

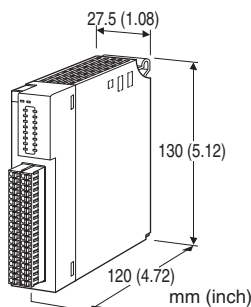
## Remote I/O R3 Series

### DISCRETE INPUT OUTPUT MODULE

(Di 8 points, Do 8 points)

#### Typical Applications

- Controls start/stop of field devices with ON/OFF control output
- Simplifies signal hold circuit of field devices
- Utilizing One-Shot Output reduces the load of PLC side.



### MODEL: R3S-DAC16[1]

#### ORDERING INFORMATION

- Code number: R3S-DAC16[1]
- Specify a code from below for [1].  
(e.g. R3S-DAC16W)

#### NO. OF CHANNELS

16: 16 points (8 input, 8 output)

#### [1] COMMUNICATION MODE

S: Single  
W: Dual

#### RELATED PRODUCTS

- Interface Module (model: R3-NC1, NC3, NE1, NM1, NDx, NFL1)
- Firmware version V2.00 or higher

#### GENERAL SPECIFICATIONS

##### Connection

**Internal bus:** Via the Installation Base (model: R3-BSx)

**I/O:** Separable tension clamp terminal

**Power supply:** Via the Installation Base (model: R3-BSx)

**Applicable wire size:** 0.2 to 1.25 mm<sup>2</sup>, stripped length 10 mm

**Isolation:** Input to output to internal power

**Output mode setting:** One-Shot Output Mode, ON/OFF

Control Output Mode, Continuance Output Mode selectable

with DIP switch

**Output data length:** 8bit, 4bit selectable with DIP switch  
(For ON/OFF Control Output Mode only)

**Output ON time:** 0.1 to 25.6 sec. selectable with DIP switch

**ON/OFF control output channel:** Swappable its pair with DIP switch.

**Output hold function:** Setting for communication error with side DIP SW

**RUN indicator:** Bi-color (red/green) LED;  
Red when the bus A operates normally;  
Green when the bus B operates normally;  
Amber when both buses operate normally.

**ERR indicator:** Bi-color (red/ green) LED;  
Green in normal operating conditions  
Red with the abnormal configuration

**Input status indicator:** Red LED; turns on with the inputs supplied.

**Output status indicator:** Red LED; turns on with the relays energized.

**Di read rate:** 1 / 5 / 10 / 20 / 50 / 70 / 100 / 200 msec.  
selectable with DIP SW

#### INPUT SPECIFICATIONS

**Number of input:** 8 points

**Isolation:** Optical isolator

**Input resistance:** Approx. 4.4 kΩ

**Common:** Positive or negative (NPN/PNP) common per 8 points (2 terminals)

**ON voltage/current:** ≥ 11 V, ≥ 2.5 mA

**OFF voltage/current:** ≤ 6 V, ≤ 1.3 mA

##### ■ Dry Contact input

**Rated input voltage:** 24 V DC +10/-15 % (ripple 5 %p-p max.)

##### ■ Wet Contact input

**Rated input voltage:** 24 V DC +10/-15 % (Square waveform)

#### OUTPUT SPECIFICATIONS

**Number of output:** 8 points

**Common:** All 8 points (2 terminals)

**Common current:** Max. 2 A (total of 2 terminals)

**Rated load:** 250 V AC @ 0.5 A (cos φ = 1)

30 V DC @ 0.5 A (resistive load)

**Maximum switching voltage:** 250 V AC or 30 V DC

**Maximum switching power:** 250 VA or 30 W

**Minimum load:** 1 V DC @ 1 mA

**Mechanical life:** 2 × 10<sup>7</sup> cycles (300 cycles/min.)

When driving an inductive load, external contact protection and noise quenching recommended.



**INSTALLATION**

**Operating temperature:** -10 to +55°C (14 to 131°F)  
**Operating humidity:** 30 to 90 %RH (non-condensing)  
**Atmosphere:** No corrosive gas or heavy dust  
**Mounting:** Installation Base (model: R3-BSx)  
**Weight:** 210 g (0.46 lb)

**PERFORMANCE**

**Output ON time accuracy:** ±10 % max. for 1 sec. or less setting; ±0.1 sec. max. for 1 sec. or more setting  
**Data allocation:** 1  
**Current consumption:** 130 mA  
**Insulation resistance:** ≥ 100 MΩ with 500 V DC  
**Dielectric strength:** 1500 V AC @ 1 minute (input to output to internal power)  
2000 V AC @ 1 minute (internal power to FG; isolated on the power supply module)

**FUNCTIONS**

■ **OUTPUT HOLD or OUTPUT OFF**

Selectable with DIP switch setting.

• **Output Hold**

If the internal bus is in error, the module holds the signal and stands by until the communication recovers.

