Remote I/O R7 Series

(No. ESU-7808-YS2)
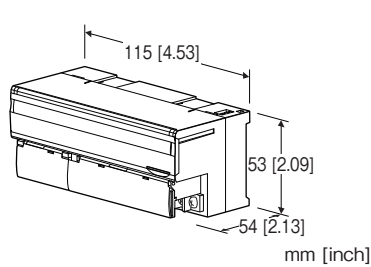
FLEX NETWORK I/O MODULE
(2 points DC current output, isolated)

Functions & Features
• 2 points DC current output module for FLEX NETWORK
• Easy parameter setting of individual channels with M-System's configurator software

FLEX NETWORK is registered trademark of Digital Electronics Corporation in Japan.

115 [4.53]
53 [2.09]
54 [2.13]
mm [inch]

CE

MODEL: R7FN–YS2-R[1]

ORDERING INFORMATION

• Code number: R7FN-YS2-R[1]
Specify a code from below for [1].
  (e.g. R7FN-YS2-R/Q)
• Specify the specification for option code /Q
  (e.g. /C01/SET)

I/O TYPE
YS2: DC current output, 2 points

POWER INPUT
DC Power
R: 24 V DC
(Operational voltage range 24 V ±10 %, ripple 10 %p-p max.)

[1] OPTIONS
blank: none
/Q: Options other than the above (specify the specification)

SPECIFICATIONS OF OPTION: Q (multiple selections)
COATING (For the detail, refer to M-System's web site.)
/C01: Silicone coating
/C02: Polyurethane coating
/C03: Rubber coating
EX-FACTORY SETTING
/SET: Preset according to the Ordering Information Sheet

RELATED PRODUCTS
• PC configurator software (model: R7CON)
The configurator software is downloadable at M-System's web site.
A dedicated cable is required to connect the module to the PC. Please refer to the internet software download site or the users manual for the PC configurator for applicable cable types.
• Screen editor software (model: GP-Pro EX)
Screen editor software GP-Pro EX (Ver.2.70 or higher) is available.
For versions between 2.60 and 2.70, the driver must be installed. The driver is downloadable at Digital Electronics Corporation's web site. http://www.proface.co.jp/

GENERAL SPECIFICATIONS
Connection: M3 separable screw terminal (torque 0.5 N·m)
Solderless terminal: Refer to the drawing at the end of the section.
• **Communication cable**
  Recommended manufacture: Japan Solderless Terminal MFG.Co.Ltd
  Applicable wire size: 0.2 to 0.5 mm^2 (AWG 26 to 22)
• **Others**
  Recommended manufacture: Japan solderless terminal MFG.Co.Ltd, Nichifu Co.,ltd
  Applicable wire size: 0.25 to 1.65 mm^2 (AWG 22 to 16)
Screw terminal: Nickel-plated steel
Housing material: Flame-resistant resin (gray)
Isolation: Output 0 to output 1 to FLEX NETWORK to power to FG
Zero adjustments: Configurable via R7CON
Span adjustments: Configurable via R7CON
Output at the loss of communication:
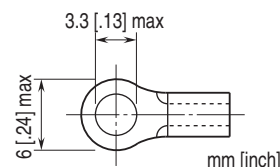Output hold (*), Output clear
Selectable with the front DIP SW
(*) factory default setting
Status indicator LED: PWR, RUN
(Refer to the instruction manual)
■**Recommended solderless terminal**

3.3 [.13] max
6 [.24] max
mm [inch]

FLEX NETWORK COMMUNICATION

Communication configuration: 1: N
Connection method: Multi-drop Connection
Communication method: Cyclic Time Division, half-duplex
Communication I/F: Differential, pulse transfer isolation
Error Check: Format, bit, CRC-12 verification
Max. Number of Nodes: 63 (1008 I/O points)
Required node: 2
Network cable: Pro-face's following cable
FN-CABLE2010-31-MS (10 m)
FN-CABLE2050-31-MS (50 m)
FN-CABLE2200-31-MS (200 m)
Transmission distance: 12 Mbps: 100 meters (328 ft)(*)
6 Mbps: 200 meters (656 ft)
(*) Factory default setting
Station address: Rotary switch
(Refer to the instruction manual)
Terminating resistor: Built-in

