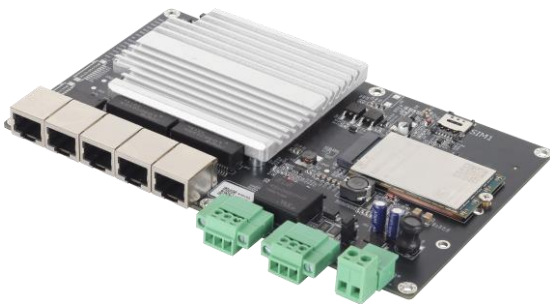# MIR785-Exi

Five-Port Gigabit Dual-Band Wi-Fi 6 Embedded Intrinsically Safe 5G Industrial Router

- Support 1*gigabit WAN port, 4*gigabit LAN ports, 1*RS485 port, 1*RS232 port, 4*5G antenna interfaces, 2*2.4GHz/5GHz antenna interfaces, and 2 SIM card slots

- Support 5G/4G/3G cellular wireless networks with WAN port wired network backup, enabling wireless and wired terminal devices to connect to the network

- Support AP and Client wireless modes, can be used as a Wi-Fi hotspot or wireless client, enabling wireless terminal devices to access the network

- Support Wi-Fi 6 dual-band WLAN wireless local area network, supports OFDMA+MU-MIMO technology

- Support serial port terminal device networking, can convert protocols such as UDP, TCP, Modbus, HTTPD, WebSocket, MQTT, supports virtual serial port

- Support DC12~24V power input, compliant with intrinsic safety circuit design standards

- Operating temperature from -40℃ to +75℃

Product Description

The MIR785-Exi is a 5-port gigabit dual-band Wi-Fi 6 embedded intrinsically safe 5G industrial router designed and developed specifically for industrial communication network applications. It supports multiple network online modes such as LAN, WAN, WLAN, and 5G NR, intelligently switching between multiple networks for backup, and enabling networking of serial, wireless, and wired terminal devices.

This product provides various types of interfaces including 1×gigabit WAN port, 4×gigabit LAN ports, 1×RS485 port, 1×RS232 port, 4×5G antennas, and 2×2.4GHz/5GHz antennas. It supports 1 DC12~24V power input, complying with the requirements of intrinsic safety design, and adopts embedded installation methods to meet the requirements of various network sites.

The product supports various network management functions through WEB configuration, such as PPPoE dial-up, DHCP server, 5G network, wireless AP/Client mode settings, IP/MAC binding, static routing, firewall, VPN, serial port to network, Peanut shell intranet penetration, network diagnosis, SNMP, LLDP, device cloud services, etc. The system provides user management with different permissions, supports local/remote log management, supports scheduled restart, configuration backup and restore, firmware upgrade, and factory reset.

The hardware features fanless design, wide temperature support, supports restart or factory reset, external indication light signal, industrial-grade components, supports operating temperature from -40℃ to +75℃, and the power supply meets the requirements of intrinsic safety circuit design standards. It has undergone strict safety and EMC testing to meet the demanding requirements of industrial environment applications. The product is widely applicable in fields such as industrial automation, integrated energy, intelligent transportation, smart cities, and intelligent mining.

