



- Cisco IOS® 5921 ESR
- EN50155 and EN45545 Certified
- Class TX Fanless with IP66
- Extended Connectivity
- Long-term Availability
- Highly Customizable

Features

Cisco IOS - Features the Cisco 5921 Embedded Services Router (ESR), the IOS Software router that provides reliable network routing in extreme environments

Certified - Provides multiple certifications, including EN50155 (Rolling Stock), EN45545 (Fire & Smoke), and for selected cellular carriers

Rugged - Operates in extended temperature (EN50155 TX Class) while completely fanless and IP66 rated

Extended Connectivity - Cellular connectivity with carrier pre-certifications, dual Gigabit Ethernet, Wi-Fi 2.4/5.0GHz, BLE, CAN bus and GPS with Dead Reckoning

Long-term Availability - Designed for markets and applications where long-term availability and support is a must have requirement

Highly Customizable - Modular design that can be tailored to the application, including interfaces, connectors, and wireless connectivity options

Description

The BoltMAR 20-28 delivers a Cisco 5921 Embedded Software Router in a rugged EN50155 device, enabling resilient radio connectivity on vehicles. It is the building block for on-demand networking in a wide range of applications, including commercial, industrial, homeland security, emergency response and mobile IoT.

Features include WAN optimization for improved performance and radio-aware routing (RAR), to manage critical traffic under degraded conditions, such as when radio link quality is compromised.

Installed on a vehicle, the BoltMAR 20-28 enables self-forming and self-healing networks that support a wide range of traditional and IoT services, such as remote sensor management, vehicle to vehicle communications, passenger high speed networks, on-board and track-side crew communications and much more.

The BoltMAR 20-28 supports one LTE cellular modem with dual SIM, to provide better roaming coverage and multiple carriers; it also offers dual Gigabit Ethernet, 802.11 a/b/g/n Wi-Fi, Bluetooth Low Energy, CAN bus and GPS with Dead Reckoning.

Designed for harsh environments, the BoltMAR 20-28 ensures the highest level of physical resilience, by employing rugged circular connectors and a fanless IP66 design that allows operation in Class TX temperatures (-40° to +70°C). The Class S2 power supply is very reliable, supporting 9VDC to 137.5VDC and being able to cope with 10ms power outages, while isolation of serial and digital I/O ports adds extra protection to the system.

Professional Services are available for the BoltMAR 20-28, such as design personalization and inclusion of new features and technologies, additional certifications, system development and production.

| Specifications | | |
|-------------------------|------------------------|--|
| ROUTING | Software Router | Cisco 5921 Embedded Services Router (ESR) |
| | Routing Protocols | Routing Information Protocol (RIP) Versions 1 and 2, Open Shortest Path First (OSPF) – Enhanced Interior Gateway Routing Protocol (EIGRP)-IP, Border Gateway Protocol (BGP) – Cisco Discovery Protocol, IP Policy Routing – IP Multicast Protocol Independent Multicast (PIM) Versions 1 and 2 – Internet Group Management Protocol (IGMP) Versions 1, 2, and 3 – IP Multicast Load Splitting, Cisco Group Management Protocol (GMP) |
| | Radio-Aware Routing | Optimizes IP routing over fixed or temporary radio networks, Factors radio link metrics into route calculations – Immediately recognizes and adapts to changes in network neighbor status – Supports Dynamic Link Exchange Protocol (DLEP), Supports Router Radio Control Protocol (R2CP) – Supports RFC 5578 (authored by Cisco) |
| | Mobile Ad-Hoc Networks | OSPFv3 enhancements for mobile ad-hoc networks |
| PROCESSOR | CPU | Atom E3845, 1.91GHz, Quad Core |
| MEMORY | RAM | 4GB 1333MHz (DDR3L-ECC) |
| STORAGE | Embedded | 8GB eMMC |
| | Other | 1x microSD Slot (User Accessible) |
| I/O INTERFACES | Ethernet | 2x 10/100/1000Mbps - M12 X-coded Connector |
| | USB | 2x USB 2.0 Noise and Surge Protected, 1x USB 2.0 (Service Panel) |
| | Serial | 1x RS-232/RS-422/RS-485 (9 Wires) Isolated, 1x TTL Console (Service Panel) |
| | CAN 2.0B | 1x CAN bus 100mA with 5V Power Out, Isolated |
| | Digital I/O | 4x Digital Input, 4x Digital Output, 1x Odometer, 1x Ignition Key (All DI/O EN50155 Isolated) |
| | Video | 1x Micro HDMI (Service Panel) |
| EXPANSION | MiniPCIe Slots | 3x Full/Half-Size Mini PCIe Slots (PCIe/USB, USB) |
| RADIO INTERFACES | Cellular | 1x LTE Cat 4 Modem |
| | GPS | GPS/QZSS/GLONASS/BeiDou/Galileo with Dead Reckoning |
| | Wi-Fi / BT | 802.11b/g/n, 4.0 BLE |
| | Antennas (External) | 2x SMA Cellular, 2x RP-SMA Wi-Fi/Bluetooth, 1x SMA GPS |
| OTHER | RTC | Yes, with SuperCAP (up to 2 Months Retain), Fast Reboot Support |
| | System Watchdog | Yes, Discrete Chip |
| | TPM | Factory Option: TPM 1.2/2.0 |
| | Sensors | Accelerometer, Temperature |
| | LEDs | 1x Power, 3x MiniPCIe Slot, 2x Programmable (Dual Color Green/Amber) |
| | Buttons | 1x Reset, 1x Programmable (Service Panel) |
| | SIM Slot | 2x Single SIM, Switchable for Bandwidth Aggregation and Carrier/Cellular Backup (Service Panel) |
| POWER | Input | Wide Input Range EN50155 Class S2 (9V - 137.5V) |
| | Consumption | 30W Max |
| ENVIRONMENT | Operating Temp. | TX according to EN50155 |
| | Storage Temp. | - 40 to +85°C |
| CERTIFICATIONS | Regulatory | CE, FCC, ISED |
| | Safety | EN 62368, UL 60950 (§) |
| | Vertical | EN50155, EN45545 (Fire and Smoke) |
| | Environmental | RoHS2, REACH |
| | Wi-Fi / BT Radio | CE (RED), FCC, ISED |
| | Cellular Radio | CE (RED), FCC, ISED, PTCRB, AT&T |
| | Ingress | IP66 |
| MECHANICAL | Enclosure | Material: Aluminium - Color: Black Anodized |
| | Dimensions | 268x141x85mm (LxWxH), with Connectors |

(§) UL, NRTL listing Factory Option.

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