

## ICR-2438

Entry-Level 4G Router



### Features

- LTE Cat.4 with 3G fallback
- 2× SIM for redundancy
- 2× Ethernet 10/100 Mbps
- 1× RS232, 1× RS485
- 1× DI, 1× DO
- Wide operational temperature range
- Wall and DIN mount options
- Linux based OS & SW customization
- Optional WiFi 802.11n

### Introduction

Industrial cellular router ICR-2438 is designed for wireless communication in mobile networks that make use of traditional cellular technologies. The primary purpose of this router is its use in the Category 4 (Cat.4) services on the cellular LTE network. Cat.4 rated ICR-2438 router is capable of achieving better typical speeds in 4G coverage areas where the network is enabled with 20 MHz of contiguous spectrum. Optional built-in WiFi 802.11 ac/a/b/g/n with AP, Client, Multirole modes are available.

The peak downlink data rate for a Category 4 is approximately 150 Mbps. Also in the uplink, LTE Category 4 provides a peak data rate of 50 Mbps. The router is equipped with two independently configurable Ethernet ports (LAN or WAN), 1× serial port RS232, 1× RS485, and digital I/O connectivity (1× DI, 1× DO). 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.

With an open Linux platform and wide possibilities of programming customer SW applications in Python, C/C++. The Advantech existing app library Router Apps (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.



ICR-OS

WebAccess/VPN



RouterApp





python™

WebAccess/DMP



### Order Codes

Model no. - Order Codes	REGION	2× Ethernet 10/100 Mbps	RS232 RS485	I/O	1× ANT 1× DIV	2× SIM	WiFi
 ICR-2438	Japan	✓	✓	✓	✓	✓	
 ICR-2438W	Japan	✓	✓	✓	✓	✓	✓

\* - 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.

### Specifications

System	
CPU	ARM926EJ-S, 600 MHz
Memory	RAM - 128 MB NOR Flash - 64 MB (12 MB for Router Apps, 2 MB for customer data)
Watchdog	HW Watchdog
RTC	Battery backup RTC
Interfaces	
Ethernet	2× Ethernet (1+ 1), RJ45, 10/100 Mbps
Serial Lines	1× RS232 (Tx, Rx, GND, RTS, CTS) 1× RS485 (A(-), B(+), GND) (7-pin terminal block)
I / O	1× Digital Input (48 V / 0.5 mA) 1× Digital Output (Open Drain, 48 V / 100 mA) (6-pin terminal block together with PWR)
Reset Button	Reboot / Factory reset
LED Indicators	System, Signal strength, Data activity, SIM1/SIM2 status, Mobile technology, Input, Output, User, ETH

Environmental	
Power Supply	9 – 48 V DC (6-pin terminal block together with I/O)
Consumption	ICR-2438: Idle 1.9 W / Average 3 W / Maximum 4.7 W ICR-2438W: Idle 2.2 W / Average 3.6 W / Maximum 6 W
Operating Temperature	-40 to +75 °C
Storage Temperature	-40 to +85 °C
Humidity	5 to 95 %, non-condensing
IP Cover	IP30
Physical Characteristics	
Dimensions	103 mm x 95 mm x 25 mm
Enclosure	Metal Case, Grounding Screw
Mounting	Wall mount, * Optional DIN Rail mount
Weight	ICR-2438: 315 g ICR-2438W: 320 g

WiFi - ICR-2438W	
Antenna	1× R-SMA connector
Standards	IEEE802.11 ac/b/g/n 2.4 GHz / 5 GHz
Security	WEP, TKIP, AES, WPA, WPA2, WPA3, 802.1X
Modes	Access Point (up to 8 clients), Station, Multirole STA & AP

Cellular Interface	
SIM Slots	2× SIM (Micro SIM – 3FF)
Antennas	2× SMA connector (1× Main, 1× Diversity)
LTE Parameters	Supported FDD frequencies B1/ B3/ B8/ B18/ B19/ B26 Supported TDD frequencies: B41 Transfer rate: 150 Mbps (DL), 50 Mbps (UL)
HSPA+/UMTS Parameters	Supported frequencies: B1/ B6/ B8/ B19 Transfer rate: 42 Mbps (DL), 5.76 Mbps (UL)

Standards & Regulations	
Radio	TELEC
EMC	IEC 61000-6-2, IEC 61000-6-3, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 55032
Safety	EN 62 368-1, IEEE 802.3
Mechanical	EN 60529
Climatic	EN 60068-2-1, EN 60068-2-2, EN 60068-2-14, EN 60068-2-30
Environmental	REACH, RoHS3, WEEE
Cellular Module Approvals*	JATE/TELEC, NTT DOCOMO/SoftBank/KDDI

\*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.

# Industrial Cellular Routers & Gateways

ICR-2438

Software	
Operating System	ICR-OS (Linux based)
SW Customization	Router App
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+, *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) 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

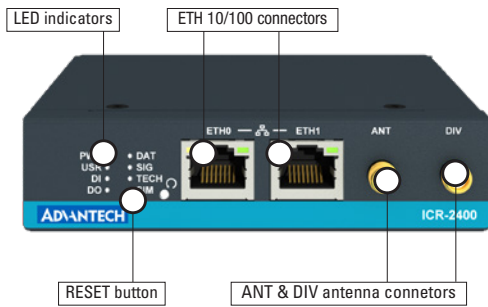
## Accessories

Part Number	Description	Included in the package
CON-ICR2-6-PWR	6-pin PWR / IO connector	✓
CON-ICR2-7-SER	7-pin Serial connector	✓
	Wall mount kit	✓
BB-DIN-ICR32	DIN Clip	
BB-KD-ETH	Ethernet cross cable, length 1.5m	
RPS-ICR2-US	Power Supply, ICR2, 12V/1A, 6-pin, US plug	
ANT-LTEMG3-150	Antenna LTE, Magnetic mount, cable	

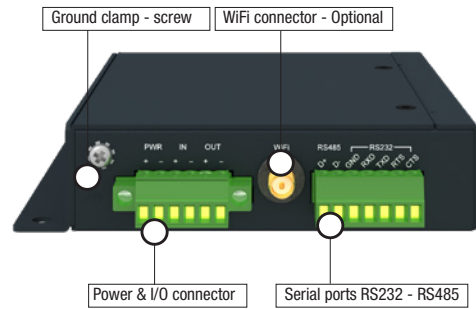
\*For more Antenna accessories visit [www.advantech.com](http://www.advantech.com)

### Views

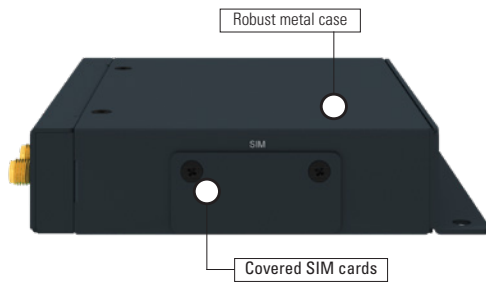
#### FRONT VIEW



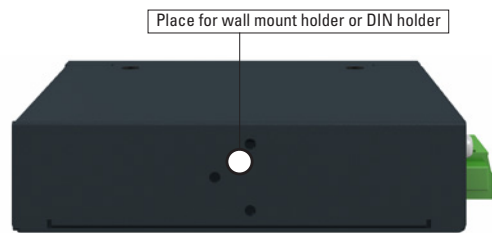
#### LEFT SIDE VIEW



#### RIGHT SIDE VIEW



#### REAR VIEW



### Dimensions - Technical Drawing

