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R2120

Industrial Cellular PoE Router

5 x ETH (4 with PoE-PSE) + 2 x DI + 2 x DO + 1 x RS-485

INTRODUCTION

The R2120 is a specialized industrial cellular PoE router designed for smart security applications. It is equipped with five Ethernet ports, including four PoE-PSE ports, along with two digital inputs, two digital outputs, and an RS-485 serial port, making it ideal for meeting the unique demands of modern security systems.

Enhanced PoE-PSE Functionality: The R2120 features four PoE-PSE ports compliant with the 802.3af and 802.3at standards, enabling seamless power and data transmission through a single Ethernet cable, which simplifies field installation.

Remote PoE Device Management: In addition to standard PoE-PSE functions, the R2120 supports advanced remote management capabilities. Users can conveniently schedule restarts or power cycles for PoE devices as needed, enhancing operational control and efficiency.

The **Robustel Cloud Manager Service (RCMS)** is a unified cloud-based platform designed for real-time monitoring and centralized management of industrial IoT devices. Fully compatible with Robustel routers and gateways, RCMS delivers an interactive geospatial dashboard that enables users to visualize device locations and track critical metrics such as data usage, signal strength, and network status. To ensure seamless operations, the platform facilitates over-the-air (OTA) updates for firmware, configurations, and applications, minimizing downtime while optimizing system performance. Experience robust, cloud-native device management by registering at: https://rcms-cloud.robustel.net

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KEY FEATURES

➢ Highly stable 4G/3G/2G cellular connectivity

➢ Dual SIM card slots for redundant communications

➢ Supports Ethernet, Wi-Fi, and Cellular internet with auto-failover

➢ 5 x 1000 Mbps Ethernet ports, including 4 PoE-PSE ports compliant with the 802.3af and 802.3at standards

➢ 2 x Digital Inputs (DI) and 2 x Digital Outputs (DO) for simple monitoring and control

➢ 1 x RS-485 port for connection to industrial or legacy devices

➢ Fully programmable operating system with well-documented Software Development Kit (SDK)

➢ Multiple VPN options available, including DMVPN and IPSec

➢ Free cloud management platform - RCMS with remote PoE device management support

APPLICATION EXAMPLE
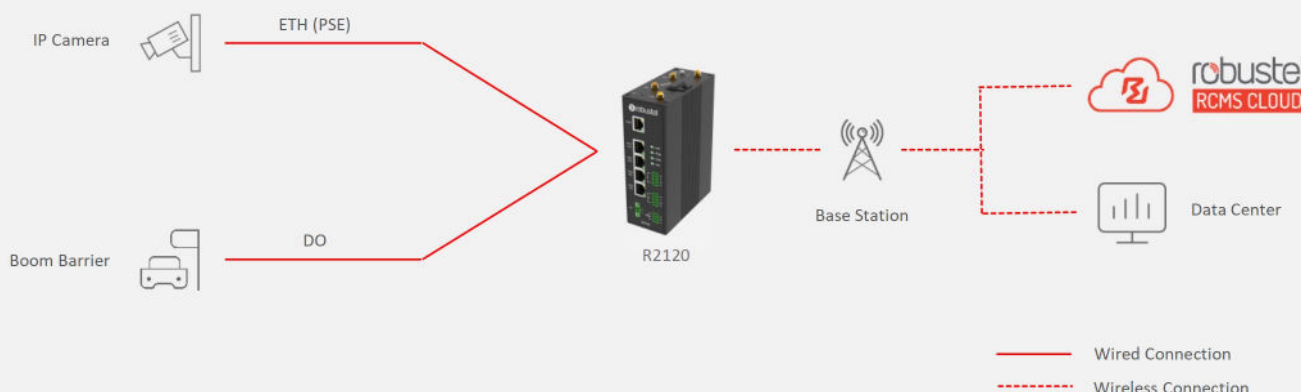
SPECIFICATIONS

Hardware System

CPU	MT7621, 880 MHz
RAM	512 MB
Flash	32 MB

Cellular Interface

Number of antennas	2 (MAIN + DIV)
Connector	SMA-K
SIM	2 x Mini SIM (2FF)

Ethernet Port

Number of ports	5 x 10/100/1000 Mbps
	1 x WAN + 4 x LAN, or 5 x LAN (default)
Magnet isolation protection	1 KV

PoE Out Port

PoE ports	ETH1 ~ ETH4
PoE standards	802.3at, 802.3af
PoE max power per port (at PSE)	Up to 30 W
Total PoE power budget (at PSE)	Dependent on power supply capacity

Serial Port

Number of ports	1 x RS-485
Connector	1 x 3-pin 3.5 mm female socket
ESD protection	±8 KV air discharge, ±4 KV contact discharge
Baud rate	300 bps ~ 115200 bps
Signal definition	RS-485: A, B, GND

Digital Input/Output Port

Number of ports	2 x DI + 2 x DO, wet contact
Connector	2, each with 4-pin 3.5 mm female sockets
Isolation	3.75 KVDC (opto-isolator)
Absolute maximum VDC	+30 VDC (DI), +30 VDC (DO)
Absolute maximum ADC	100 mA (DO)
Signal definition	DI1+, DI1-, DI2+, DI2-, DO1+, DO1-, DO2+, DO2-

