

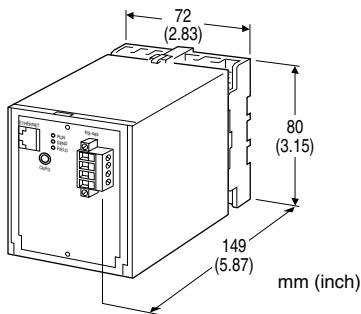
Gateway 72-UNIT Series

ETHERNET COMMUNICATION ADAPTOR

(Modbus use)

Functions & Features

- Bidirectional protocol converter for Modbus/TCP (Ethernet) and Modbus RTU (RS-485)
- Fast response time thanks to the Cache functions
- Expansion over 31 nodes is possible using additional 72EM2 units



MODEL: 72EM2-M4-M2

ORDERING INFORMATION

Code number: 72EM2-M4-M2

POWER INPUT

AC Power

M2: 100 - 240 V AC (Operational voltage range 85 - 264 V, 47 - 66 Hz)

GENERAL SPECIFICATIONS

Construction: Plug-in

Connection

- **Ethernet:** RJ-45 modular jack
- **RS-485:** Euro type connector terminal
Unit side connector: MSTB2,5/4-GF-5,08AU
Cable side connector: MSTB2,5/4-STF-5,08AU
(Applicable wire size: 0.2 - 2.5 mm², stripped length 7 mm)

Recommended solderless terminal

- AI0,25-6BU 0.25 mm² (Phoenix Contact)
- AI0,34-6TQ 0.34 mm² (Phoenix Contact)
- AI0,5-6WH 0.5 mm² (Phoenix Contact)
- AI0,75-6GY 0.75 mm² (Phoenix Contact)
- AI1-6RD 1.0 mm² (Phoenix Contact)
- AI1,5-6BK 1.5 mm² (Phoenix Contact)

- **Power input:** M3.5 screw terminal

Screw terminal: Chromated steel

Housing material: Flame-resistant resin (black)

Isolation: Ethernet to RS-485 to FG to power

DIP SW Setting: Selection of IP Address and Maintenance/Normal operation

PC configuration: IP address and transmission speed are configured via a web browser software (provided by the user).

Operation checked browser:

Internet Explorer 6.0 or later

Google Chrome 92

Microsoft Edge 92

Status indicator

RUN: Green LED light flashes in normal operating conditions in 1-sec. cycles; 2-sec. cycles when configuring the unit.

SEND: Green LED light turns on when sending data to Ethernet.

FIELD: Green LED light turns on when sending data to RS-485.

■ **Modbus RTU**

• **Nodes:** Max. 31

• **Supported Commands**

Read Coil Status (01)

Read Input Status (02)

Read Holding Registers (03)

Read Input Registers (04)

Force Single Coil (05)

Preset Single Register (06)

Diagnostics (08)

Fetch Comm. Event Counter (11)

Fetch Comm. Event Log (12)

Force Multiple Coils (15)

Preset Multiple Registers (16)

Report Slave ID (17)

■ **Cache Commands**

Following commands are valid for Cache function.

Read Coil Status (01)

Read Input Status (02)

Read Holding Registers (03)

Read Input Registers (04)

(Up to 100 queries)

ETHERNET COMMUNICATION

Standard: IEEE 802.3u

Transmission type: 10BASE-T, 100BASE-TX

Transmission speed: 10M or 100M bps
(Auto Negotiation)

Protocol: TCP/IP (compatible to Modbus/TCP Standard by Schneider Automation)

Number of connections: 8

Transmission media:

10BASE-T (STP cable; Category 5)

100BASE-TX (STP cable; Category 5e)
Maximum segment length: 100 meters

RS-485

Protocol: Modbus RTU
Response timeout: 10 - 10000 msec. (configured by PC)
Configuration: Bus type multi-drop
Standard: Conforms to TIA/EIA-485-A
Communication: Half-duplex, asynchronous, no procedure
Baud rate: 4.8 k or 9.6 k or 19.2 k or 38.4 kbps; default = 38.4 kbps (Start/Stop bit: 1 bit; Data bit: 8 bits; Parity: Odd)
Transmission distance: 500 meters max.
Transmission media: Shielded twisted-pair cable (CPEV-S 0.9 dia.)