OUTPUT SPECIFICATIONS

Output range: 4 to 20 mA DC
Load resistance: ≤ 600 Ω
Operational range: -15 to +115 % of output range

INSTALLATION

Current consumption
•**DC**: Approx. 140 mA
Operating temperature: -10 to +55°C (14 to 131°F)
Storage temperature: -20 to +65°C (-4 to +149°F)
Operating humidity: 30 to 90 %RH (non-condensing)
Atmosphere: No corrosive gas or heavy dust
Mounting: DIN rail (35 mm rail)
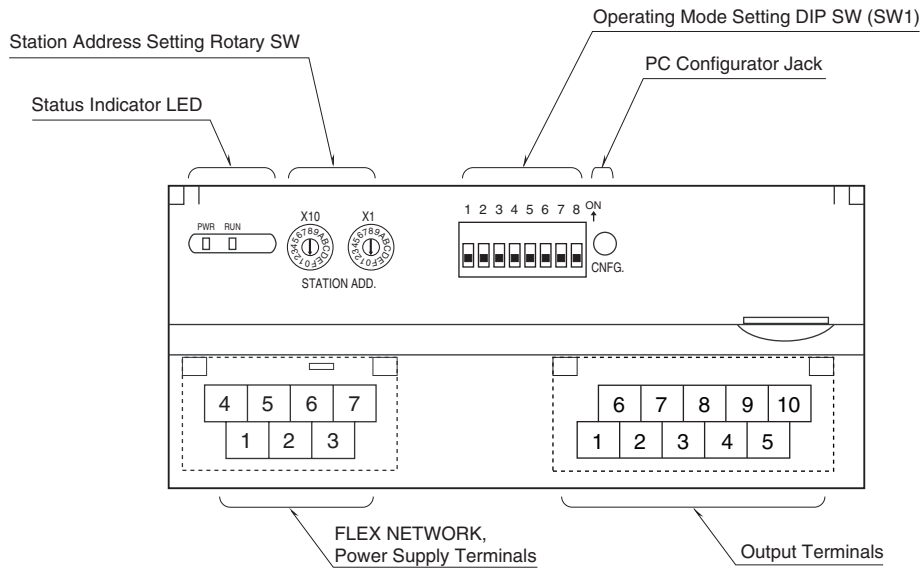**Weight**: 200 g (0.44 lb)

PERFORMANCE

Conversion accuracy: ±0.1 %
Data range: 0 – 10000 of the output range
Temp. coefficient: ±0.015 %/°C (±0.008 %/°F)
Output delay time: ≤ 250 msec. (0 - 90 %)
Insulation resistance: ≥ 100 MΩ with 500 V DC
Dielectric strength: 1500 V AC @ 1 minute (output 0 to output 1 to FLEX NETWORK to power to FG)

STANDARDS & APPROVALS

EU conformity:
EMC Directive
  EMI EN 61000-6-4
  EMS EN 61000-6-2
RoHS Directive

FUNCTIONS

Output hold function:
Output at the loss of communication is selectable from output clear (fix the output at -15 %) and output hold (last normally received data) with DIP switch.
At the startup, it outputs -15 % until the communication is established and normal data is received.

EXTERNAL VIEW

Station Address Setting Rotary SW

Status Indicator LED

Operating Mode Setting DIP SW (SW1)

PC Configurator Jack

PWR RUN

X10 X1

STATION ADD.

1 2 3 4 5 6 7 8 ON

CNFG.

