

Remote I/O R7 Series

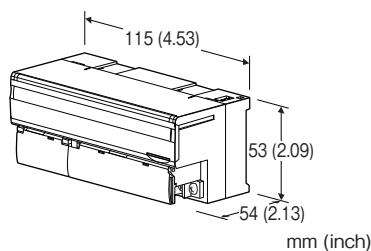
FLEX NETWORK I/O MODULE

(2 points DC voltage output, isolated)

Functions & Features

- 2 points DC voltage output module for FLEX NETWORK
- Output range can be selected with the front DIP switches for all channels.
- Easy parameter setting of individual channels with M-System's configurator software

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



MODEL: R7FN-YV2-R[1]

ORDERING INFORMATION

- Code number: R7FN-YV2-R[1]
Specify a code from below for [1].
(e.g. R7FN-YV2-R/Q)
- Specify the specification for option code /Q
(e.g. /C01/SET)

I/O TYPE

YV2: DC voltage output, 2 points

POWER INPUT

DC Power

R: 24 V DC

(Operational voltage range 24 V \pm 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
(No. ESU-7808-YV2)

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 mm² (AWG 26 to 22)

- **Others**

Recommended manufacture: Japan solderless terminal MFG.Co.Ltd, Nichifu Co.,ltd

Applicable wire size: 0.25 to 1.65 mm² (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 range: Selectable with the front DIP SW or configurable via R7CON

Output at the loss of communication:

Output hold (*), Output clear

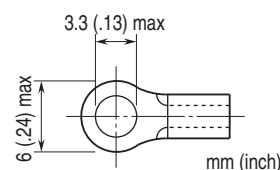
Selectable with the front DIP SW

(* factory default setting)

Status indicator LED: PWR, RUN

(Refer to the instruction manual)

■ Recommended solderless terminal



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

STANDARDS & APPROVALS

EU conformity:
 EMC Directive
 EMI EN 61000-6-4
 EMS EN 61000-6-2
 RoHS Directive
 EN 50581

FUNCTIONS

Output hold function:
 Output at the loss of communication is selectable from output clear (fix the output at -15 % or approx. -11.5 V) and output hold (last normally received data) with DIP switch. At the startup, it outputs -15 % or approx. -11.5 V until the communication is established and normal data is received.

OUTPUT SPECIFICATIONS

■ Narrow Span voltage
Output range: -1 - +1 V DC, 0 - 1 V DC, -0.5 - +0.5 V DC
Load resistance: 100 kΩ min.
■ Wide Span voltage
Output range: -10 - +10 V DC (*), -5 - +5 V DC, 0 - 10 V DC, 0 - 5 V DC, 1 - 5 V DC
 (*) factory default setting
Load resistance: 100 kΩ min.
■ Operational range
Except -10 to +10 V DC: -15 to +115 % of output range
-10 to +10 V DC: Approx. -11.5 to +11.5 V DC

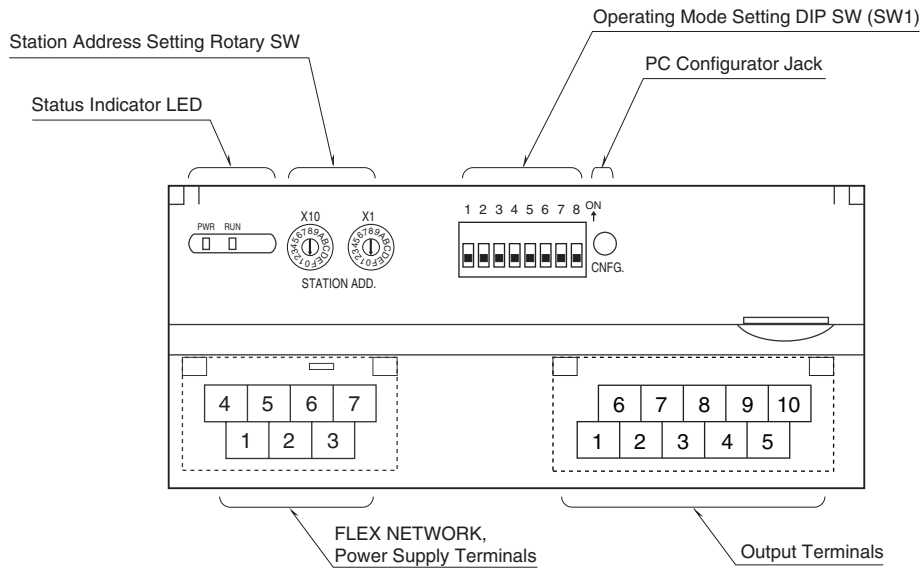
INSTALLATION

Current consumption
 •DC: Approx. 100 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

