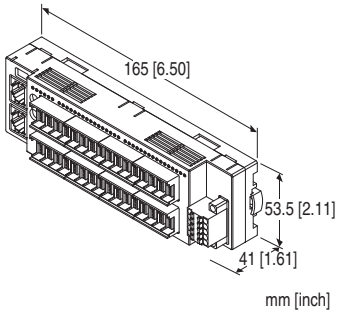
Remote I/O R7I4D Series

EtherNet/IP I/O MODULE

(NPN transistor output, 32 points, e-CON connector)

Functions & Features

- 32 points NPN transistor output module for EtherNet/IP
- Supports DLR (Device Level Ring) to form a ring topology



MODEL: R7I4DEIP-DC32A-1-R[1]

ORDERING INFORMATION

- Code number: R7I4DEIP-DC32A-1-R[1]

Specify a code from below for [1].
(e.g. R7I4DEIP-DC32A-1-R/D1/Q)

- Specify the specification for option code /Q
(e.g. /C01/SET)

I/O TYPE

DC32A: NPN transistor output, 32 points

TERMINAL BLOCK

1: Tension clamp terminal block for power supply
RJ-45 Modular jack for communication
e-CON connector for output

POWER INPUT

DC Power

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

[1] OPTIONS (multiple selections)

Wire Breakdown Detection

Blank: With
/D1: Without

Other Options

blank: none
/Q: Option 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-7745-B)

RELATED PRODUCTS

- PC configurator software (model: R7CFG)
- EDS file

The EDS files and configurator software are downloadable at our web site.
For connecting to PC, use commercially available Mini-B type USB cable. (provided by user)

GENERAL SPECIFICATIONS

Connection
EtherNet/IP: RJ-45 Modular Jack
Power & Sensor excitation: Separable screwless spring terminal
Output: e-CON connector
Housing material: Flame-resistant resin (gray)
Isolation: Output or exc. supply to EtherNet/IP or FE to power
Output at the loss of communication: Configurable via R7CFG
Status indicator LED: PWR, LNK1, LNK2
(Refer to the instruction manual)
Discrete output status indicator LED: Green LED turns on with output ON

EtherNet/IP COMMUNICATION

Communication Standard: IEEE 802.3u
Transmission: 10BASE-T, 100BASE-TX
Baud rate: 10/100 Mbps (Auto Negotiation function)
Protocol: EtherNet/IP
Max. number of socket connections: 3
Connection type: Exclusive owner / Listen only / Input only
Transmission media: 10BASE-T (STP, Category 5), 100BASE-TX (STP, Category 5e)
Network topology: Line, star and ring
Max. length of fieldbus segment: 100 meters
IP address: 192.168.0.250 (factory setting);
Only host address in IP address is configurable via rotary switches, the other items via PC configurator software (model: R7CFG)
DLR supported
Port No.: 2222, 44818
I/O data size: Two (2) words

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Status indicator LEDs: MS, NS (Refer to the instruction manual for details)

OUTPUT SPECIFICATIONS

Common: Negative common (NPN) per 32 points
Maximum outputs applicable at once: No limit (at 24 V DC)
Sensor Excitation: 24 V DC ±10 %, ripple 5 %p-p max., ≤ 5 A (including discrete output load charge); rated current 8 A
Rated output current: 0.2 A per point, 3.2 A per common
Residual voltage: ≤ 1.2 V
Leakage current:
With wire breakdown detection: ≤ 0.7 mA
Without wire breakdown detection: ≤ 0.1 mA
ON delay: ≤ 0.2 msec.
OFF delay: ≤ 0.5 msec.
Overload current protection function: Turns OFF the outputs when overcurrent is detected
Overheat protection function: Turns OFF the outputs when overheat is detected
Diagnostic function: When the overcurrent, overheat and open load (disconnection) are detected, notifies to the status bit of upper input area. Refer to the users manual for details
Note: Status is disabled with option code: /D1 (without wire breakdown detection).
(When driving an inductive load, connect a diode in parallel with the load.)

