

## Remote I/O R7 Series

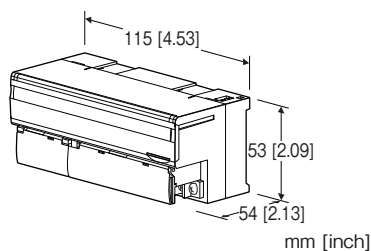
### FLEX NETWORK I/O MODULE

(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 mm<sup>2</sup> (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<sup>2</sup> (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

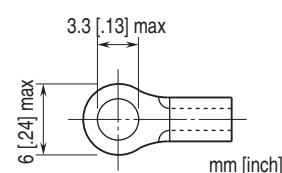
Selectable with the front DIP SW

(\* 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

## 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

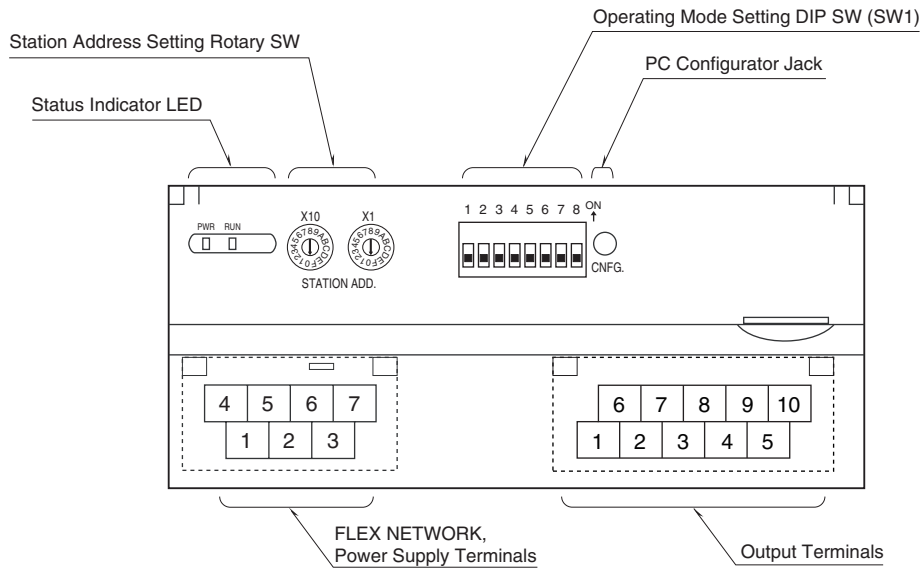
## INSTALLATION

**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

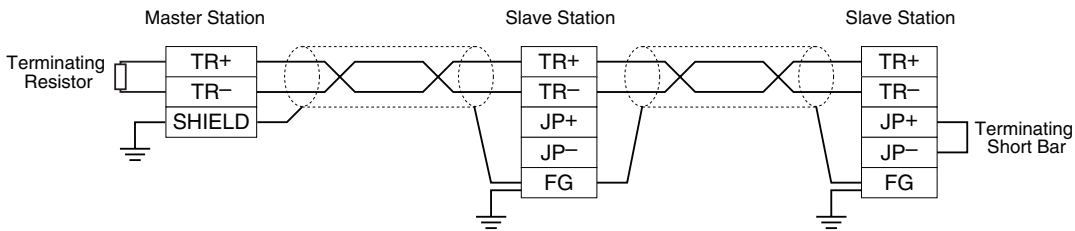
**Conversion accuracy:** ±0.1 %  
**Data range:** 0 - 10000 of the output range  
**Temp. coefficient:** ±0.015 %/°C (±0.008 %/°F)  
**Output delay time:** ≤ 250 msec. (0 - 90 %)  
**Insulation resistance:** ≥ 100 MΩ with 500 V DC  
**Dielectric strength:** 1500 V AC @ 1 minute (output 0 to output 1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

## EXTERNAL VIEW



## CONNECTION DIAGRAMS

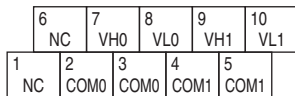
### MASTER CONNECTION



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

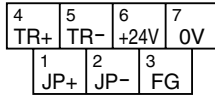
## TERMINAL ASSIGNMENTS

### 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.

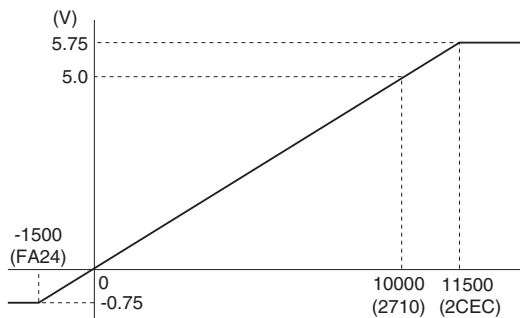
Overrange output is possible from -15 to +115% of the nominal range.

