INSTRUCTION MANUAL

EtherNet/IP I/O MODULE
(NPN transistor output, 32 points, e-CON connector)

MODEL **R7I4DEIP-DC32A-1**

BEFORE USE ....

Thank you for choosing us. Before use, please check contents of the package you received as outlined below.
If you have any problems or questions with the product, please contact our sales office or representatives.

■ PACKAGE INCLUDES:

Discrete output module.....(1)
Surface mounter slider .....(2)

■ MODEL NO.

Confirm Model No. marking on the product to be exactly what you ordered.

■ INSTRUCTION MANUAL

This manual describes necessary points of caution when you use this product, including installation, connection and basic maintenance procedures.

■ EDS FILES

EDS files are downloadable from our website.

POINTS OF CAUTION

■ CONFORMITY WITH EU DIRECTIVE

- The equipment must be mounted inside the instrument panel of a metal enclosure.
- The actual installation environments such as panel configurations, connected devices, connected wires, may affect the protection level of this unit when it is integrated in a panel system. The user may have to review the CE requirements in regard to the whole system and employ additional protective measures* to ensure the CE conformity.
  * For example, installation of noise filters and clamp filters for the power source, input and output connected to the unit, etc.

■ POWER INPUT RATING & OPERATIONAL RANGE

- Locate the power input rating marked on the product and confirm its operational range as indicated below:
  24V DC rating: 24V ±10%, approx. 55mA

■ GENERAL PRECAUTIONS

- Before you remove the unit or mount it, turn off the power supply and output signal for safety.

■ ENVIRONMENT

- Indoor use.
- When heavy dust or metal particles are present in the air, install the unit inside proper housing with sufficient ventilation.
- Do not install the unit where it is subjected to continuous vibration. Do not subject the unit to physical impact.
- Environmental temperature must be within -10 to +55°C (14 to 131°F) with relative humidity within 30 to 90% RH in order to ensure adequate life span and operation.

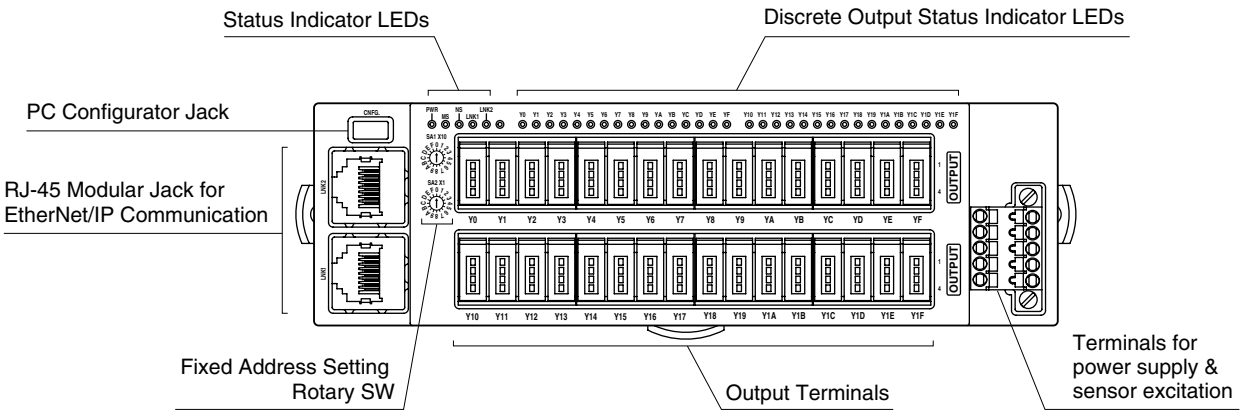
■ WIRING

- Do not install cables close to noise sources (relay drive cable, high frequency line, etc.).
- Do not bind these cables together with those in which noises are present. Do not install them in the same duct.

■ AND ....

- The unit is designed to function as soon as power is supplied, however, a warm up for 10 minutes is required for satisfying complete performance described in the data sheet.