INSTALLATION

Current consumption: Approx. 55 mA (rated current 8 A)
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: Surface or DIN rail (35 mm rail)
Weight: 180 g (0.40 lb)

PERFORMANCE

Insulation resistance: ≥ 100 MΩ with 500 V DC
Dielectric strength: 1500 V AC @ 1 minute
(output or exc. supply to EtherNet/IP or FE to power)

STANDARDS & APPROVALS

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

FUNCTIONS

■ WIRE BREAKDOWN DETECTION

The function to notifies to the status bit of upper input area in case of open load (disconnection) of discrete output is detected.
Connect output load under 10 kΩ.
Pull-down resister is mounted to detect disconnection so weak leakage current flows even when the output is OFF.
Status bit is disabled and pull-down resister is not mounted with option code: /D1 (withourt wire breakdown detection).

PC CONFIGURATOR

The following parameters can be set with using PC Configurator Software (model: R7CFG)
Refer to the users manual for the R7CFG for detailed operation of the software program.

■ CHANNEL INDIVIDUAL SETTING

PARAMETER	SETTING RANGE	DEFAULT
Unused setting	CH enabled, CH disabled	CH enabled

■ CHANNEL BATCH SETTING

PARAMETER	SETTING RANGE	DEFAULT
Output at communication error	Output hold, Output clear	Output hold

■ ETHERNET SETTING

PARAMETER	SETTING RANGE	DEFAULT
IP Address	0.0.0.0 – 255.255.255.255	192.168.0.250
Subnet Mask	0.0.0.0 – 255.255.255.255	255.255.255.0
Default Gateway	0.0.0.0 – 255.255.255.255	192.168.0.1
TimeOut	0 – 32767 (0.1 sec.)	30 (0.1 sec.)

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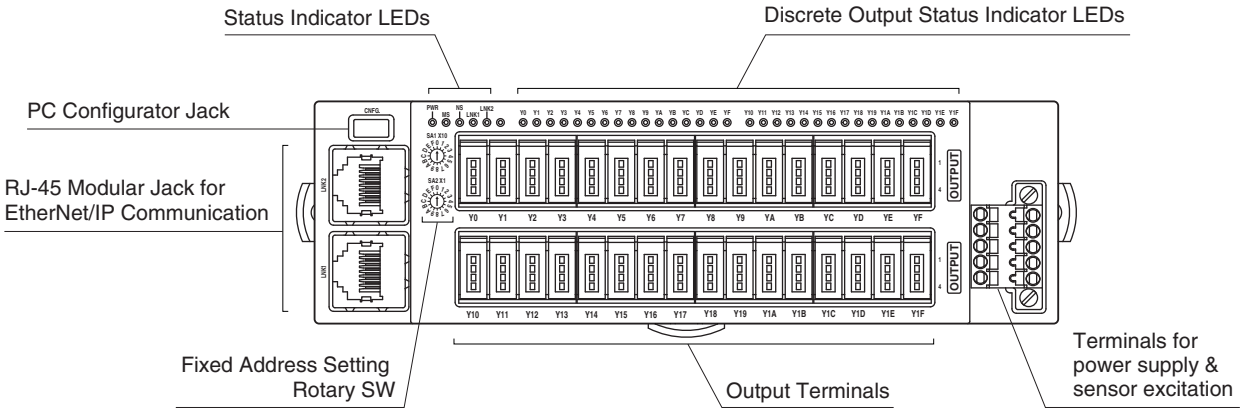
EXTERNAL VIEW



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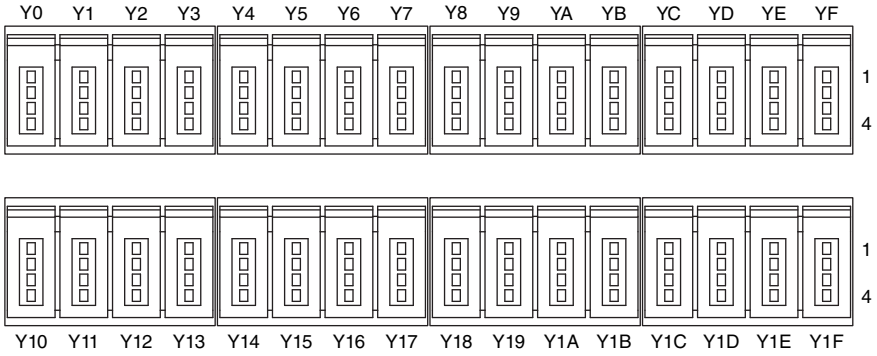
TERMINAL ASSIGNMENTS

■OUTPUT TERMINAL ASSIGNMENT

• e-CON connector
Recommended cable connector: 37104-( )-000FL (3M Company)
(The cable connector is not included in the package.
Specify wire size instead of ( ); refer to the specifications of the product.)



PIN No.		ID	FUNCTION	PIN No.		ID	FUNCTION
Y0	1	+24V	24V DC	Y8	1	+24V	24V DC
	2	NC	Unused		2	NC	Unused
	3	NC	Unused		3	NC	Unused
	4	Y0	Output 0		4	Y8	Output 8
Y1	1	+24V	24V DC	Y9	1	+24V	24V DC
	2	NC	Unused		2	NC	Unused
	3	NC	Unused		3	NC	Unused
	4	Y1	Output 1		4	Y9	Output 9
Y2	1	+24V	24V DC	YA	1	+24V	24V DC
	2	NC	Unused		2	NC	Unused
	3	NC	Unused		3	NC	Unused
	4	Y2	Output 2		4	YA	Output 10
Y3	1	+24V	24V DC	YB	1	+24V	24V DC
	2	NC	Unused		2	NC	Unused
	3	NC	Unused		3	NC	Unused
	4	Y3	Output 3		4	YB	Output 11
Y4	1	+24V	24V DC	YC	1	+24V	24V DC
	2	NC	Unused		2	NC	Unused
	3	NC	Unused		3	NC	Unused
	4	Y4	Output 4		4	YC	Output 12
Y5	1	+24V	24V DC	YD	1	+24V	24V DC
	2	NC	Unused		2	NC	Unused
	3	NC	Unused		3	NC	Unused
	4	Y5	Output 5		4	YD	Output 13
Y6	1	+24V	24V DC	YE	1	+24V	24V DC
	2	NC	Unused		2	NC	Unused
	3	NC	Unused		3	NC	Unused
	4	Y6	Output 6		4	YE	Output 14
Y7	1	+24V	24V DC	YF	1	+24V	24V DC
	2	NC	Unused		2	NC	Unused
	3	NC	Unused		3	NC	Unused
	4	Y7	Output 7		4	YF	Output 15

PIN No.		ID	FUNCTION	PIN No.		ID	FUNCTION
Y10	1	+24V	24V DC	Y18	1	+24V	24V DC
	2	NC	Unused		2	NC	Unused
	3	NC	Unused		3	NC	Unused
	4	Y10	Output 16		4	Y18	Output 24
Y11	1	+24V	24V DC	Y19	1	+24V	24V DC
	2	NC	Unused		2	NC	Unused
	3	NC	Unused		3	NC	Unused
	4	Y11	Output 17		4	Y19	Output 25
Y12	1	+24V	24V DC	Y1A	1	+24V	24V DC
	2	NC	Unused		2	NC	Unused
	3	NC	Unused		3	NC	Unused
	4	Y12	Output 18		4	Y1A	Output 26
Y13	1	+24V	24V DC	Y1B	1	+24V	24V DC
	2	NC	Unused		2	NC	Unused
	3	NC	Unused		3	NC	Unused
	4	Y13	Output 19		4	Y1B	Output 27
Y14	1	+24V	24V DC	Y1C	1	+24V	24V DC
	2	NC	Unused		2	NC	Unused
	3	NC	Unused		3	NC	Unused
	4	Y14	Output 20		4	Y1C	Output 28
Y15	1	+24V	24V DC	Y1D	1	+24V	24V DC
	2	NC	Unused		2	NC	Unused
	3	NC	Unused		3	NC	Unused
	4	Y15	Output 21		4	Y1D	Output 29
Y16	1	+24V	24V DC	Y1E	1	+24V	24V DC
	2	NC	Unused		2	NC	Unused
	3	NC	Unused		3	NC	Unused
	4	Y16	Output 22		4	Y1E	Output 30
Y17	1	+24V	24V DC	Y1F	1	+24V	24V DC
	2	NC	Unused		2	NC	Unused
	3	NC	Unused		3	NC	Unused
	4	Y17	Output 23		4	Y1F	Output 31