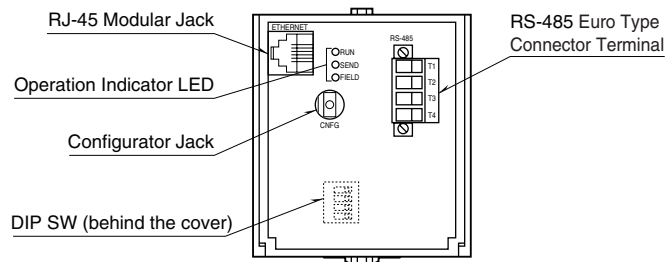
INSTALLATION

Power consumption
•AC: Approx. 10 VA
Operating temperature: -5 to +55°C (23 to 131°F)
Operating humidity: 20 to 70 %RH (non-condensing)
Mounting: Surface or DIN rail
Weight: 450 g (0.99 lb)

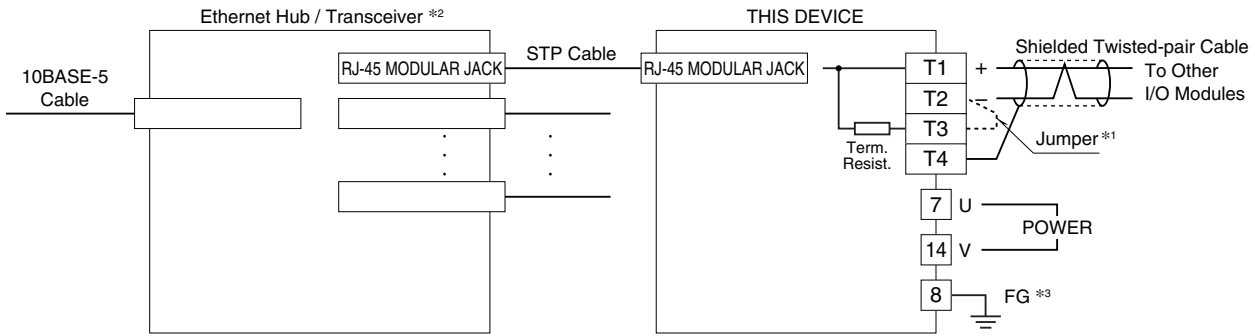
PERFORMANCE

Insulation resistance: $\geq 100 \text{ M}\Omega$ with 500 V DC
Dielectric strength: 2000 V AC @ 1 minute
(Ethernet or FG to RS-485 to power)
500 V AC @ 1 minute (Ethernet to FG)

EXTERNAL VIEW

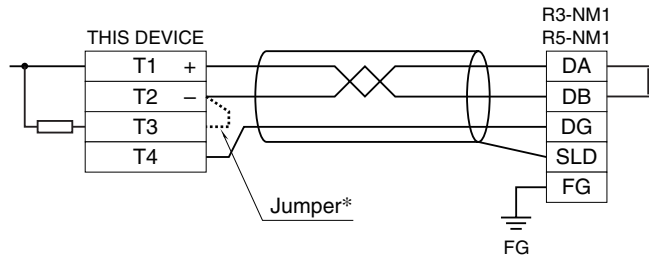


CONNECTION DIAGRAM



- *1. When the 72EM2 unit is located at an end of transmission line via twisted-pair cable (= when there is no cross wiring), close across the terminal 2 – 11 with the jumper attached to the product. Remove the jumper for all other units.
- *2. Install the 72EM2 and the Ethernet Hub/Transceiver inside the same panel. In order to extend outside the panel, use a 10BASE-5 cable.
- *3. Ground inside the same panel where the 72EM2 is installed.

