

MODBUS RTU / MODBUS TCP GATEWAY

EN-MRTU-MIP

The EN-MRTU-MIP is a compact DIN-rail Modbus router that connects Modbus RTU devices on RS485 to Modbus TCP/IP over Ethernet. SCADA, EMS, BMS or an EN-CPU-V7 controller can read and write serial devices across the LAN as if they were network devices.

It is available as the single-port EN-MRTU-MIP and the two-port EN-MRTU-MIP-2P, with a microcontroller design that draws a maximum of 200 mA at 24 V.

Modbus RTU

Modbus TCP

RS485

Ethernet



1 / 2

RS485 ports

10/100

Mbps Ethernet

250 kbps

Max RS485 baud rate

200 mA

Max current at 24 V

12–24 V

AC/DC supply

FEATURES & BENEFITS

- Modbus RTU (RS485) to Modbus TCP/IP routing
- Single-port EN-MRTU-MIP or two-port EN-MRTU-MIP-2P
- 10/100 Mbps Ethernet port
- RS485 2-wire, 300 to 250 000 bps
- 5–8 data bits, 1–2 stop bits, None / Even / Odd parity
- 1 kB send and receive buffer
- Isolated RS485 interface option
- Reset button, power and status LEDs, Tx / Rx LEDs
- Low power — max 200 mA at 24 V AC/DC
- 12–24 V AC/DC supply, 35 mm DIN rail mounting

APPLICATIONS

Energy Metering

RS485 energy meters onto the LAN for EMS and SCADA

BMS Integration

Modbus RTU devices for a Modbus TCP BMS

Remote Access

Serial devices reachable from anywhere on the network

Legacy Equipment

Chillers, VFDs and panels with RS485 only

Typical sectors: Commercial buildings · IT parks · Pharmaceutical · Healthcare · Data centres · Industrial · Retail

TECHNICAL DATA

HARDWARE SPECIFICATIONS

Processor	Microcontroller
Clock speed	16 MHz (Modbus RTU) · 80 MHz (Ethernet)
Buffer	1 kB send and receive

INTERFACES

RS485	1 (MIP) / 2 (MIP-2P), isolated option
Ethernet	1 × RJ45, 10/100 Mbps
Controls	Reset button
Indicators	Power, Status, Tx / Rx per port

RS485 SERIAL SETTINGS

Interface	2-wire (A+, B-) with GND
Baud rate	300 to 250 000 bps
Frame	5–8 data bits · 1–2 stop bits · None / Even / Odd parity

PROTOCOLS

Ethernet	Modbus TCP/IP
RS485	Modbus RTU
Function	Modbus RTU ↔ Modbus TCP router

POWER

Supply voltage	12–24 V AC/DC
Current	Max 200 mA @ 24 V AC/DC

ENVIRONMENT

Operating temperature	0 °C to 60 °C
Storage temperature	–20 °C to 70 °C
Storage humidity	5–95 % RH, non-condensing

MECHANICAL

Dimensions (L × W × H)	110 × 70 × 70 mm
Mounting	35 mm DIN rail
Protection	IP54

STANDARDS & CERTIFICATIONS

Certifications	CE, RoHS
Country of origin	India

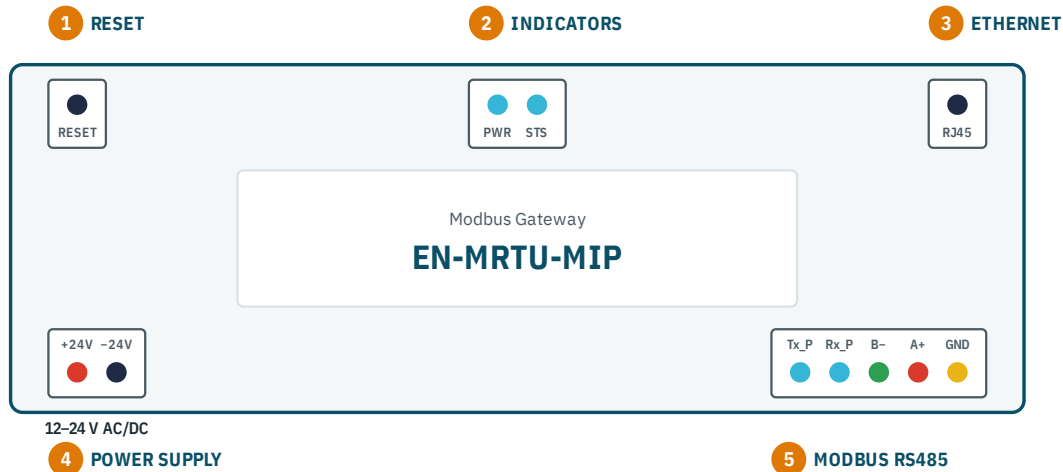
SOFTWARE

Configuration	To be confirmed
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ORDERING INFORMATION