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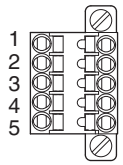
■ **POWER SUPPLY, SENSOR EXCITATION**
Cable connector: TFMC1,5 / 5–STF–3,5
(Phoenix Contact) (included in the package)
Applicable wire size: 0.2 – 1.5 mm²; stripped length 10 mm
Recommended solderless terminal
• AI0,25–10YE 0.25 mm² (Phoenix Contact)
• AI0,34–10TQ 0.34 mm² (Phoenix Contact)
• AI0,5–10WH 0.5 mm² (Phoenix Contact)
• AI0,75–10GY 0.75 mm² (Phoenix Contact)
• A1–10 1.0 mm² (Phoenix Contact)
• A1,5–10 1.5 mm² (Phoenix Contact)

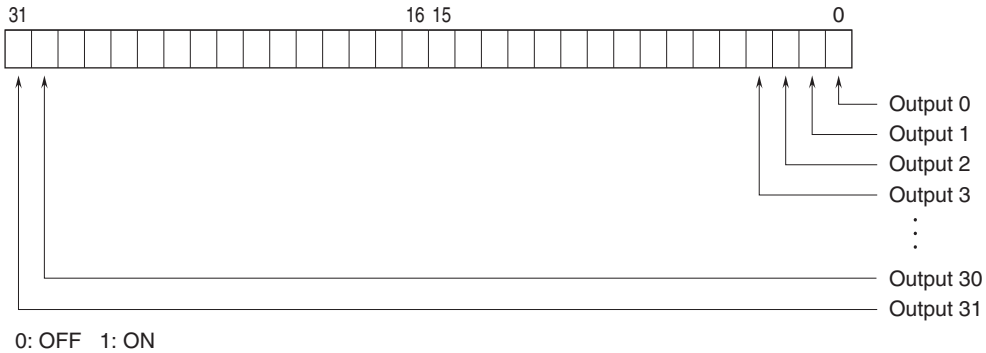


1. PWR+ Power Supply
2. PWR– Power Supply
3. FE Functional earth
4. SNSR.EXC+ Sensor excitation
5. SNSR.EXC– Sensor excitation

Note: The numbers marked on the connector have no relationship to the pin number of the unit.
Wire according to the instruction manual of the unit.