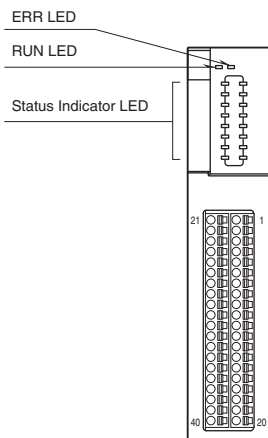
• **Output OFF**

If the internal bus is in error, the module outputs all OFF and stands by until the communication recovers.

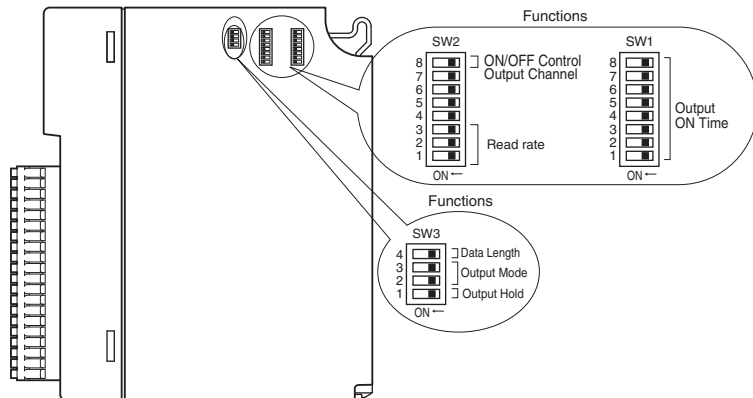
At the startup, it outputs OFF until the communication is established and normal data is received.

**EXTERNAL VIEW**

■ **FRONT VIEW**



■ **SIDE VIEW**



## I/O DATA DESCRIPTIONS

### ■ ONE-SHOT OUTPUT MODE

8-bit output data (Do 1 through 8) and output (Ch1 through 8) are assigned 1:1.

Do	WRITE	ONE-SHOT OUTPUT/RESET	Di	OUTPUT COMPLETION STATUS
Do 1	1	Ch1 Output	Di 9	Ch1 Output Completion Status
	0	Ch1 Output Completion Reset		
Do 2	1	Ch2 Output	Di 10	Ch2 Output Completion Status
	0	Ch2 Output Completion Reset		
Do 3	1	Ch3 Output	Di 11	Ch3 Output Completion Status
	0	Ch3 Output Completion Reset		
Do 4	1	Ch4 Output	Di 12	Ch4 Output Completion Status
	0	Ch4 Output Completion Reset		
Do 5	1	Ch5 Output	Di 13	Ch5 Output Completion Status
	0	Ch5 Output Completion Reset		
Do 6	1	Ch6 Output	Di 14	Ch6 Output Completion Status
	0	Ch6 Output Completion Reset		
Do 7	1	Ch7 Output	Di 15	Ch7 Output Completion Status
	0	Ch7 Output Completion Reset		
Do 8	1	Ch8 Output	Di 16	Ch8 Output Completion Status
	0	Ch8 Output Completion Reset		



■ ON/OFF CONTROL OUTPUT MODE

• Data Length: 8 bits

Do 1 through 8 are assigned to Ch1 through 8.

Do	WRITE	ONE-SHOT OUTPUT/RESET	Di	OUTPUT COMPLETION STATUS
Do 1 Do 2	0 0	Not Operating		
	1 0	Ch1 Output	Di 9	Ch1 Output Completion Status
	0 1	Ch2 Output	Di 10	Ch2 Output Completion Status
	1 1	Output Data Reset		
Do 3 Do 4	0 0	Not Operating		
	1 0	Ch3 Output	Di 11	Ch3 Output Completion Status
	0 1	Ch4 Output	Di 12	Ch4 Output Completion Status
	1 1	Output Data Reset		
Do 5 Do 6	0 0	Not Operating		
	1 0	Ch5 Output	Di 13	Ch5 Output Completion Status
	0 1	Ch6 Output	Di 14	Ch6 Output Completion Status
	1 1	Output Data Reset		
Do 7 Do 8	0 0	Not Operating		
	1 0	Ch7 Output	Di 15	Ch7 Output Completion Status
	0 1	Ch8 Output	Di 16	Ch8 Output Completion Status
	1 1	Output Data Reset		

The above table shows the case of Not Swapped (SW2-8: OFF). ON/OFF control output is swapped with its pair when SW2-8 is ON. The following is an example of Do1 and Do2.

Do	WRITE	ONE-SHOT OUTPUT/RESET	Di	OUTPUT COMPLETION STATUS
Do 1 Do 2	0 0	Not Operating		
	1 0	Ch2 Output	Di 10	Ch2 Output Completion Status
	0 1	Ch1 Output	Di 9	Ch1 Output Completion Status
	1 1	Output Data Reset		

• Data Length: 4 bits

Do 1 through 4 are assigned to Ch1 through 8 as 1:2.