✪ Features and Benefits

- Support OFDMA+MU-MIMO technology, providing multi-user high-density access improvements through concurrent transmissions in frequency and physical spatial domains
- Support Wi-Fi 6 dual-band WLAN wireless local area network, with a theoretical maximum speed of 574Mbps for 2.4GHz and 1201Mbps for 5GHz
- Support 5G/4G/3G cellular wireless networks, Wi-Fi wireless networks, and WAN port wired networks, with support for multi-network backup
- Support MIMO (Multiple Input Multiple Output) technology, enhancing data transmission rates, expanding network capacity and wireless coverage, and reducing data packet loss
- WAN port supports connection to the external network via DHCP protocol, static addressing, PPPoE dial-up, or can be used as a LAN port for internal network connection
- LAN port supports DHCP server, enabling dynamic management and configuration of user IP addresses.
- Support link checking, periodically checking cellular network link status and performing link recovery
- WLAN supports AP mode and Client mode, enabling wireless terminal access or access to wireless networks
- Support IPv4/IPv6 Ping, IPv4/IPv6 Traceroute, Nslookup, packet capturing for network diagnostics or fault analysis
- Firewall supports SYN-flood defense, port mapping, IP/MAC/DNS address filtering, custom rules using iptables commands, NAT translation, DMZ isolation, UPnP, IP/MAC rate limiting, QoS rate limiting for uploads/downloads, etc
- Logs record various levels of kernel, application, and network information, supporting local download, scheduled saving, and remote monitoring
- Serial port supports multiple conversion modes including UDP, TCP Client/Server, UDP Multicast, Modbus RTU Master/Slave, Modbus ASCII Master/Slave, Realcom MCP/CCP/MW, Httpd Client, WebSocket Client, MQTT, enabling serial to Ethernet conversion or Modbus RTU/ASCII protocol
- Support Peanut Shell intranet penetration for remote login and management of devices using Peanut Shell dynamic domain names
- Support dynamic DNS functionality for remote login and management of devices via specified domain names
- Support building dedicated networks using VPN clients and servers, with client support for PPTP, L2TP, GRE, GRETAP, OpenVPN tunnel protocols, and server support for PPTP, L2TP, and IPSec protocols
- Support NTP client and server functionality for clock synchronization or providing a clock source
- Support SNMPv1/v2c for information querying, modification, and fault diagnosis via MIB, enabling centralized management
- Support LLDP for obtaining information on LLDP neighbor devices, monitoring link status, facilitating topology management, and fault location

Specification

Software	
Network Management Function	Support traffic statistics, operational status, network status, local address, and other status information
	Support static addressing, DHCP, PPPoE for external network connections, and supports WAN/LAN modes
	Support DHCP server, IP/MAC binding.
	Supports 5G network, dual SIM card management, APN configuration, link checking
	Support wireless AP mode, Client mode
	Support static routing
	Support serial port to network conversion, Peanut Shell intranet penetration, dynamic DNS, SNMP, LLDP, device cloud services
	Support PPTP/L2TP/GRE/GRETAP/TUN/TAP protocol VPN clients
	Support PPTP/L2TP/IPSec protocol VPN servers
Firewalls	Support SYN-flood defense to protect against SYN-flooding attacks
	Enables IP dynamic camouflage to enhance network security by masking IP addresses
	Support MSS clamping to optimize TCP performance and prevent packet fragmentation
	Facilitate inbound and outbound data control to manage traffic flow effectively
	Allow WAN/LAN port TCP/UDP port mapping for forwarding specific ports to designated devices
	Support IP/MAC/domain name filtering, iptables, NAT (Network Address Translation), DMZ (Demilitarized Zone), UPnP (Universal Plug and Play), and IP/MAC/QoS rate limiting
System Management	Support IPv4/IPv6 Ping, IPv4/IPv6 Traceroute, Nslookup, and packet capturing for network diagnostics
	Offer time zone configuration, NTP (Network Time Protocol) client/server functionality for time synchronization, management port configuration, scheduled tasks, and remote/local logging
	Facilitate user privilege management and SSH access for secure remote management
	Allow online restart, scheduled restart, configuration backup/restore, firmware flashing, and factory reset options for system maintenance and management

4G Cellular Network	
Network Format	5G NR SA/NSA, LTE-FDD, LTE-TDD, WCDMA
Working Frequency	5G NR SA: n1/41/77/78/79 5G NR NSA: n41/78/79 LTE-FDD: B1/2/3/5/7/8/20/28 LTE-TDD: B34/38/39/40/41 WCDMA: B1/2/5/8

