

Compact Remote I/O R7 Series Model R7E Ethernet Modbus/TCP Module

- Compact, all-in-one package
- 4 analog inputs, 16 discrete I/O or 2 analog outputs
- 8 or 16 discrete I/O extension module added to the main module
- Analog and discrete signals can be mixed
- 1500 Vac full isolation



The model R7E Remote I/O module is a new addition to M-System's varieties of R7 Series Compact Remote I/O.

The module has the power supply, network and I/O sections all in one piece. It provides an ideal solution for wiring saving system using Modbus/TCP protocols over Ethernet, efficiently transmitting a small number of I/O signals scattered around remote locations to a PLC and a graphic operator panel.

COMPACT & FLEXIBLE

Palm-top size compact basic modules (W115xH50xD54 mm or 4.53"x1.97"x2.13") can handle either 4 analog inputs, 2 analog outputs or 16 discrete I/O signals. The module can be expanded with a 8- or 16-point discrete input and output extension module.

This makes it easy to implement a mix of I/O signals to meet exact needs of different applications, such as RTD inputs plus transistor outputs, or analog outputs plus transistor outputs.

In addition to DC voltage/current and temperature, potentiometer and AC current input modules are available.

TWO-PIECE TERMINAL BLOCK

The barrier strip screw terminal blocks on the basic module can be separated into two pieces, providing easy and fast assembly and maintenance by prewiring.

SIMPLE SETTING

Input sensor types or ranges are selectable with the DIP switches on the front panel. For setting IP address and subnet mask, connect the R7E to a Windows PC with a dedicated cable. The PC Configurator Software provides a dedicated screen for Ethernet setting.

SUPPORTING COMPLEX APPLICATIONS

Using different thermocouples for each of four inputs, scaling different voltage ranges for each of four inputs,... such complex configurations can be accommodated also by using the PC Configurator Software.

EXTENSIVE SELECTION OF I/O RANGES

The DC voltage/current input module provides eight voltage and three current ranges, which can be selected with the built-in DIP switches. Only minimal number of spare units are needed.

HIGH RESOLUTION FOR ANALOG SIGNALS

DC voltage/current input and output signals are converted to 0-10000 for 0-100% full-scale.

FULL ISOLATION

1500 Vac isolation is maintained between I/O, network and power input. Channel-to-channel isolation is also provided.

The R7 Series supports many other network protocols: RS-485 Modbus, DeviceNet, CC-Link, LONWORKS, MECHATROLINK, FLEX NETWORK and HLS High-speed Link System.

For M-System product information and downloadable data sheets, visit On-Line Signal Conditioners Data Library at: <http://www.m-system.co.jp/mssenglish/index.htm>.

Palm-top All-in-one Package



Built-in Connector for Extension



Analog/Discrete Mixed Station



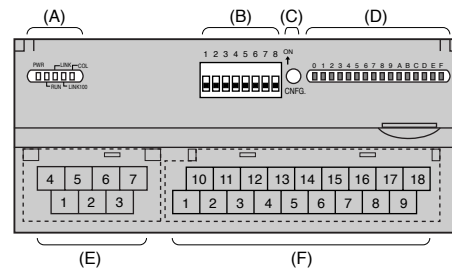
COMMON SPECIFICATIONS

Power input	24 Vdc ±10%
Dielectric strength	1500 Vac @1 minute between isolated circuits
Insulation resistance	≥100 MΩ with 500 Vdc
Operating temperature	-10 to +55°C (14 to 131°F)
Mounting	DIN rail (35 mm wide)
Field connection	M3 screw terminals (nickel-plated steel)
Network connection	RJ-45 connector
CE conformity	EMC Directive (2004/108/EC) EN 61000-6-4 (EMI) EN 61000-6-2 (EMS)

ETHERNET

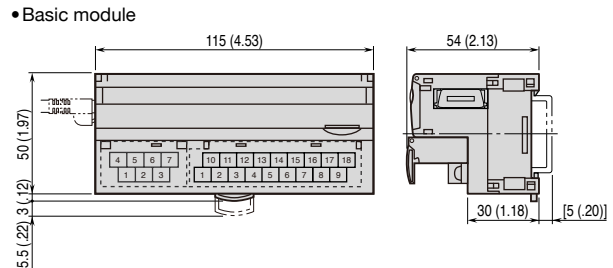
Physical layer	IEEE 802.3u
Data link layer	10BASE-T / 100BASE-TX
Baud rate	10 or 100 Mbps, Auto Negotiation
Protocol	Modbus/TCP
Data	RTU (binary)
Max. number of socket connections	Two (2)
Transmission media	10BASE-T (STP cable, category 5) 100BASE-TX (STP cable, category 5e)
Max. segment length	100 meters
IP address	192.168.0.1 (factory setting) Selectable with PC Configurator Software (model: R7CON)
Port No.	502
Ethernet indicator LED	LINK, LINK100, COL

FRONT VIEW



- (A) Status Indicator LED
- (B) Operating Mode, I/O Type/Range Setting DIP SW
- (C) PC Configurator Jack
- (D) Discrete I/O Status Indicator LED
- (E) Power Supply Terminals
- (F) I/O Terminals

EXTERNAL DIMENSIONS mm (inch)



R7 SERIES I/O SELECTIONS

Network	Ethernet CE	Modbus CE cRUUS	DeviceNet CE cRUUS	CC-Link CE cRUUS	LONWORKS
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BASIC MODULE

Function	Points	Type / Range	R7E	R7M	R7D	R7C	R7L
Discrete input	16	NPN / PNP transistor	■	■	■	■	■
Discrete output	16	NPN / PNP transistor	■	■	■	■	■
Discrete input/output	8 + 8	NPN transistor					■
Relay output	8	Rated load 250 Vac or 30 Vdc @2 A		■	■	■	
DC input	4	±10 V, ±5 V, ±1 V, ±0.5 V, 0-10 V, 0-5 V, 0-1 V, ±20 mA, 0-20 mA, 4-20 mA	■	■	■	■	■
Thermocouple input	4	K E J T B R S C N U L P PR	■	■	■	■	■
RTD input	4	Pt 100, Ni 100, Cu 10, Cu 50, JPt 100, Pt 50	■	■	■	■	■
Potentiometer input	4	Total resistance 100 Ω to 20 kΩ	■	■	■	■	
AC current input	4	Current sensor CLSE input, up to 600 A	■	■	■	■	
DC voltage output	2	±10 V, ±5 V, ±1 V, ±0.5 V, 0-10 V, 0-5 V, 0-1 V	■	■	■	■	■
DC current output	2	4-20 mA	■	■	■	■	■
Remote control relay control output	4 or 8	Rated load 24 Vac				■	■

EXTENSION MODULE

Function	Points	Type / Range	R7E	R7M	R7D	R7C	R7L
Discrete input	8 / 16	NPN / PNP transistor	■	■	■	■	■
Discrete output	8 / 16	NPN / PNP transistor	■	■	■	■	■

For detailed specifications for the above models and MECHATROLINK / FLEX NETWORK / HLS modules, visit M-System Signal Conditioners Data Library at www.m-system.co.jp.

Your local representative: