

Remote I/O R7 Series

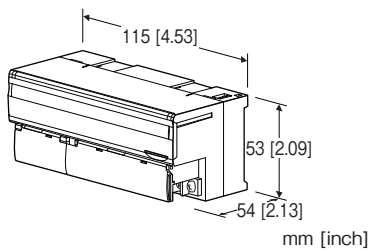
FLEX NETWORK I/O MODULE

(DC voltage/current input, 4 points, isolated)

Functions & Features

- 4 points DC voltage/current input module for FLEX NETWORK
- Input range can be selected with the front DIP switches for all channels.
- Easy parameter setting of individual channels with the configurator software

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



MODEL: R7FN-SV4-R[1]

ORDERING INFORMATION

- Code number: R7FN-SV4-R[1]
Specify a code from below for [1].
(e.g. R7FN-SV4-R/Q)
- Specify the specification for option code /Q
(e.g. /C01/SET)

I/O TYPE

SV4: DC voltage/current input (10 V/20 mA), 4 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 our 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-SV4)

RELATED PRODUCTS

- PC configurator software (model: R7CON)
The configurator software is downloadable at our 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: Input 0 to input 1 to input 2 to input 3 to FLEX NETWORK to power to FG

Zero adjustments: Configurable via R7CON

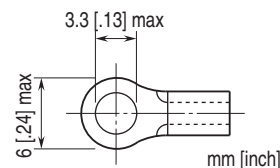
Span adjustments: Configurable via R7CON

Input range: Selectable with the DIP SW on the front of the unit or configurable via R7CON

Conversion rate: Configurable via R7CON

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: 4
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

Dielectric strength: 1500 V AC @ 1 minute (input 0 to input 1 to input 2 to input 3 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

INPUT SPECIFICATIONS

■ **DC Current**
Input resistor: 70 Ω
Input range: -20 to +20 mA DC, 0 to 20 mA DC,
4 to 20 mA DC
■ **Narrow span voltage**
Input resistance: ≥ 100 k Ω
Input range: -1 to +1 V DC, 0 to 1 V DC, -0.5 to +0.5 V DC
■ **Wide span voltage**
Input resistance: ≥ 1 M Ω
Input range: -10 to +10 V DC (*), -5 to +5 V DC,
0 to 10 V DC, 0 to 5 V DC, 1 to 5 V DC
(*) Factory default setting

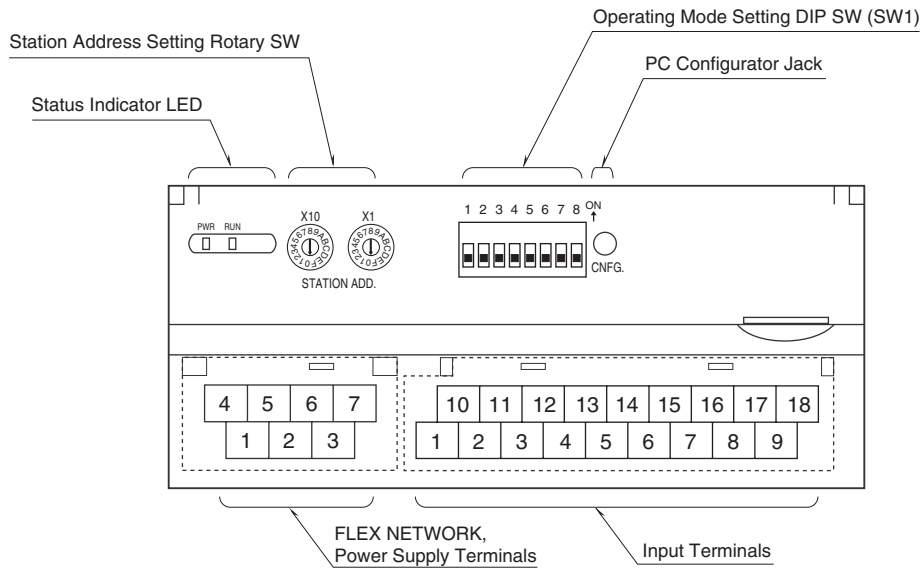
INSTALLATION

Current consumption
•DC: Approx. 90 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