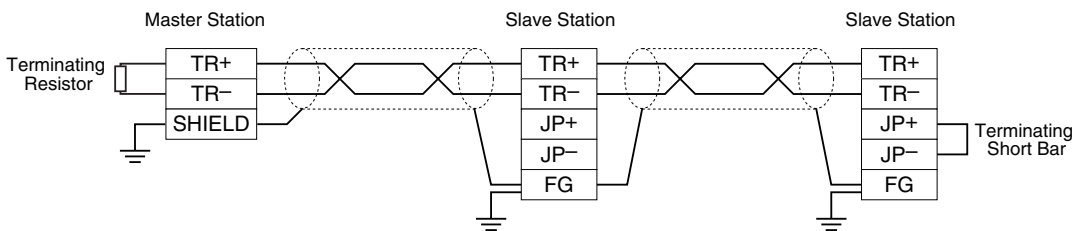
Conversion accuracy: ±0.1 %
Data range: 0 - 10000 of the output range
Temp. coefficient: ±0.015 %/°C (±0.008 %/°F)
Output delay time: ≤ 250 msec. (0 - 90 %)
Insulation resistance: ≥ 100 MΩ with 500 V DC
Dielectric strength: 1500 V AC @ 1 minute (output 0 to output 1 to FLEX NETWORK to power to FG)

EXTERNAL VIEW



CONNECTION DIAGRAMS

■ MASTER CONNECTION



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

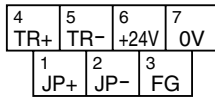
TERMINAL ASSIGNMENTS

■ OUTPUT TERMINAL ASSIGNMENT



NO.	ID	FUNCTION	NO.	ID	FUNCTION
1	NC	No connection	6	NC	No connection
2	COM0	Common 0	7	VH0	Wide span volt. 0
3	COM0	Common 0	8	VL0	Narrow span volt. 0
4	COM1	Common 1	9	VH1	Wide span volt. 1
5	COM1	Common 1	10	VL1	Narrow span volt. 1

■ NETWORK, POWER SUPPLY TERMINAL ASSIGNMENT



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)

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

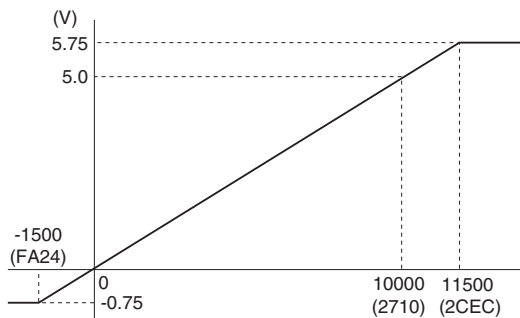
Overrange output is possible from -15 to +115% of the nominal range.

When the signal exceeds the limit, the data is fixed at -15% or +115%.

(approx. -11.5 V or 11.5 V when the output range is -10 - +10 V)

• Output Range 0 – 5V DC

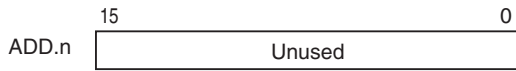
Digital Value, Decimal	Digital Value, HEX	Output Value, Engineering Unit	Output value, %
-1500	FA24	≤ -0.75V	-15%
0	0	0V	0%
10000	2710	5V	100%
11500	2CEC	≥ 5.75V	115%