COMPONENT IDENTIFICATION



■ STATUS INDICATOR LED

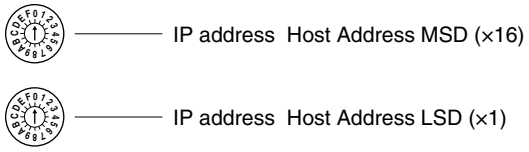
ID	STATUS	COLOR	FUNCTION
PWR	ON	Green	The internal power is supplied normally.
MS	ON	Green	Operating in a normal condition
	Blinking	Red	Duplicated IP address, Internal data error
NS	ON	Green	Link on-line and connections in the established state
	Blinking		Link on-line but no connections in the established state
	ON	Red	Duplicated IP address
	Blinking		Communication timeout
LNK1	ON	Green	LNK1 is established
LNK2	ON	Green	LNK2 is established

■ DISCRETE OUTPUT STATUS INDICATOR LED

LED green indicators shows the signal status.
ON : LED ON
OFF : LED OFF

■ IP ADDRESS

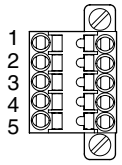
Set the host address (2-digit hexadecimal number) in the IP address using rotary switches SA1 and SA2 for the first digit and the second digit, respectively.
When using the host address in the IP address set on the PC configurator software (model: R7CFG), set the switches to '00H'.
When the network address, Subnet Mask, and Default Gateway need to be changed, do so on R7CFG.
(Setting range: 00H – FFH)
(Factory setting: 00H)



■ POWER SUPPLY AND SENSOR EXCITATION

Cable connector: TFMC1,5 / 5-STF-3,5
(Phoenix Contact) (included in the product 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)



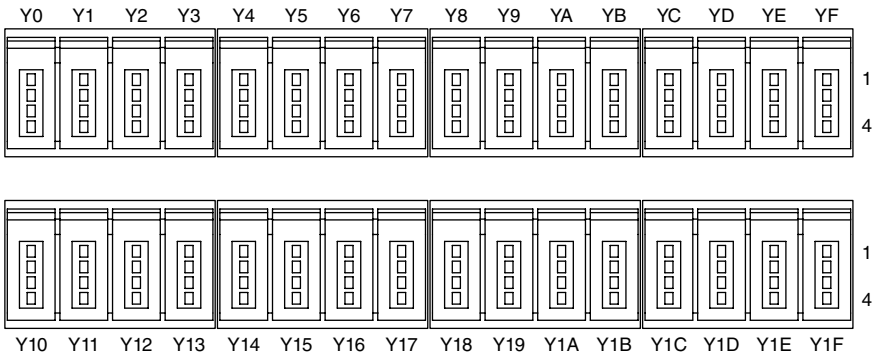
PIN No.	ID	FUNCTION
1	PWR+	Power Supply
2	PWR–	Power Supply
3	FE	Functional earth
4	SNSR.EXC+	Sensor excitation
5	SNSR.EXC–	Sensor excitation

Note: The number marked on the connector is irrelevant to the pin number of the unit.
Perform wiring according to this instruction manual.

■ OUTPUT TERMINAL ASSIGNMENTS

• e-CON connector

Recommended cable connector: 37104-( )-000FL (3M Company) (not included in the product package)
(Specify wire size instead of ( ); refer to manufacturer's specifications for details.)



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	YG	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

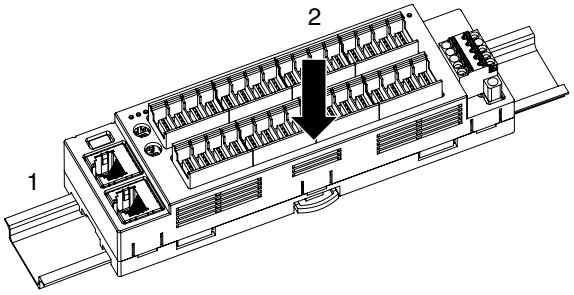
MOUNTING INSTRUCTIONS

■ DIN RAIL MOUNTING (PARALLEL)

• Mounting the unit

1) Hook the upper hook at the rear side of the base onto the DIN rail.

2) Push the lower part of the unit in the direction of the arrow until the base is firmly fixed to the DIN rail.