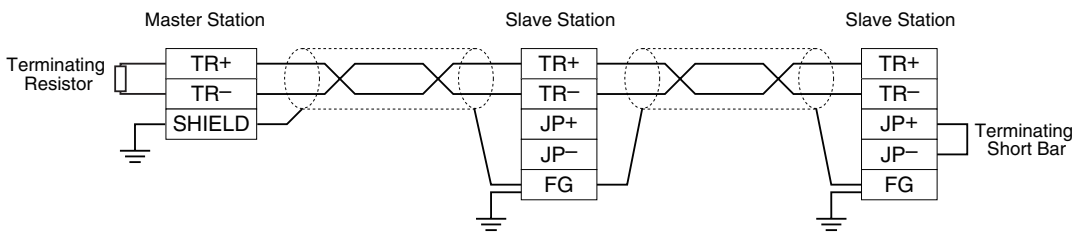
Conversion rate / conversion accuracy:
10 ms / ± 0.8 %, 20 ms / ± 0.4 %, 40 ms / ± 0.2 %, 80 ms /
 ± 0.1 %
Data range: 0 - 10000 of the input range
Temp. coefficient: ± 0.015 %/°C (± 0.008 %/°F)
Response time: Conversion rate $\times 2 + 50$ msec. (0 - 90 %)
Insulation resistance: ≥ 100 M Ω with 500 V DC

EXTERNAL VIEW



CONNECTION DIAGRAMS

■ MASTER CONNECTION



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

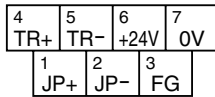
TERMINAL ASSIGNMENTS

■ INPUT TERMINAL ASSIGNMENT

10	11	12	13	14	15	16	17	18
VL0	I0	VL1	I1	NC	VL2	I2	VL3	I3
1	2	3	4	5	6	7	8	9
VH0	COM0	VH1	COM1	NC	VH2	COM2	VH3	COM3

NO.	ID	FUNCTION	NO.	ID	FUNCTION
1	VH0	Wide span volt. 0	10	VL0	Narrow span volt. 0
2	COM0	Common 0	11	I0	Current range 0
3	VH1	Wide span volt. 1	12	VL1	Narrow span volt. 1
4	COM1	Common 1	13	I1	Current range 1
5	NC	No connection	14	NC	No connection
6	VH2	Wide span volt. 2	15	VL2	Narrow span volt. 2
7	COM2	Common 2	16	I2	Current range 2
8	VH3	Wide span volt. 3	17	VL3	Narrow span volt. 3
9	COM3	Common 3	18	I3	Current range 3

■ 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

■ INPUT RANGE AND DATA CONVERSION (FACTORY DEFAULT SETTING)

Analog input data is converted into digital representations of 0 – 100% proportional to each scaled range.

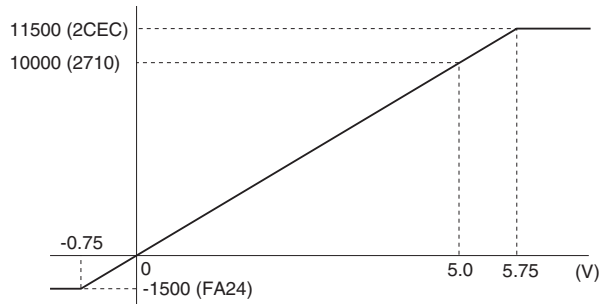
The converted % values are multiplied by 100 and expressed in 16 bits.