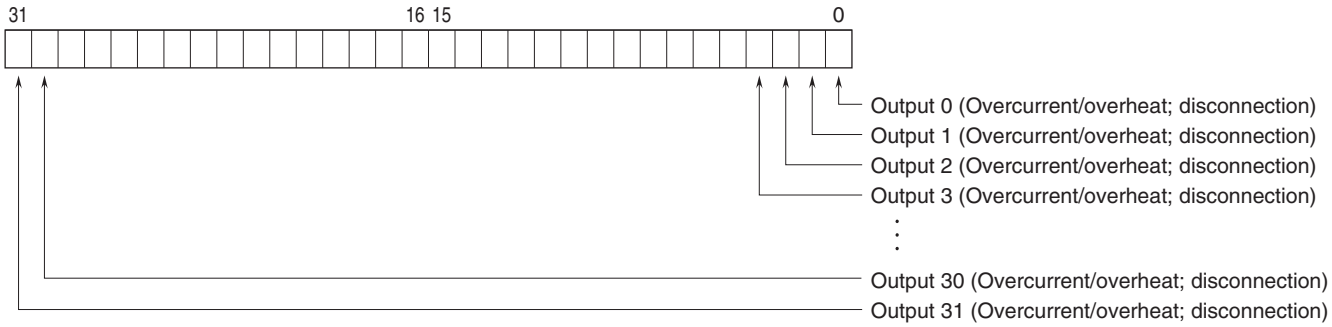
I/O DATA DESCRIPTIONS

■ **DISCRETE OUTPUT**



0: OFF 1: ON

■ **STATUS INPUT**



0: Normal
1: Detected the overcurrent/overheat and disconnection

Note: Status is disabled with option code: /D1 (without wire breakdown detection).

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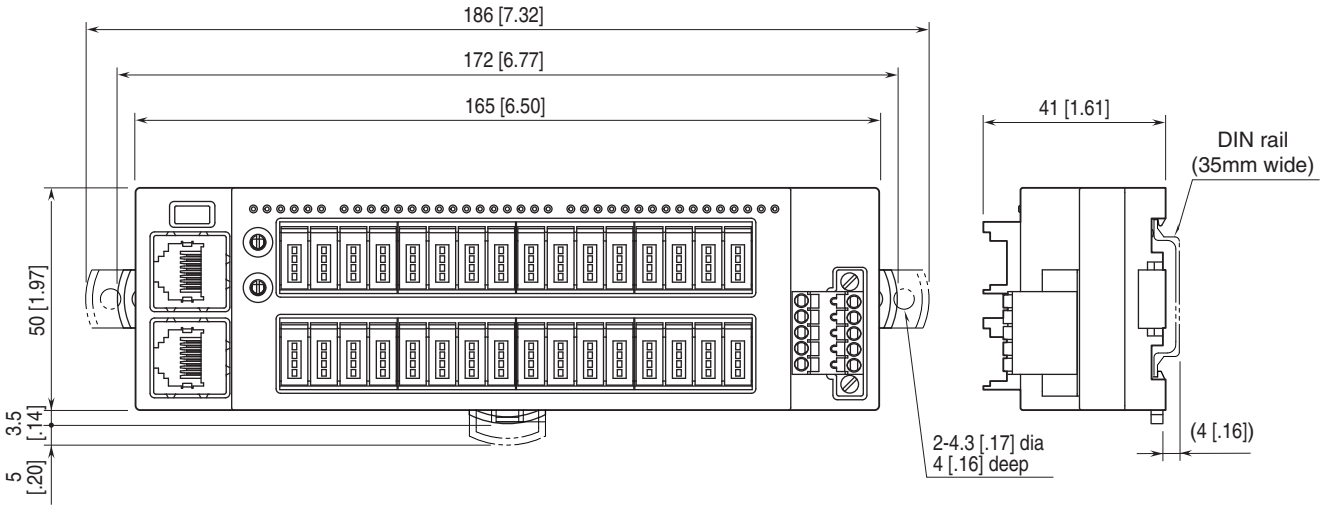
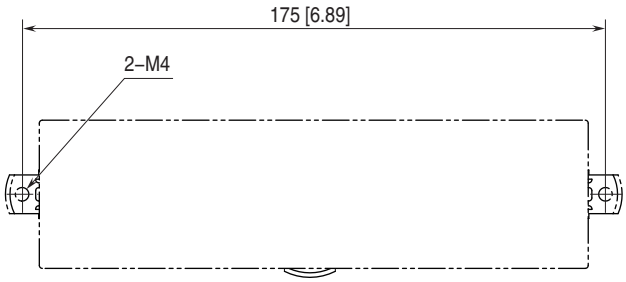
EXTERNAL DIMENSIONS unit: mm [inch]



