ICR-2834

Industrial 4G Router & IoT Gateway

- LTE Cat.4 with 3G/2G fallback
- GNSS receiver
- 1.3 GB eMMC storage to host customer SW applications
- 2× SIM with cover, eSIM ready
- 2× Ethernet 10/100
- 2× Serial RS232/RS485
- Optional WiFi 802.11n
- USB Host 2.0
- Optional Metal or Plastic case
- DIN Rail mounting
- Wide operational temperature range
- Backup real time clock
- Sleep mode

Project based customization: Last-gasp Supercapacitor, TPM 2.0

Introduction

RoHS COMPLIANT 2002/95/EC **CE**

ICR-2834 is enhanced successor of the Advantech´s cellular router platform v2 originally introduced in 2010. Ruggedized for industrial use keeping the same dimensions, configuration possibilities and most of the interfaces including GNSS, serial RS232/RS485 and numerous binary I/O´s. ICR-2834 offers more detailed LED indication and mainly more powerful CPU and amply of data storage to ensure long lifecycle (software updates) with broad software customization possibilities for user than older v2 platform. On project-based agreement, we can optionally add a TPM 2.0 chip (Trusted Platform Module) onboard verifying router integrity to provide trusted solution as a response to increasing cybersecurity demands.

Cellular router is equipped with 2× Ethernet 10/100 ports with two independent LANs/IP addresses, 1× USB 2.0 host port, 2× serial ports RS232/RS485 independently selectable by DIP switch, 2× plate covered SIM card holders for automatic failover to an alternate service provider, 4× binary inputs (I/O), 2× binary outputs (I/O) and on-board GNSS receiver for device positioning and time synchronization. Optional built-in WiFi 802.11 ac,a,b,g,n with AP, Client and Multirole modes are available.

The router is powered by Linux based Advantech´s operating system ICR-OS. A secure web interface allows users to configure ICR-2834 from remote locations. ICR-2834 supports real-time data encryption and VPN tunnelling using IPsec, WireGuard, OpenVPN, GRE, etc. It supports standard and advanced networking features like DHCP, NAT, NAT-T, DynDNS, NTP, VRRP, control by SMS and other features.

The 1.3 GB eMMC available storage for customer with an open Linux platform and the wide possibility of programming customer SW applications in Python and C/C++ ICR-2834 offers a real open development platform for Industrial IoT applications. Advantech existing Router App library (User modules) includes industrial protocol conversions, dynamic protocols and support of IoT platforms such as MS Azure, Cumulocity, and others. ICR-2834 is easy to install individually and in mass deployments too by using a full-featured configuration and monitoring software tool WebAccess/DMP. Safe remote VPN access to customer devices and PC´s connected to routers through Internet can be administrated by additional software WebAccess/VPN.

Popular use cases includes PLC connection and various industrial automation and industry 4.0 applications, camera connection (streets/highways/parking etc.), mobile signs and warning systems, wind turbines and solar power stations connection, measuring and monitoring systems in transportation, remote access for maintenance staff or electricity, gas or petrol distribution.

ICR-2834 to be designed to provide high compatibility alternative for most of the previous v2 router platform users and with extended memory and TPM chip brings advantages also to newly developed sectors in public, industrial or IoT environment.

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

Order Codes

Model no. - Order Codes	REGION	2× Ethernet 10/100 Mbps	2× SIM	1× DIV 1× ANT	GNSS	WiFi	1× USBHost 2.0	2× Serial RS232/RS485	Metal Case	Plastic Case	Accessories
ICR-2834G	EMEA	✓	✓	✓	✓		✓	✓	✓		
ICR-2834GP	EMEA	✓	✓	✓	✓		✓	✓		✓	
ICR-2834GA01	EMEA	✓	✓	✓	✓		✓	✓	✓		✓ EU Power Supply
ICR-2834GPA01	EMEA	✓	✓	✓	✓		✓	✓		✓	✓ EU Power Supply
ICR-2834GA02	EMEA	✓	✓	✓	✓		✓	✓	✓		✓ UK Power Supply
ICR-2834GPA02	EMEA	✓	✓	✓	✓		✓	✓		✓	✓ UK Power Supply
ICR-2834W	EMEA	✓	✓	✓		✓	✓	✓	✓		
ICR-2834WP	EMEA	✓	✓	✓		✓	✓	✓		✓	
ICR-2834WA01	EMEA	✓	✓	✓		✓	✓	✓	✓		✓ EU Power Supply
ICR-2834WPA01	EMEA	✓	✓	✓		✓	✓	✓		✓	✓ EU Power Supply
ICR-2834WA02	EMEA	✓	✓	✓		✓	✓	✓	✓		✓ UK Power Supply
ICR-2834WPA02	EMEA	✓	✓	✓		✓	✓	✓		✓	✓ UK Power Supply

Specifications

System

CPU	ARM926EJ-S, 600 MHz
Memory	RAM - 128 MB eMMC - 4096 MB (838 MB for Router Apps, 512 MB for customer data)
Watchdog	HW Watchdog
RTC	Battery backup RTC
TPM*	Trusted Platform Module (TPM) 2.0
Supercap*	Last-gasp Supercapacitor