I/O DATA DESCRIPTIONS

■ ANALOG OUTPUT

• Di

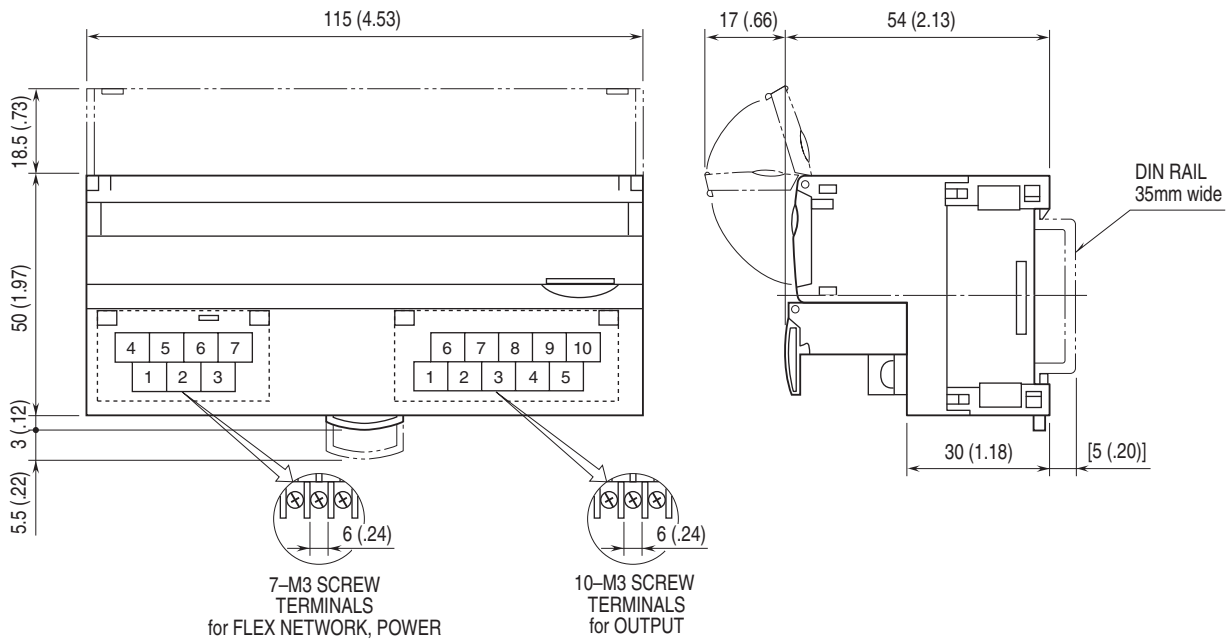


• Do



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

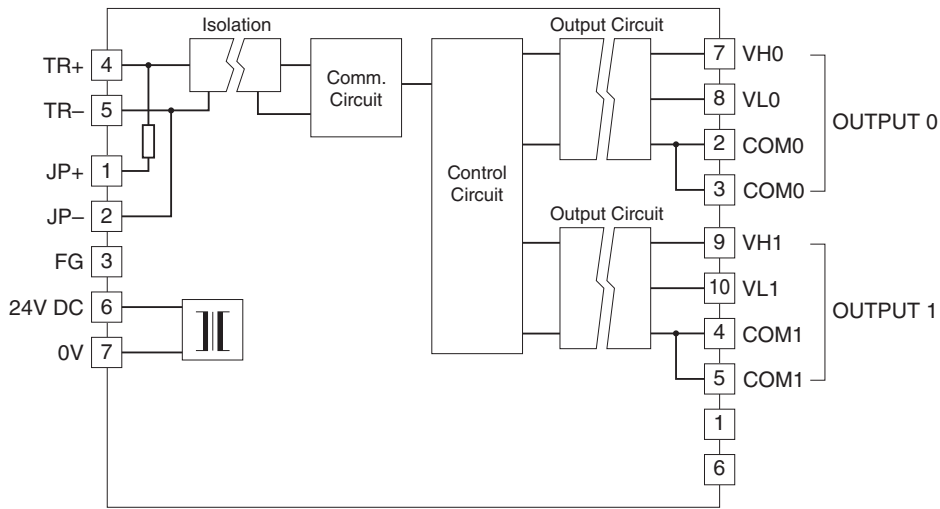
EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm (inch)



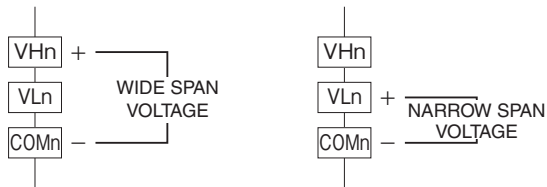
SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM

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

Caution: FG terminal is NOT a protective conductor terminal.



■ OUTPUT CONNECTION EXAMPLES



Specifications are subject to change without notice.