PART NUMBER	DESCRIPTION
EN-MRTU-MIP	Modbus RTU to Modbus TCP gateway — 1 × RS485, 10/100 Ethernet, 12–24 V AC/DC, DIN rail
EN-MRTU-MIP-2P	Modbus RTU to Modbus TCP gateway — 2 × RS485, 10/100 Ethernet, 12–24 V AC/DC, DIN rail
EN-MRTU-BIP-LX	Modbus / BACnet gateway with BACnet/IP, MS/TP router and MQTT — when BACnet is needed

TERMINALS & WIRING



Terminal layout as viewed from the front of the module.

NO.	GROUP	TERMINALS	SIGNAL	DESCRIPTION
1	Reset	RESET button	—	Gateway reset push button
2	Indicators	POWER, STATUS	LED	Power and operating status of the gateway
3	Ethernet	RJ45, 10/100 Mbps	Modbus TCP/IP	Connection to Modbus TCP masters on the LAN
4	Power supply	+24V AC/DC, -24V AC/DC	12-24 V AC/DC	Gateway supply input
5	Modbus RS485	B (-), A (+), GND · Tx_P / Rx_P	Modbus RTU	Serial port to Modbus RTU devices; second port on EN-MRTU-MIP-2P

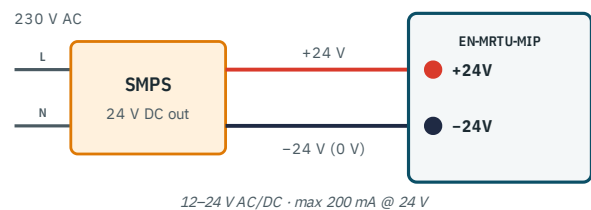
SERIAL PORT WIRING

- Set the same baud rate, data bits, stop bits and parity on the gateway port and every device on it.
- Give each Modbus RTU device on a port a unique slave ID.
- The Modbus TCP master addresses serial devices by their slave ID through the gateway.
- Check serial traffic on the Tx_P and Rx_P LEDs.

RS485 BUS WIRING

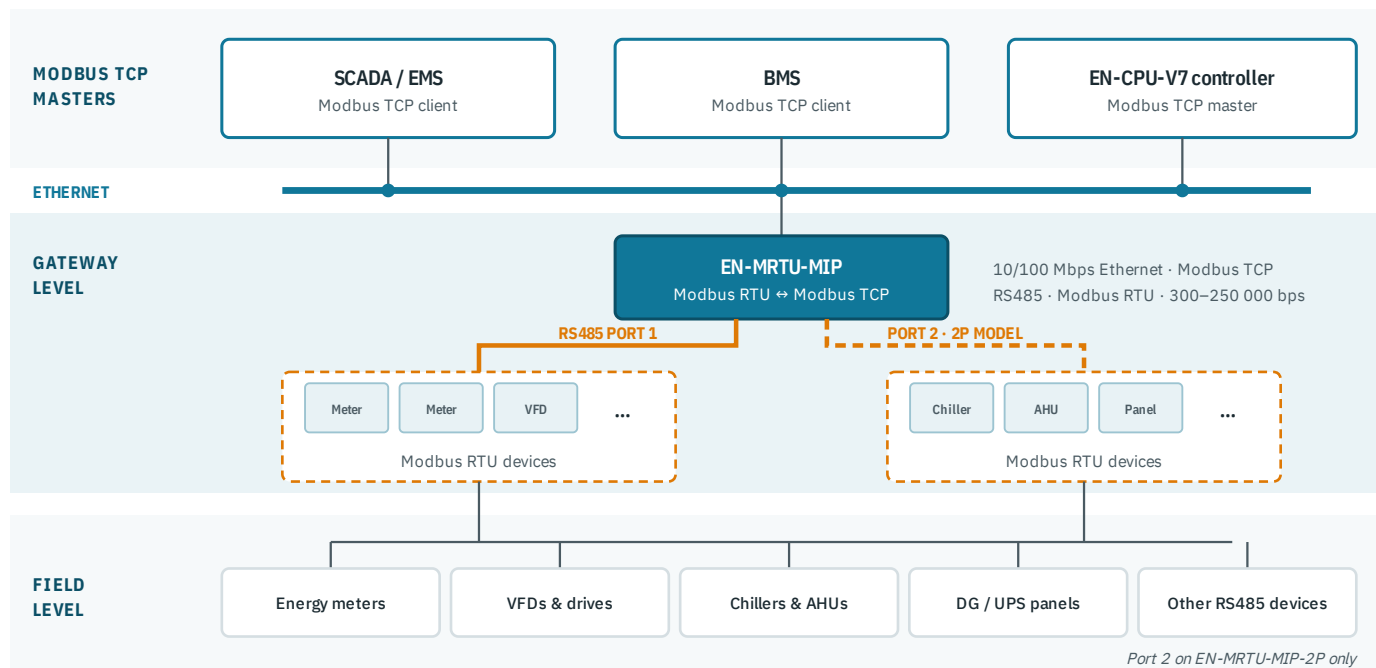
- Use shielded twisted-pair cable and daisy-chain devices on the bus.
- Connect A (+), B (-) and GND to the matching terminals on every device.
- Fit 120 Ω termination at both ends of long bus segments.
- Segment length up to 1200 m per TIA/EIA-485, reduced at higher baud rates.

POWER SUPPLY WIRING



- Supply from a 12-24 V AC/DC source, such as a 230 V AC to 24 V DC SMPS.
- Connect + supply to +24V AC/DC and - supply to -24V AC/DC.
- Maximum current is 200 mA at 24 V; one SMPS can feed several devices.

SYSTEM ARCHITECTURE



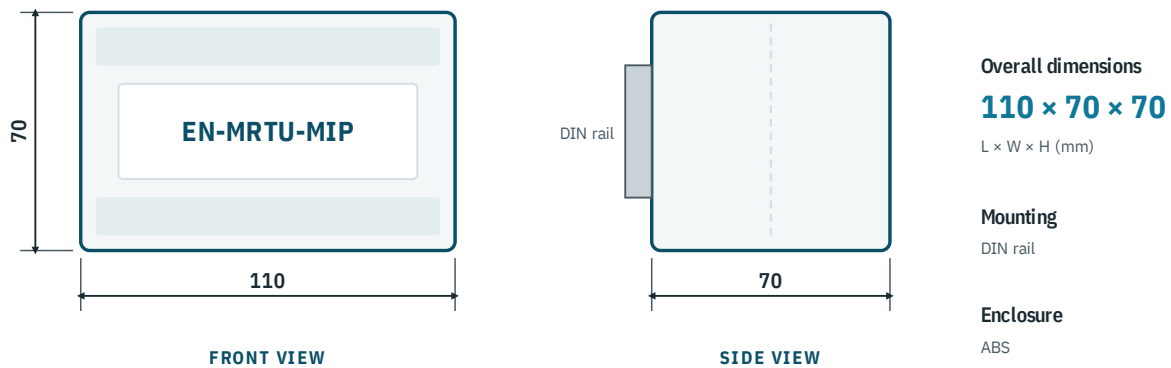
MODEL SELECTION

PART NUMBER	RS485 PORTS	DESCRIPTION
EN-MRTU-MIP	1	Single RS485 port — one Modbus RTU network to Modbus TCP
EN-MRTU-MIP-2P	2	Two RS485 ports — two independent Modbus RTU networks to Modbus TCP

PROTOCOL CONVERSION

FROM	TO	TYPICAL USE
Modbus RTU (RS485)	→ Modbus TCP/IP	SCADA, EMS or BMS reads serial meters and devices over the LAN
Modbus TCP/IP	→ Modbus RTU (RS485)	Masters write commands and set-points to serial devices

DIMENSIONS



INSTALLATION

- Mount on 35 mm DIN rail inside a control panel or enclosure.
- Leave space around the unit for ventilation and cable access.
- Isolate the power supply before wiring or servicing.
- Route RS485 and Ethernet cables away from power wiring.
- Keep each RS485 port as its own daisy-chained segment.

COMMISSIONING

- 1 Mount the gateway and connect the 12–24 V AC/DC supply.
- 2 Connect the Ethernet port to the LAN.
- 3 Wire Modbus RTU devices to the RS485 port (two ports on -2P).
- 4 Set the gateway IP address and serial settings to match the devices.
- 5 Poll devices from the Modbus TCP master by slave ID and check the Tx / Rx LEDs.

SYSTEM REQUIREMENTS

- Modbus TCP master — SCADA, EMS, BMS or EN-CPU-V7
- Ethernet LAN connection
- 12–24 V AC/DC power supply
- 35 mm DIN rail mounting inside a control panel

SAFETY INFORMATION

- ▲ Installation, wiring and maintenance must be carried out by qualified personnel in line with local electrical regulations.
- ▲ Disconnect all power before connecting or removing terminal wiring.
- ▲ Install inside a closed control panel, protected from dust, water and direct sunlight.
- ▲ Operate only within the supply voltage and environmental limits stated in this datasheet.
- ▲ Observe ESD precautions when handling the unit.
- ▲ Dispose of the product as electronic waste in accordance with local e-waste regulations.

SERVICES & SUPPORT

Technical support	Installation & setup	Maintenance	Application support	Hardware support	Warranty
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