Interfaces

Ethernet	2× Ethernet, RJ45, 10/100 Mbps, Isolation 1.5 kV
Serial Lines	2× RS232/RS485 independently selectable by DIP switch RS232 (Tx, Rx, GND, RTS, CTS), RS485 (A(-), B(+), GND), 16-pin terminal block (no isolation)
I / O	4× Digital Input (48 V / 3 mA consumption) 2× Digital Output (Open Drain, 48 V / 500 mA) 16-pin terminal block (no isolation)
USB	1× USB 2.0 Host Connector
Reset Button	Reboot / Factory reset
LED Indicators	System, Signal strength, Data activity, SIM1, SIM2, 2G/3G/4G technology, User, ETH

* Project based customization

Environmental

Power Supply	9 – 48 V DC (2-pin terminal block)
Consuption	Idle 1,9 W / Average 3,5 W / Maximum 7,4 W
Sleep Mode	Yes, 6 mW
Operating Temperature	-40 to +75 °C
Storage Temperature	-40 to +85 °C
Humidity	5 to 95 %
IP Cover	IP30

Physical Characteristics

Dimensions	Metal Case: 42 × 80.3 × 113.2 mm Plastic Case: 51.4 × 83.8 × 115.5 mm
Enclosure	Metal Case with grounding screw or Plastic Case
Mounting	DIN-Rail
Weight	Metal Case: 300 g Plastic Case: 240 g

GNSS

Antenna	1× SMA connector, active (50 mA)
Systems	GPS, GLONASS, BeiDou, Galileo
Protocol	NMEA 0183
Ac Time-to-First-Fix	Warm start: 28 s, Cold 32 s

WiFi - ICR-2834Wxxxx

Antenna	1× R-SMA connector
Standards	IEEE802.11 ac/a/b/g/n 2.4 GHz / 5 GHz
Security	WPA, WPA2, WPA3, 802.1X
Modes	Access Point (up to 8 clients), Station, Multirole STA & AP

Cellular Interface

SIM Slots	2× SIM (Mini SIM – 2FF) with cover, eSIM ready
Antennas	2× SMA connector (1× Main, 1× Diversity)
LTE Parameters	Supported FDD frequencies: B1 (2100 MHz), B3 (1800 MHz), B5 (850 MHz), B7 (2600 MHz), B8 (900 MHz), B20 (800 MHz), B28 (700 MHz) Transfer rate: 150 Mbps (DL), 50 Mbps (UL)
HSPA+/UMTS Parameters	Supported frequencies: B1 (2100 MHz), B3 (1800 MHz), B8 (900 MHz) Transfer rate: 14.4 Mbps (DL), 5.76 Mbps (UL)
EDGE/GPRS Parameters	Supported frequencies: B2 (1900 MHz), B3 (1800 MHz), B5 (850 MHz), B8 (900 MHz) Transfer rate: 237 kbps (DL), 237 kbps (UL)

Software

Operating System	ICR-OS (Linux based)
SW Customization	Router App (User Modules)*
Application Development	Open Linux, *Python, BASH, C/C++
Industrial Protocols and IoT	*Modbus RTU/TCP gateway, *IEC 60870-5-101 to 104 gateway, *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+, 2FA, *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 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)

Standards & Regulations	
Radio	EN 301 511, EN 301 908-1, EN 301 908-2, EN 301 908-13, EN 303 413, EN 301 893, EN 300 328
EMC	EN 301 489-1, EN 301 489-17, EN 301 489-19, EN 301 489-52, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-11, IEC 61000-6-2, IEC 61000-6-3
Safety	EN 62 368-1, IEEE 802.3
Transportation	E8
National	CE, UKCA
Mechanical	EN 60529, EN 60068-2-27, EN 60068-2-64
Climatic	EN 60068-2-1, EN 60068-2-2, EN 60068-2-14, EN 60068-2-30
Environmental	REACH, RoHS3, WEEE