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

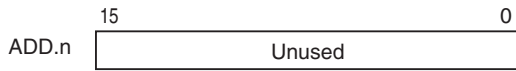
Digital Value, Decimal	Digital Value, HEX	Output Value, Engineering Unit	Output value, %
-1500	FA24	≤ -0.75V	-15%
0	0	0V	0%
10000	2710	5V	100%
11500	2CEC	≥ 5.75V	115%



## I/O DATA DESCRIPTIONS

### ■ ANALOG OUTPUT

• Di

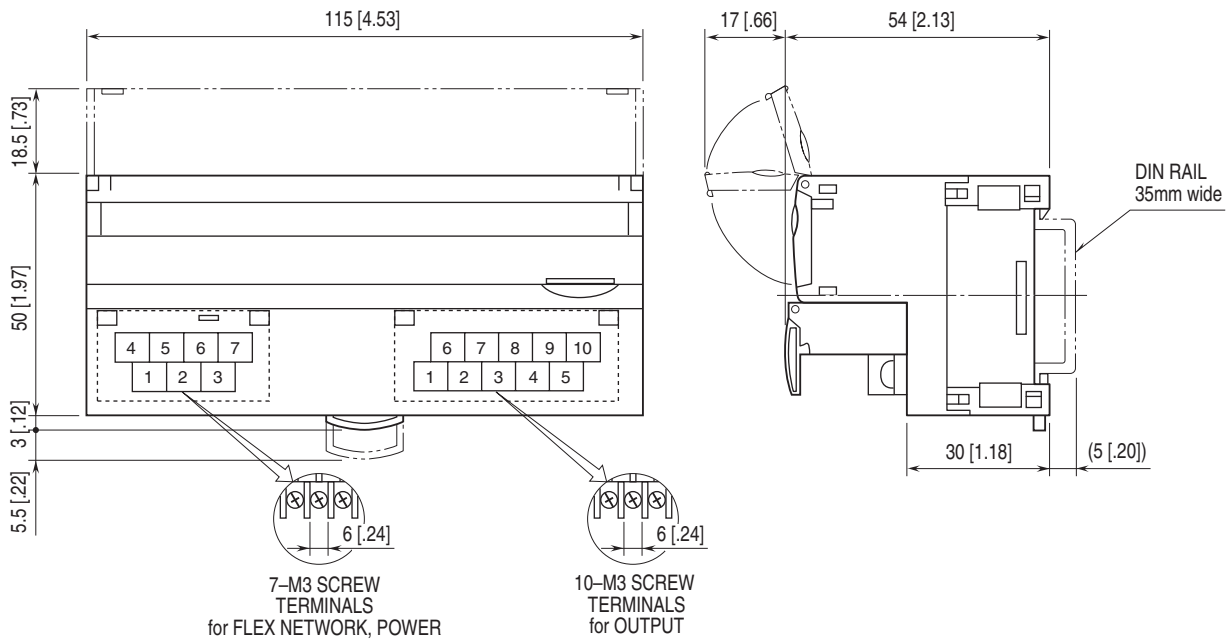


• Do



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

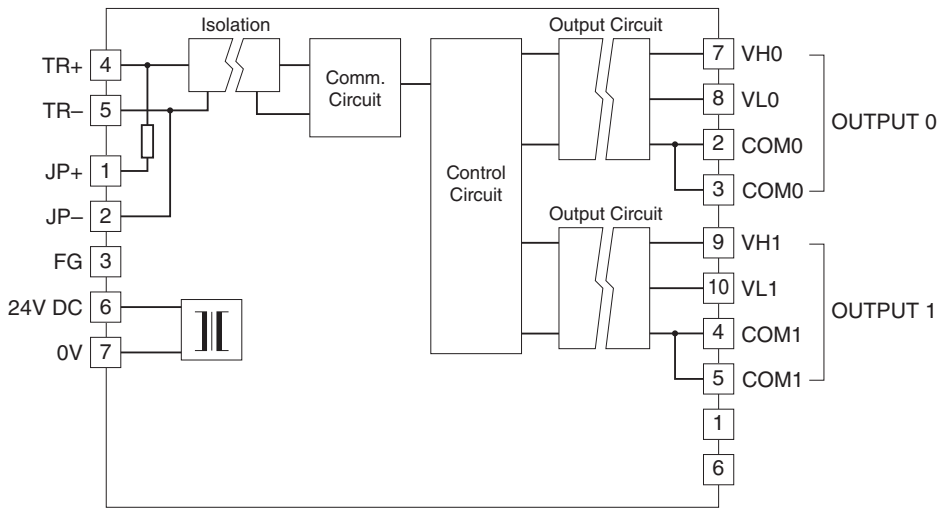
## EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm [inch]



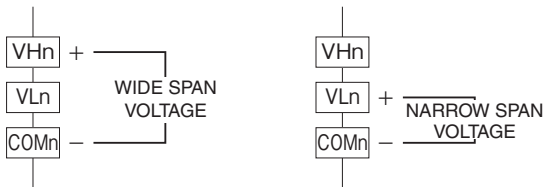
## SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM

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.