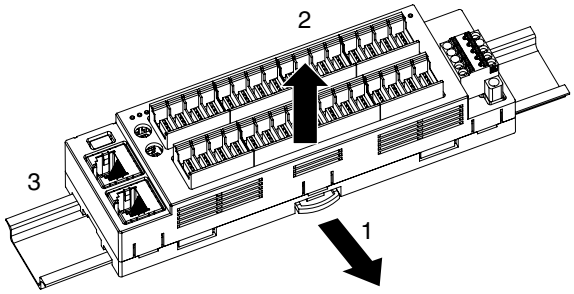


• Removing the unit

1) Push down the slider using a minus screwdriver.

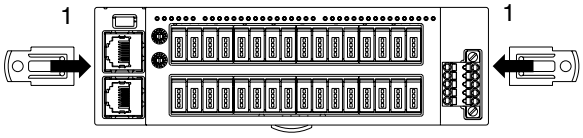
2) Pull out the lower part of the unit.

3) Remove the upper part of the unit from the DIN rail.

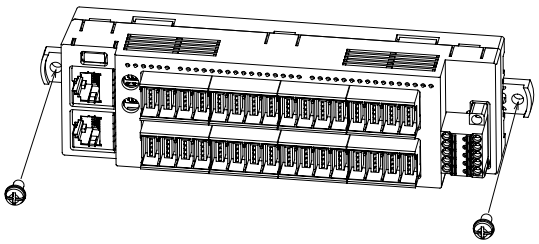


■ WALL MOUNTING

1) Insert the two DIN rail mounter sliders until they click once, as shown below.



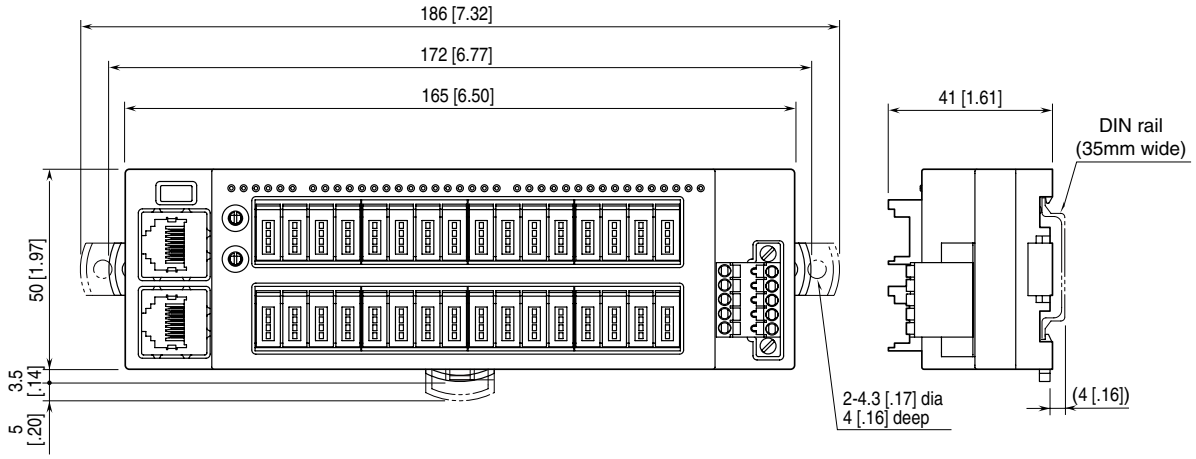
2) Mount the unit with M4 screws referring to the "MOUNTING REQUIREMENTS unit: mm [inch]" on page 5. (Torque: 1.4 N·m)