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

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

• Input Range 0 – 5V DC

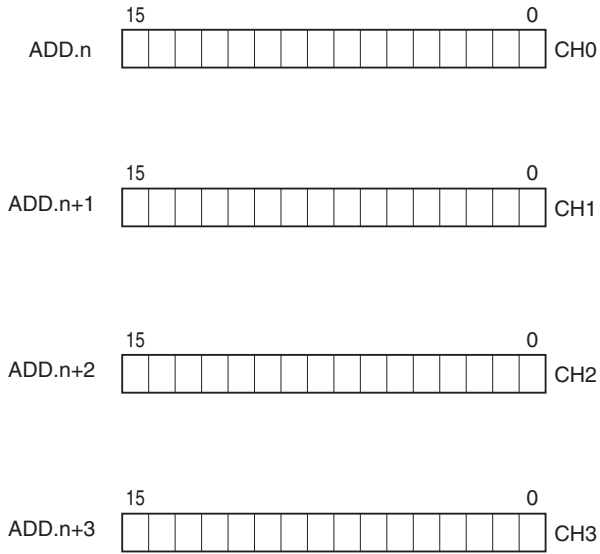
Input Value	Input %	Converted Data, Decimal	Converted Data, Hex
≤ -0.75V	-15%	-1500	FA24
0V	0%	0	0
5V	100%	10000	2710
≥ 5.75V	115%	11500	2CEC