Specification

MIMO	DL 4×4: n1/41/77/78/79 UL 2×2: n41/77/78/79 DL 2×2: LTE
Theoretical Transfer Rate	5G SA Sub-6: DL 2Gbps/ UL 1Gbps 5G NSA Sub-6: DL 2.2Gbps/ UL 575Mbps LTE: DL 600Mbps/ UL 150Mbps UMTS (DC-HSDPA/HSUPA): DL 42.2Mbps/ UL 11Mbps WCDMA: DL/UL 384 kbps
TX Power	5G NR n1/41: 23dBm±2dB 5G NR n77/78/79: 23dBm+2/-3dB LTE: 23dBm±2dB WCDMA: 24dBm+1/-3dB
RX Sensitivity	LTE-FDD: -96.3dBm(B1)/ -94.3dBm(B2)/ -93.3dBm(B3)/ -94.3dBm(B5/7)/ -93.3dBm(B8/20)/ -94.8dBm(B28) LTE-TDD: -96.3dBm(B34/38/39/40)/ -94.3dBm(B41) WCDMA: -106.7dBm(B1)/ -104.7dBm(B2/5)/ -103.7dBm(B8)
Wi-Fi 6	
Wireless	Wi-Fi 6, the 6th generation wireless network technology 2.4GHz 802.11b/g/n/ax 5GHz 802.11a/n/ac/ax
Modulation	DBPSK, DQPSK, CCK, OFDM, 16-QAM, 64-QAM, 256-QAM, 1024-QAM
Channel Bandwidth	20MHz/40MHz/80MHz/160MHz
TX Power	2.4GHz: • +16dBm HE40 -47dB Dynamic EVM • +19dBm HE40 -43dB Dynamic EVM • +24.5dBm MCS9 HT40 -35dB Dynamic EVM • +26dBm MCS7 HT20/40 -30dB Dynamic EVM • +28dBm MCS0 HT20 5GHz: • +16dBm MCS11 HE80 -47dB Dynamic EVM • +18dBm MCS11 HE80 -43dB Dynamic EVM • +23dBm MCS9 VHT80 -35dB Dynamic EVM • +24dBm MCS7 HT20/40 -30dB Dynamic EVM • +26dBm MCS0 HT20

RX Sensitivity	2.4GHz： • -69dBm (VHT40/MCS9/2SS) • -63dBm (VHT40/MCS11/2SS) • -68.5dBm (HT40/MCS9/2SS) • -63dBm (HE40/MCS11/2SS) 5GHz： • -64.5dBm (VHT80/MCS9/2SS) • -59dBm (VHT80/MCS11/2SS) • -64dBm (HE80/MCS9/2SS) • -58dBm (HE80/MCS11/2SS)
Theoretical Transfer Rate	802.11ac mode: 866.7Mbps (5 GHz) and 400Mbps (2.4 GHz) 802.11ax mode: 1201Mbps (5 GHz) and 573.5Mbps (2.4 GHz) 2.4GHz PHY rate: 574Mbps, TCP rate: 400Mbps 5GHz PHY rate: 1201Mbps, TCP rate: 840Mbps
Interface	
1000M WAN	1*10/100/1000Base-T(X) auto sensing Gigabit RJ45 WAN/LAN multiplexing port, supporting full/half duplex, auto MDI/MDI-X
1000M LAN	4*10/100/1000Base-T(X) auto sensing Gigabit RJ45 LAN ports, supporting full/half duplex, auto MDI/MDI-X
Serial Port	Serial port types: 1 RS232 and 1 isolated RS485 (RS485 compliant with intrinsic safety circuit design standards) Connection method: 3-position 5.08mm pitch locking terminal blocks Baud rate: 300bps-230400bps Data bits: 5-bit, 6-bit, 7-bit, 8-bit Stop bits: 1-bit, 2-bit Parity: None, Odd, Even RS485 isolation voltage: 2.5kVDC RS485 node count: Up to 128 nodes can be connected RS485 terminal resistance: Built-in 120Ω terminal resistance, configurable via jumper cap
Wi-Fi Antenna Interface	2×2.4GHz/5GHz Wi-Fi antennas, using IPEX Generation 1 board-end antenna connector
5G Antenna Interface	4×5G cellular antennas, using IPEX Generation 4 board-end antenna connector
SIM Card Slot	1 Nano SIM card slot and 1 standard SIM card slot, dual SIM single standby
Button	One click restart or factory reset
Status LEDs	Power indicator, operation indicator, serial port indicator, Wi-Fi indicator, 5G indicator, signal strength indicator, Ethernet port indicator, with support for external indication signals
Power Supply	
Power Input	DC12~24V

Specification

Power Consumption	＜18W@DC12V(Full Load)
Connection	2-pin 5.08mm pitch terminal blocks
Protection	Reverse polarity protection, pre-charge

Physical Characteristics

Dimensions	176×106×17.8 mm
Installations	Embedded
Weight	0.25kg

Working Environment

Operating Temp	-40℃~+75℃
Storage Temp	-40℃~+85℃
Relative Humidity	5% to 95% (non-condensing)

Industry Standard

Certification	CE, FCC, RoHS

Dimensions

Unit: mm

🛒 Ordering Information

Standard Model	1000M WAN	1000M LAN	RS485	RS232	5G Antenna	2.4GHz/5GHz Antenna	Input Voltage
MIR785-Exi	1	4	1	1	4	2	DC12~24V

📞 Contact Us

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