TERMINAL CONNECTIONS

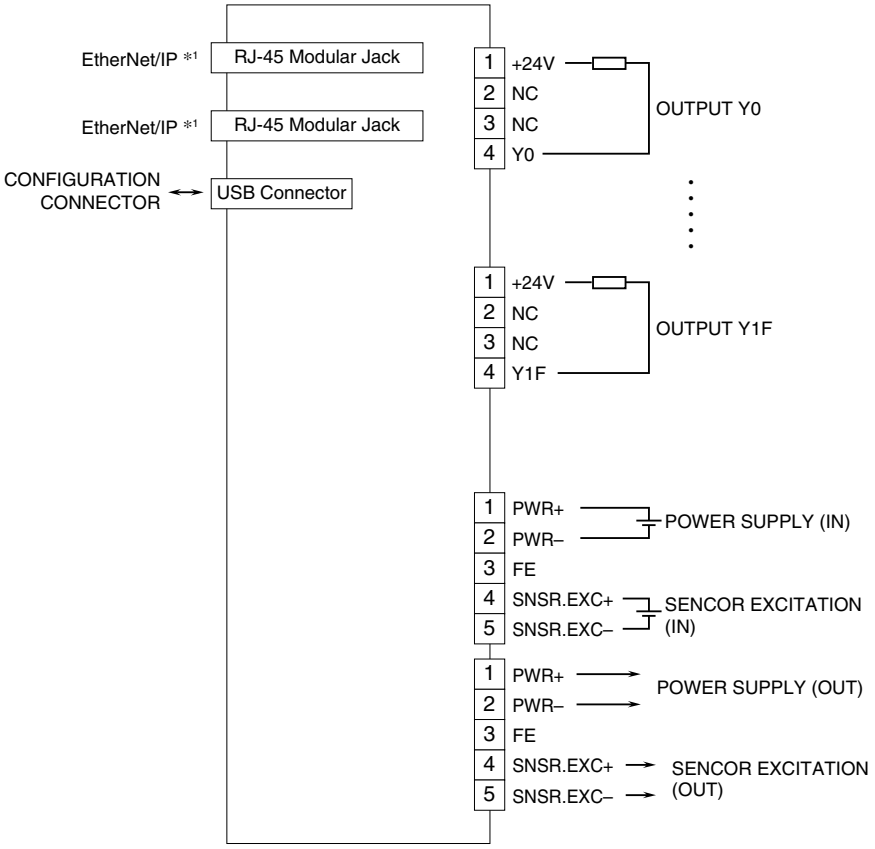
Connect the unit as in the diagram below.

■ EXTERNAL DIMENSIONS unit: mm [inch]



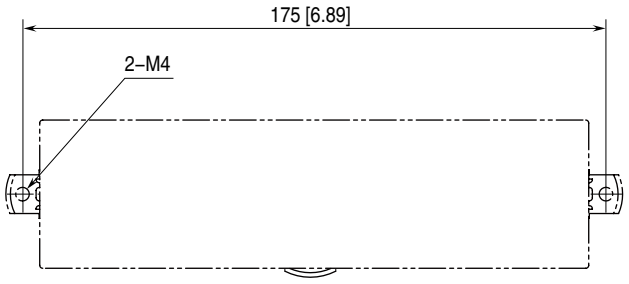
■ CONNECTION DIAGRAM

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.

MOUNTING REQUIREMENTS unit: mm [inch]



PC CONFIGURATOR

The following parameter items can be configured with the PC configurator software (model: R7CFG). Refer to the users manual of the software for detailed operations.

■ 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.)

CHECKING ETHERNET/IP CONNECTION

■ IP ADDRESS

Set the host address in the IP address using the front rotary switches.
When using the host address in the IP address set on the PC configurator software (model:R7CFG), set the switches to '00H'.
When the network address, Subnet Mask, and Default Gateway need to be changed, do so on R7CFG.

■ CHECK WIRING

Connect an Ethernet cable to the front RJ-45 modular jack.
To configure a DLR (Device Level Ring) network, perform wiring so as to form a ring topology.
The DLR network requires at least one node as a ring supervisor.
The customer shall prepare one or more ring supervisors separately as the R7I4DEIP unit does not function as one.

■ CHECK LED

When wiring is correct, LNK1 or LNK2 is turned on.