4	5	6	7
1	2	3	

6	7	8	9	10
1	2	3	4	5

FLEX NETWORK,
Power Supply Terminals

Output Terminals

CONNECTION DIAGRAMS

■ MASTER CONNECTION

Master Station

Slave Station

Slave Station

Terminating Resistor

| TR+ |
| TR− |
| SHIELD |

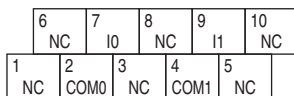| TR+ |
| TR− |
| JP+ |
| JP− |
| FG |

| TR+ |
| TR− |
| JP+ |
| JP− |
| FG |

Terminating Short Bar
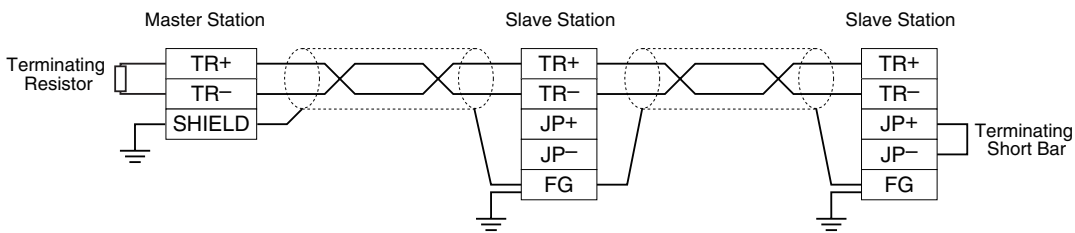
Note: Be sure to use the terminator(s) located at both ends of the modules.

TERMINAL ASSIGNMENTS

■ OUTPUT TERMINAL ASSIGNMENT

6 NC	7 I0	8 NC	9 I1	10 NC
1 NC	2 COM0	3 NC	4 COM1	5 NC

NO.	ID	FUNCTION	NO.	ID	FUNCTION
1	NC	No connection	6	NC	No connection
2	COM0	Common 0	7	I0	Current 0
3	NC	No connection	8	NC	No connection
4	COM1	Common 1	9	I1	Current 1
5	NC	No connection	10	NC	No connection

■ NETWORK, POWER SUPPLY TERMINAL ASSIGNMENT

4 TR+	5 TR−	6 +24V	7 0V

1 JP+	2 JP−	3 FG
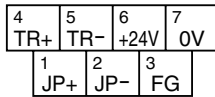
| NO.	ID	FUNCTION, NOTES
1	JP+	Terminating resistor
2	JP−	Terminating resistor
3	FG	FG
4	TR+	Network
5	TR−	Network
6	+24V	Power input (24V DC)
7	0V	Power input (0V)

DATA CONVERSION

■ OUTPUT RANGE AND DATA CONVERSION (FACTORY DEFAULT SETTING)

Digital output data is converted into analog representations of 0 – 100% proportional to each scaled range.

Overrange output is possible from -15 to +115% of the nominal range.

When the signal exceeds the limit, the data is fixed at -15% or +115%.
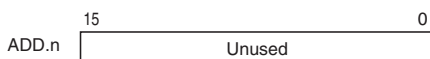
• Ouputput Range 4 – 20 mA DC

Digital Value, Decimal	Degital Value, HEX	Output Value, Engineering Unit	Output value, %
-1500	FA24	≤ 1.6 mA	-15%
0	0	4 mA	0%
10000	2710	20 mA	100%
11500	2CEC	≥ 22.4 mA	115%
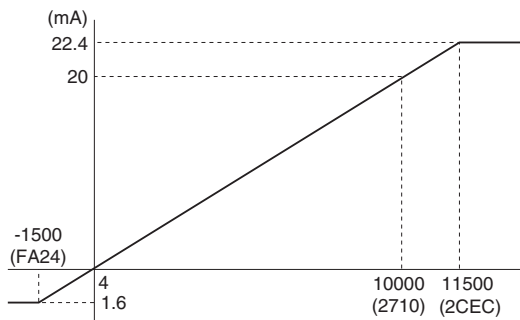
I/O DATA DESCRIPTIONS