Views

FRONT VIEWS

METAL VERSION
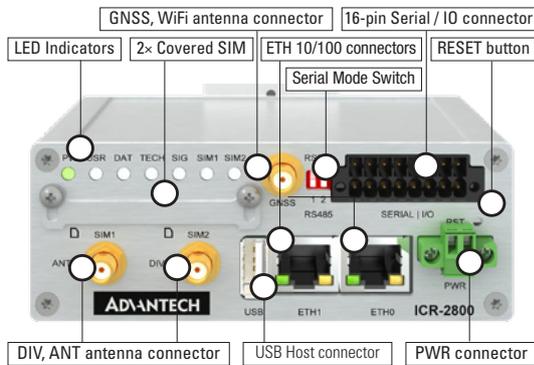
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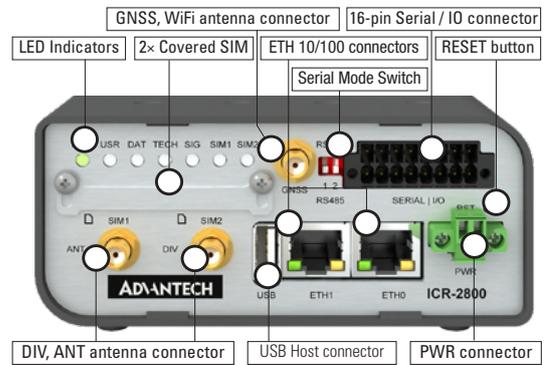
REAR VIEWS
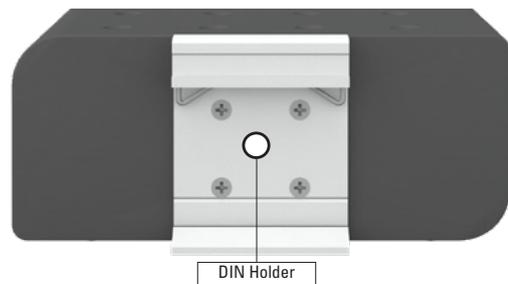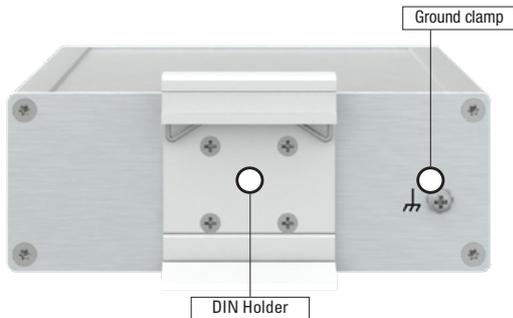
Accessories

Part Number	Description	Included in the package						Sold Separately
		ICR-2834 ICR-2834W	ICR-2834P ICR-2834WP	ICR-2834A01 ICR-2834WA01	ICR-2834PA01 ICR-2834WPA01	ICR-2834A02 ICR-2834WA02	ICR-2834PA02 ICR-2834WPA02	
BB-CON-WR2	2-pin PWR connector	✓	✓	✓	✓	✓	✓	✓
CON-ICR28-16	16-pin Serial / IO connector	✓	✓	✓	✓	✓	✓	✓
BB-SBD40	DIN clip	✓		✓		✓		✓
BB-SBD40P	DIN clip		✓		✓		✓	✓
BB-KD-ETH	Ethernet cross cable			✓	✓	✓	✓	✓
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							✓
ANT-LTE5G-025	Antenna 5G/LTE, Terminal			✓ 2 pcs	✓ 2 pcs	✓ 2 pcs	✓ 2 pcs	✓
BB-AW-A2458G-FSRPK	Antenna Wi-Fi, 2.4 & 5.8 GHz	ICR-2834W	ICR-2834WP	ICR-2834WA01	ICR-2834WPA01	ICR-2834WA02	ICR-2834WPA02	✓

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

Dimensions - Technical Drawing

Unit: mm

Metal version with DIN holder
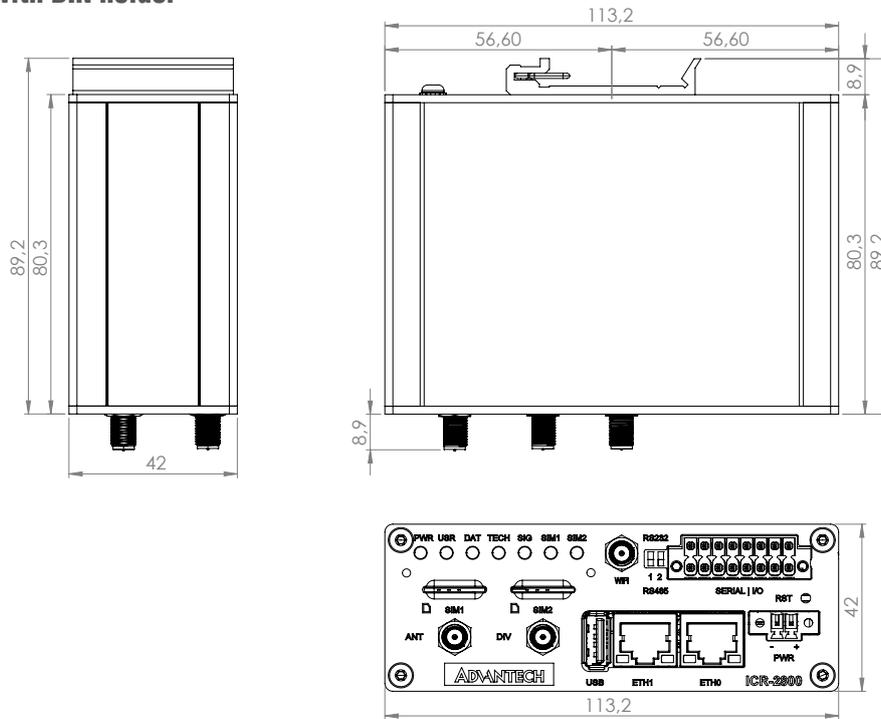
Plastic version with DIN holder