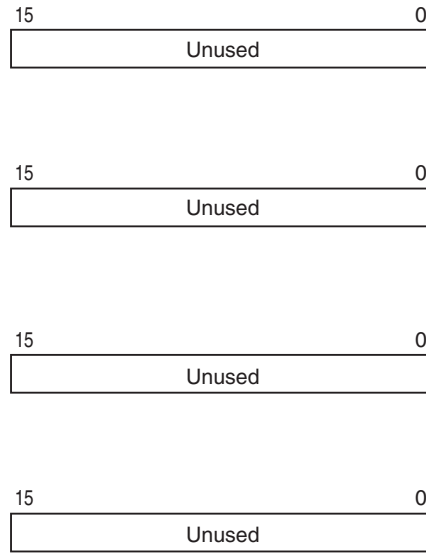
I/O DATA DESCRIPTIONS

■ ANALOG INPUT

• Di

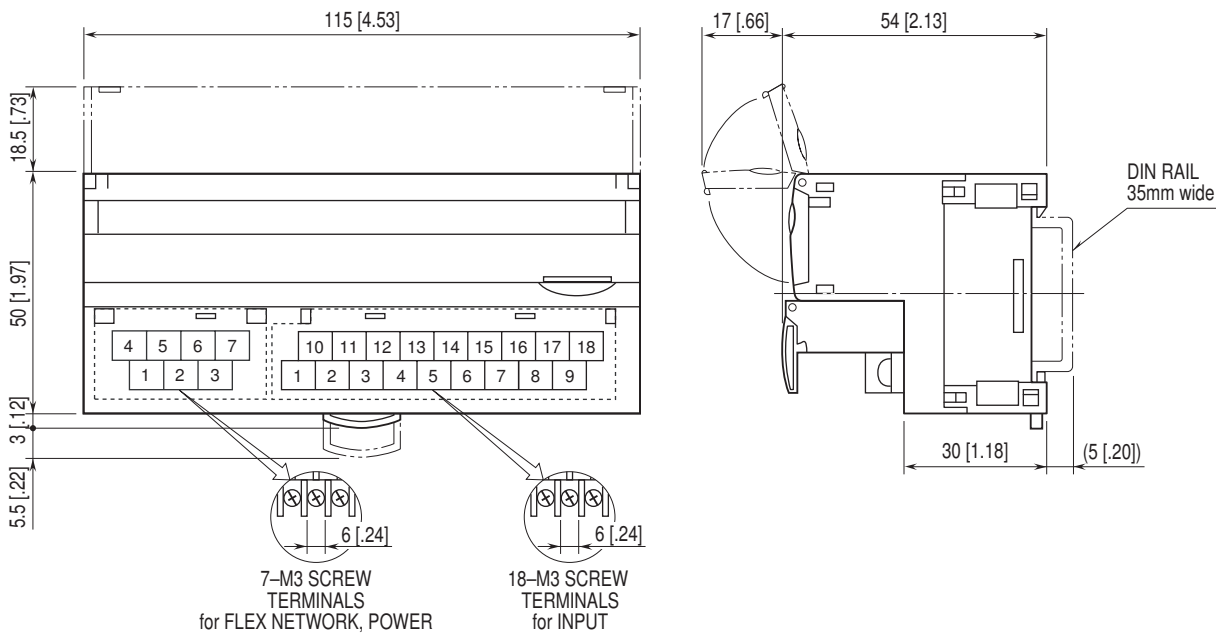


• Do



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

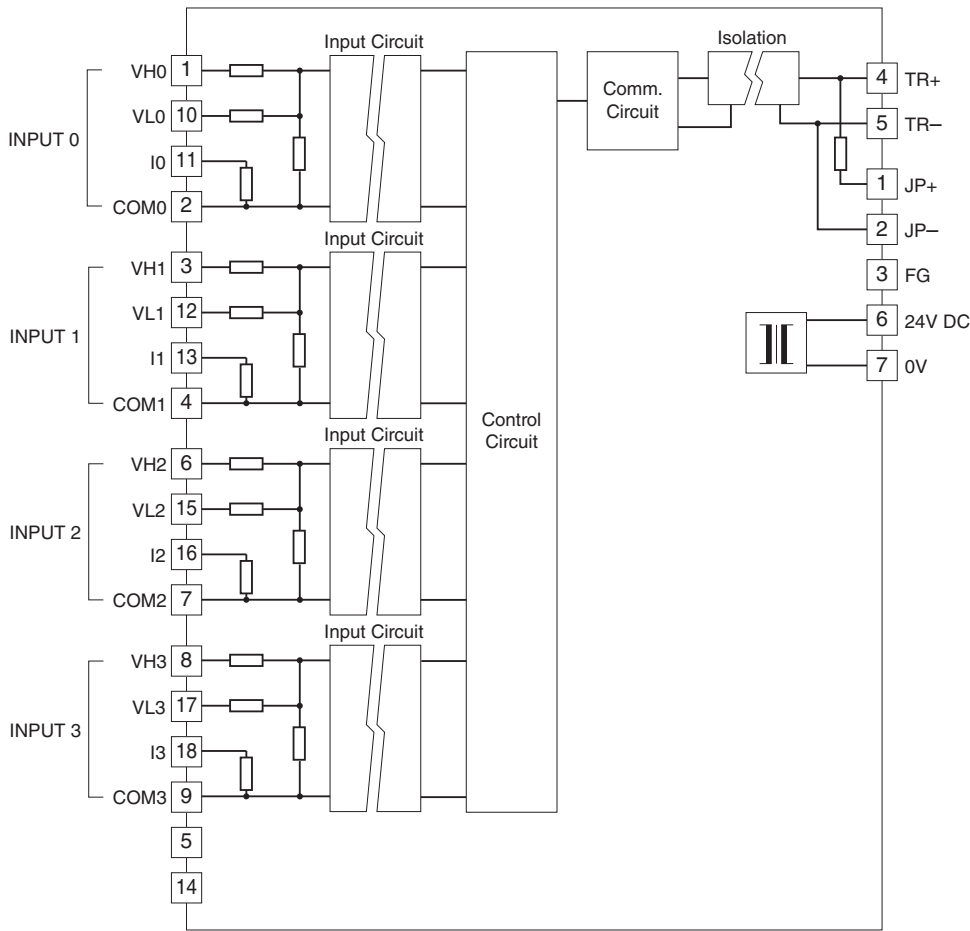
EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm [inch]



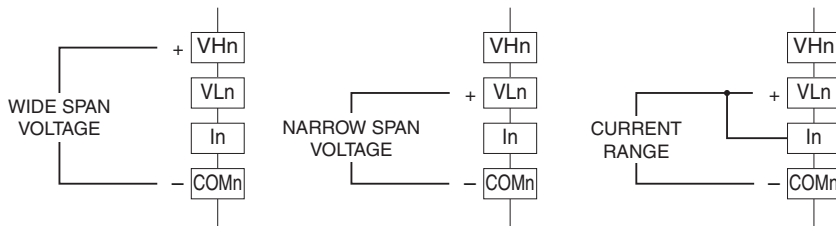
SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM

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

Caution: FG terminal is NOT a protective conductor terminal.



Input Connection Example



Be sure to close across VLn and In terminals for a current input



Specifications are subject to change without notice.