Wi-Fi Interface

Number of antennas	2 (Wi-Fi0 + Wi-Fi1)
Connector	RP-SMA-K
Standards	802.11a/b/g/n/ac, 2 x 2 MIMO
	Supporting AP and Client modes
Frequency bands	2.412 - 2.472 GHz (2.4 GHz ISM band)
	5.15 - 5.825 GHz (5 GHz ISM band)
Security	WPA, WPA2, WEP, WPA3
Encryption	AES, TKIP, WEP64

Others

Reset button	1 x RST
LED indicators	1 x RUN, 1 x RSSI, 1 x MDM, 1 x USR
Watchdog	Built-in

Software (Basic features of RobustOS)

Network protocols	PPP, PPPoE, TCP, UDP, DHCP, ICMP, NAT, HTTP, DNS, NTP, SMTP, Telnet, HTTPs, ARP, VLAN, SSH2, DDNS, etc.
VPN tunnels	IPsec, OpenVPN, GRE, WireGuard
Firewalls	DMZ, anti-DoS, Filtering (IP/Domain name/MAC address), Port Mapping, Access Control
Remote management	Web, CLI, SMS
Serial port protocols	Transparent, TCP Client/Server, UDP, Modbus RTU to TCP
Others	Smart Roaming V2

SDK

Supported programming languages	C, C++
Flash available for SDK	5 MB
RAM available for SDK	256 MB

App Center (Available Apps for RobustOS)

Apps*	L2TP, PPTP, DMVPN, VRRP, QoS, SNMP, Language, RCMS, Dynamic Route, Captive Portal, Modbus Master, TR069, Edge2Cloud, etc.

*Request on demand. For more Apps please visit www.robustel.com.

Cloud Platform

Robustel Cloud Manager Service (RCMS)	RobustLink, RobustVPN, Operation Console

Power Supply and Consumption

Connector	2-pin 3.5 mm female socket with lock
Input voltage	44 ~ 57 V DC
	Reverse polarity protection, surge protection
Power consumption	Idle: 4.5 W@48 V, excluding the PoE consumption
	Max: 12 W@48 V, excluding the PoE consumption
Recommended power supply	48 V DC, 1.25 A (60 W)
	Covers system power (12 W) + typical PoE loads

Note:

1. Total power = System 12 W + ∑ PoE loads
2. For 100 m cable runs with 30 W loads per port, consider 54 V DC PSU

Physical Characteristics

Ingress protection	IP30
Housing & Weight	Aluminum, 539 g
Dimensions	49 x 105 x 143 mm
Installations	Desktop, wall mounting and 35 mm DIN rail mounting
Operating temperature	-20 ~ +70 °C
Storage temperature	-40 ~ +85 °C
Relative humidity	5 ~ 95% RH (non-condensing)

Regulatory and Type Approvals

Environmental	RoHS2.0, WEEE
Testing	IEC 60068-2-6 (Sinusoidal Vibration)
	IEC 60068-2-27 (Mechanical Shock)
	IEC 60068-2-64 (Random Vibration)
EMI	EN 55032 Conducted Emission Class B
	EN 55032 Radiated Emission Class B
EMS	EN 61000-3-2 (Harmonic Current)
	EN 61000-3-3 (Voltage Flicker)
	EN 61000-4-2 (ESD) Contact Level 2, Air Level 3
	EN 61000-4-3 (RS) Level 2
	EN 61000-4-4 (EFT) Level 2
	EN 61000-4-5 (Surge) Line to line Level 3
	EN 61000-4-6 (CS) Level 2

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ORDERING INFORMATION

Model	Order Code	Frequency Bands**	Country /Region	Certification (*In Progress)	Package Contains
R2120-A5AAA-4L-A12EU	A015000001	4G: LTE FDD: B1/B3/B7/B8/B20/B28A LTE TDD: B38/B40/B41 3G: WCDMA: B1/B8 2G: GSM/EDGE: B3/B8	EMEA+SEA	CE* UKCA* CB*	1 x R2120 Router (B Code: B015000001) 1 x DIN Rail Mounting Kit
	A015000004				1 x R2120 Router (B Code: B015000001) 1 x DIN Rail Mounting Kit 2 x Cellular Antenna 2 x Wi-Fi Antenna 1 x Power Adapter
R2120-A5AAA-4L-A13AU	A015000002	4G: LTE FDD: B1/B2/B3/B4/B5/B7/B8/B28 LTE TDD: B40 3G: WCDMA: B1/B2/B4/B5/B8 2G: GSM/EDGE: B2/B3/B5/B8	ANZ	RCM*	1 x R2120 Router (B Code: B015000002) 1 x DIN Rail Mounting Kit
	A015000005				1 x R2120 Router (B Code: B015000002) 1 x DIN Rail Mounting Kit 2 x Cellular Antenna 2 x Wi-Fi Antenna 1 x Power Adapter

*__**For more information about frequency bands in different countries, please contact your Robustel sales representative.__*