MOUNTING REQUIREMENTS unit: mm [inch]



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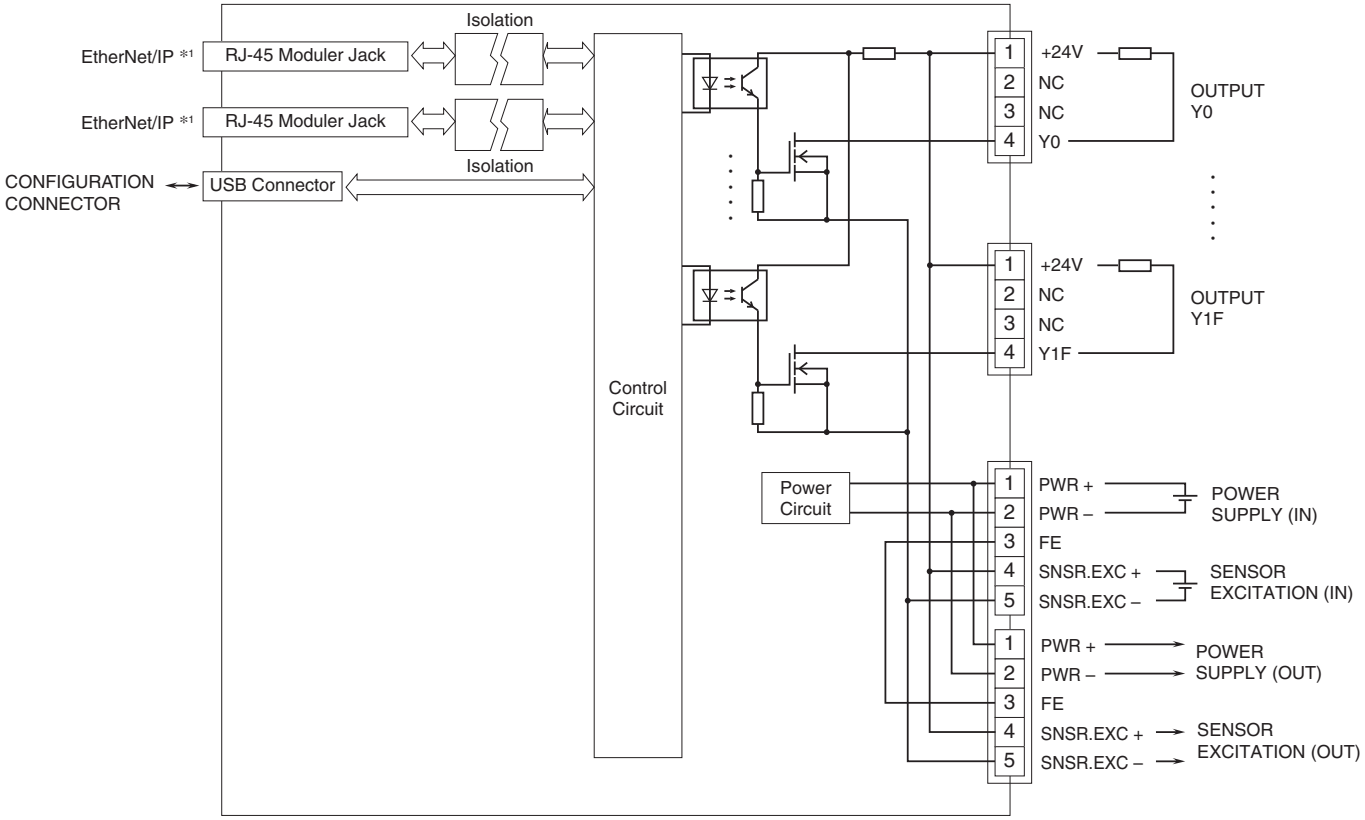
SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM

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

Caution: FE terminal is NOT a protective conductor terminal.



*1. The network cable can be connected to either one.

⚠ Specifications are subject to change without notice.

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