Optional)