

ICR-2501

Entry-Level Wired Router



Features

- 4× Ethernet 10/100 Mbps (3+1 RJ45)
- 1× DI, 1× DO
- Wide operational temperature range
- Wall and DIN mount options
- Linux-based OS & SW customization
- Optional WiFi 802.11n





Introduction

ICR-2501 is the ruggedized LAN router for industrial use wherever managing and optimizing network traffic or securing communication without wireless cellular capability on board is required. It keeps compact dimensions, configuration possibilities, and full operating system compatibility with Advantech cellular routers including support of software platforms WebAccess/VPN and WebAccess/DMP. Optional built-in WiFi 802.11 ac/b/g/n with AP, Client, and Multiple nodes are available as PN ICR-2501W.

ICR-2501 hosts a reliable CPU delivering sufficient performance for most of today's applications. Board software customization possibilities for users are incorporated directly in ICR-OS core (Advantech Linux-based operating system) or by using an additional RouterApp library with apps already developed to enhance specific router functionalities including industrial protocol conversions, dynamic protocols, and support of IoT platforms such as MQTT, Azure, Cumulocity, and others.

The router is equipped with four Ethernet ports while three are switched and one is separated. All 3× ETH0 and 1× ETH1 ports may be independently configurable as LAN or WAN interfaces. The router provides diagnostic functions which include automatic monitoring of the wired connections, automatic restart in case of connection losses, and a hardware watchdog that monitors the router status. Configurable via a secure web interface allows users to configure and manage ICR-2501 from remote locations. ICR-2501 supports real-time data encryption and establishing of VPN tunnels using IPsec, WireGuard, OpenVPN, GRE, etc.



| Model no. - Order Codes | | REGION | 4× Ethernet 10/100 Mbps | 1× I/O | WiFi |
|---|-----------|---------|-------------------------|--------|------|
|  | ICR-2501 | GLOBAL* | ✓ | ✓ | |
|  | ICR-2501W | GLOBAL* | ✓ | ✓ | ✓ |

* - Importer/operator needs to check locale legislation (standards, national 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 | 4x Ethernet (3+1), RJ45, 10/100 Mbps, 1.5 kV |
| I / O | 1x Digital Input (48V / 0.5 mA) 1x Digital Output (Open Drain, 48 V / 100 mA) (6-pin terminal block together with PWR) |
| Reset Button | Reboot / Factory reset |
| LED Indicators | System, Input, Output, User, ETH |

| Environmental | |
|--------------------------|---|
| Power Supply | 9 – 48 V DC (6-pin terminal block together with I/O) |
| Consumption | ICR-2501: Idle 2.2 W / Average 2.6 W / Maximum 4.1 W ICR-2501W: Idle 2.5 W / Average 2.9 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 | 130 mm x 95 mm x 25 mm |
| Enclosure | Metal Case, Grounding Screw |
| Mounting | Wall mount, DIN Rail mount |
| Weight | ICR-2501: 355 g ICR-2501W: 365 g |

| WiFi - ICR-2501W | |
|------------------|---|
| Antenna | 1x R-SMA connector |
| Standards | IEEE802.11 ac/a/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 |

| Standards & Regulations | |
|-------------------------|---|
| Radio | EN 300 328, EN 301 893 |
| EMC | EN 301 491-1, EN 301 489-17, 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 | IEC 62368-1 |
| 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 |

Accessories

| Part Number | Description | Included in the package |
|-----------------|--|-------------------------|
| CON-ICR2-6-PWR | 6-pin PWR / IO connector | ✓ |
| | Wall mount kit | ✓ |
| | Quick Start Guide | ✓ |
| BB-DIN-ICR32 | DIN Clip | |
| BB-KD-ETH | Ethernet cross cable, length 1.5m | |
| OPT1-ANT-WFT-06 | Antenna Wi-Fi - ICR-2501W only | |
| RPS-ICR2-EU | Power Supply, ICR2, 12V/1A, 6-pin, EU plug | |
| RPS-ICR2-UK | Power Supply, ICR2, 12V/1A, 6-pin, UK plug | |
| RPS-ICR2-US | Power Supply, ICR2, 12V/1A, 6-pin, US plug | |

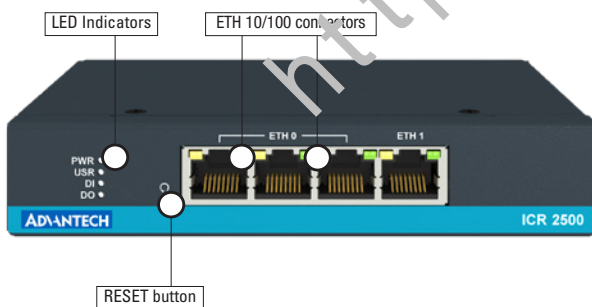
*For more Antenna accessories visit www.advantech.com

| Software | |
|-----------------------------------|--|
| Operating System | ICR-OS (Linux based) |
| SW Customization | Router App |
| Application Development | Open Linux, *Python, BASH, C/C++ |
| Industrial Protocols and IoT | *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 |
| Diagnostic/Log | Status – 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, Timer, Power) Report Types: 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 |

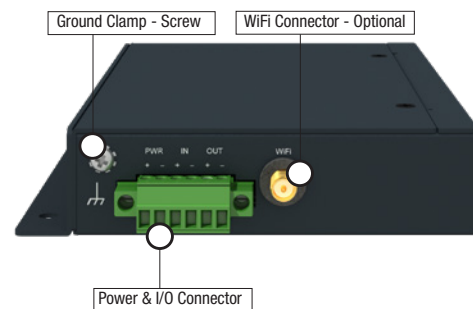
*Functionality is available with installed Router App

Views

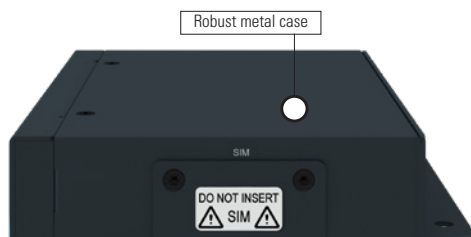
FRONT VIEW



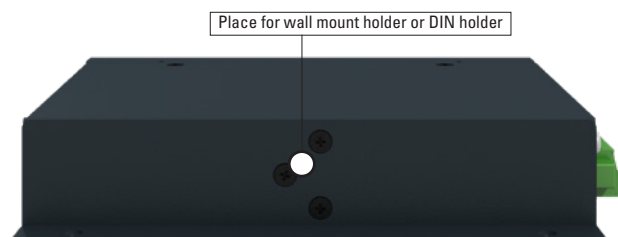
LEFT SIDE VIEW



RIGHT SIDE VIEW



REAR VIEW



Dimensions - Technical Drawing