■ CHECK R7I4DEIP CONNECTION

Enter "ping command" on the Windows command prompt as follows:

C:¥WINDOWS>ping ***.***.***.***
(***.***.***.***: Enter IP address in decimal.)

ping ***.***.***.*** with 32 bytes of data:
Reply from ***.***.***.*** : bytes=32 time<10ms TTL=64
Reply from ***.***.***.*** : bytes=32 time<10ms TTL=64
Reply from ***.***.***.*** : bytes=32 time<10ms TTL=64
Reply from ***.***.***.*** : bytes=32 time<10ms TTL=64

Ping statistics for ***.***.***.***
Packets:Sent=4,Received=4,Lost=0(0% loss)

Replies in case of normal connection are as shown above. If the connection cannot be established normally due to e.g. wrong IP address, other replies such as "time over" will be received.

■ CHECK CONNECTION TO THE APPLICATION SOFTWARE

Check Point 1: LINK LED

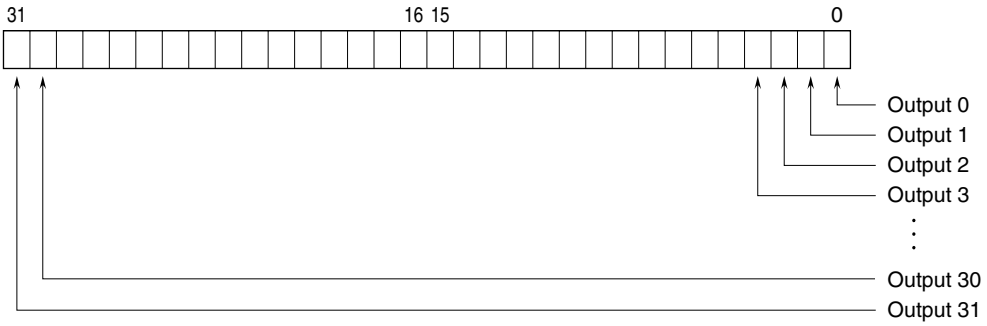
LNK1 or LNK2 turns on when the module has established normal connections with PC, PLC, hub, and so on, regardless of data sending/receiving status.
In the case that they are not on, check power supply to the hub.

Check Point 2: MS AND NS INDICATOR

When the module has transmitted/received data correctly to/from the application software, MS and NS indicators turn on in green.

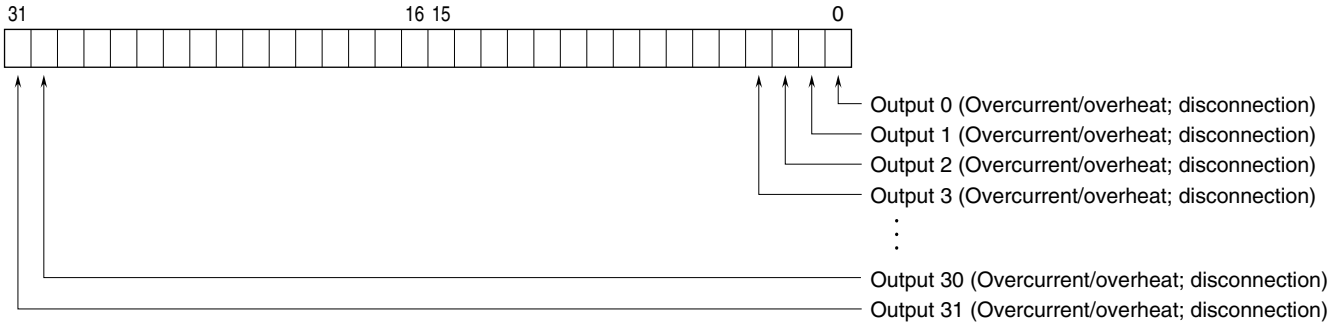
I/O DATA DESCRIPTIONS

■ **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).

When overcurrent or overheat is detected on each channel of discrete output while the output is ON, the status bit corresponding to the output turns "1" and is latched*. Then the discrete output is also latched to OFF.
To reset the latched bit and discrete output, set this output to OFF.
When disconnection (open load) is detected while output is OFF, the corresponding status bit turns "1" but is not latched.

* The status bit turns "0" if the load is opened in the state overcurrent or overheat is detected. However, the discrete output of the unit remains latched. Be sure to remove the cause of error and reset the latched output by setting the output to OFF or turning off/on the power supply.