■ ANALOG OUTPUT

• Di

ADD.n 15 Unused 0

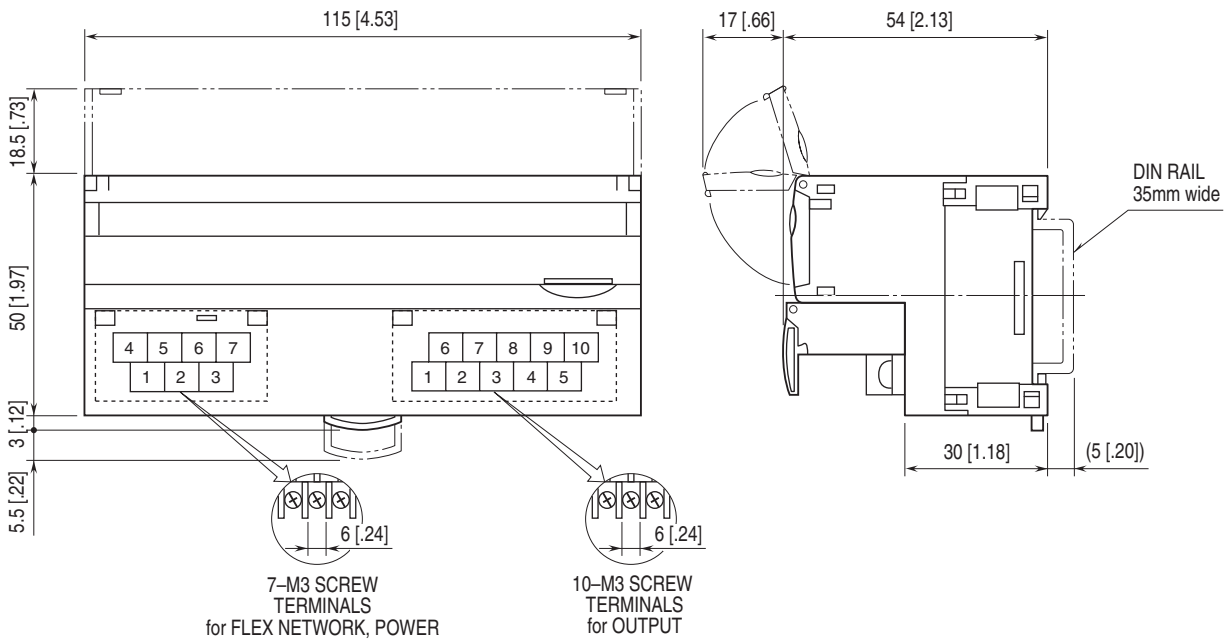ADD.n+1 15 Unused 0

• Do

15 ... 0 CH0

15 ... 0 CH1

The data is 16-bit binary.
Negative value is represented in 2's complements.

MODEL: R7FN-YS2

EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS   unit: mm [inch]

7–M3 SCREW TERMINALS for FLEX NETWORK, POWER

10–M3 SCREW TERMINALS for OUTPUT

DIN RAIL 35mm wide

SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM

Note: In order to improve EMC performance, bond the FG terminal to ground.

Caution: FG terminal is NOT a protective conductor terminal.
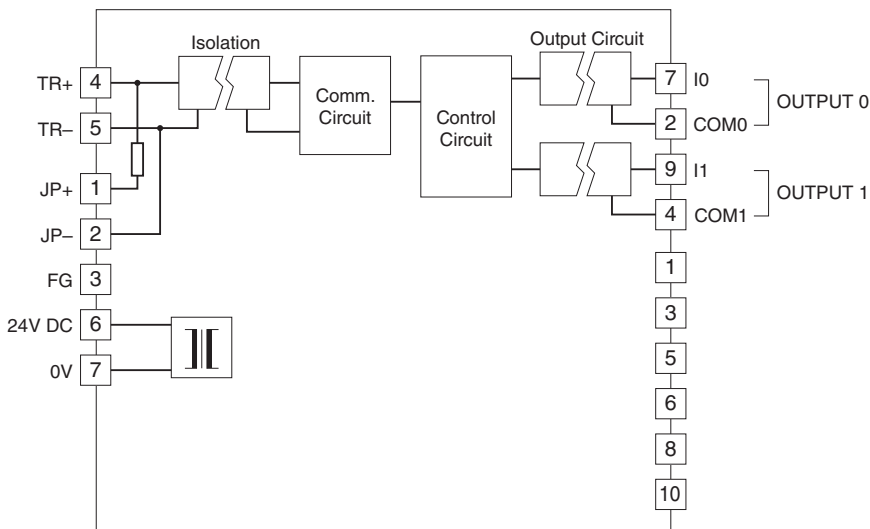
Specifications are subject to change without notice.