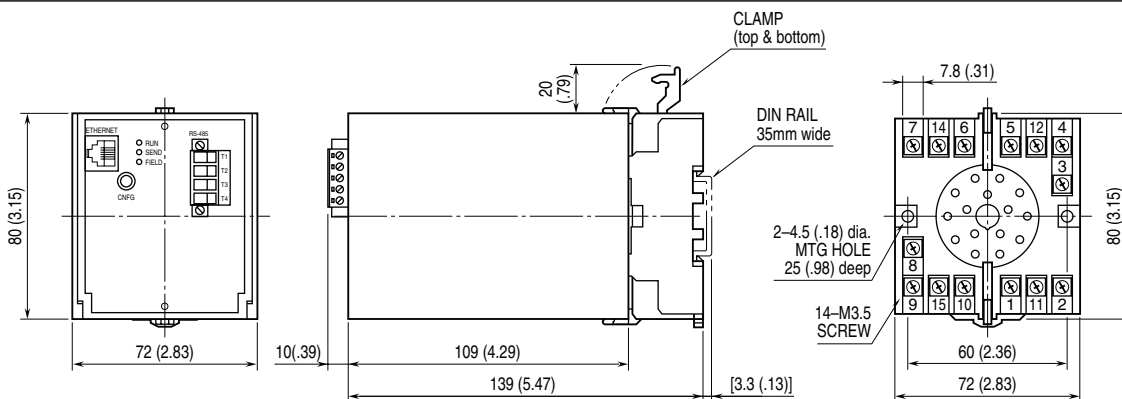
CONNECTION EXAMPLE HOW TO CONNECT R3 AND R5 SERIES



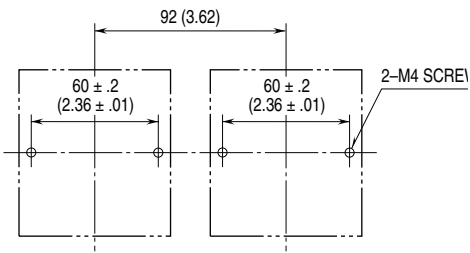
*Refer to * in CONNECTION DIAGRAM

Note: For other models, refer to each specification sheet and manual.

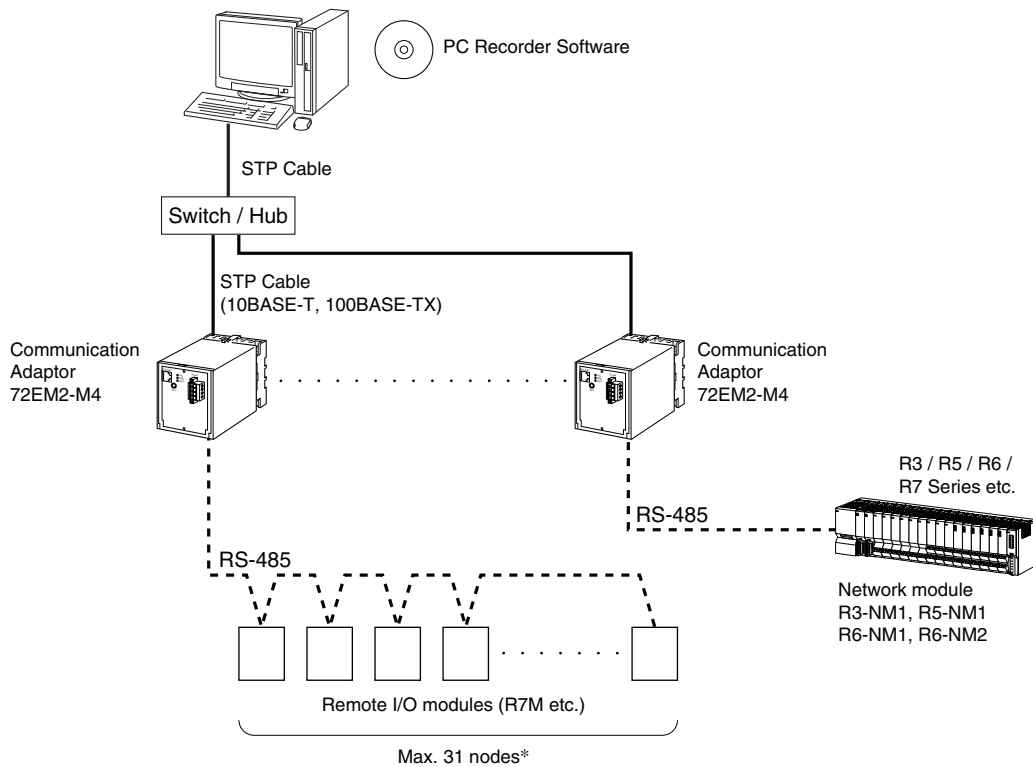
EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm [inch]



MOUNTING REQUIREMENTS unit: mm [inch]



SYSTEM CONFIGURATION EXAMPLES



* The number of nodes actually connected is limited by setting range of the module.



Specifications are subject to change without notice.