Do	WRITE	ONE-SHOT OUTPUT/RESET	Di	OUTPUT COMPLETION STATUS
Do 1	0	Ch1 Output	Di 9	Ch1 Output Completion Status
	1	Ch2 Output	Di 10	Ch2 Output Completion Status
Do 2	0	Ch3 Output	Di 11	Ch3 Output Completion Status
	1	Ch4 Output	Di 12	Ch4 Output Completion Status
Do 3	0	Ch5 Output	Di 13	Ch5 Output Completion Status
	1	Ch6 Output	Di 14	Ch6 Output Completion Status
Do 4	0	Ch7 Output	Di 15	Ch7 Output Completion Status
	1	Ch8 Output	Di 16	Ch8 Output Completion Status

The above table shows the case of Not Swapped (SW2-8: OFF). ON/OFF control output is swapped with its pair when SW2-8 is ON. The following is an example of Do1.

Do	WRITE	ONE-SHOT OUTPUT/RESET	Di	OUTPUT COMPLETION STATUS
Do 1	0	Ch2 Output	Di 10	Ch2 Output Completion Status
	1	Ch1 Output	Di 9	Ch1 Output Completion Status



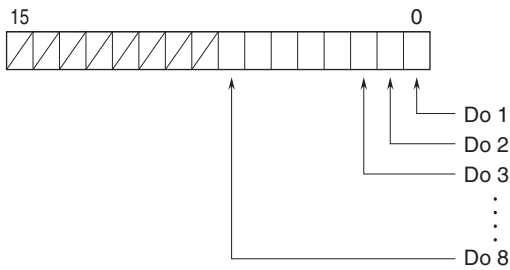
## CONTINUANCE OUTPUT MODE

Do 1 through 8 are assigned to and Ch1 through 8. When data Do is “1” output is ON (energized) and when it is “0” output is OFF (de-energized). Output completion status Di is related to Do.

Do	CONTINUANCE OUTPUT	Di	OUTPUT COMPLETION STATUS
Do 1	Ch1 Output	Di 9	Ch1 Output Completion Status
Do 2	Ch2 Output	Di 10	Ch2 Output Completion Status
Do 3	Ch3 Output	Di 11	Ch3 Output Completion Status
Do 4	Ch4 Output	Di 12	Ch4 Output Completion Status
Do 5	Ch5 Output	Di 13	Ch5 Output Completion Status
Do 6	Ch6 Output	Di 14	Ch6 Output Completion Status
Do 7	Ch7 Output	Di 15	Ch7 Output Completion Status
Do 8	Ch8 Output	Di 16	Ch8 Output Completion Status

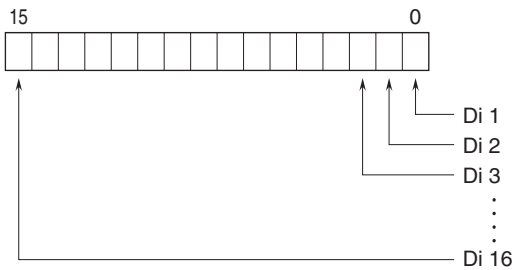
## DATA ASSIGNMENT

### Do



Note. For 4-bit length ON/OFF control mode, Do 5 through Do 8 are unavailable.

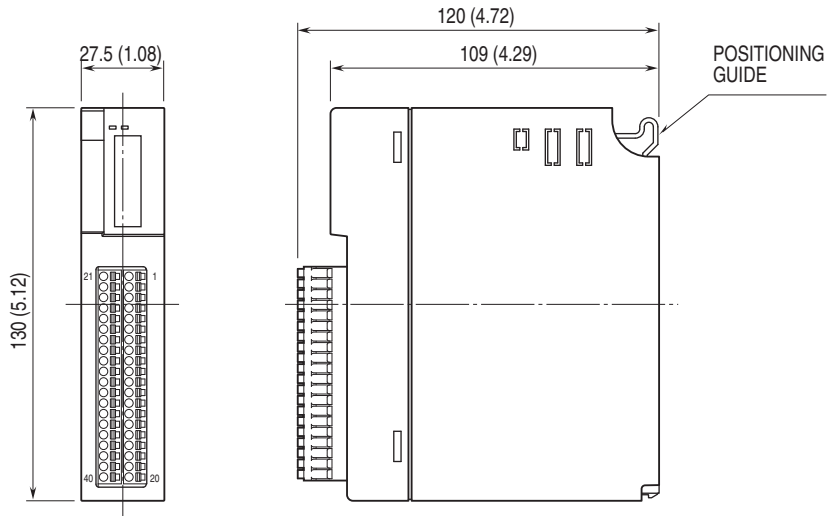
### Di



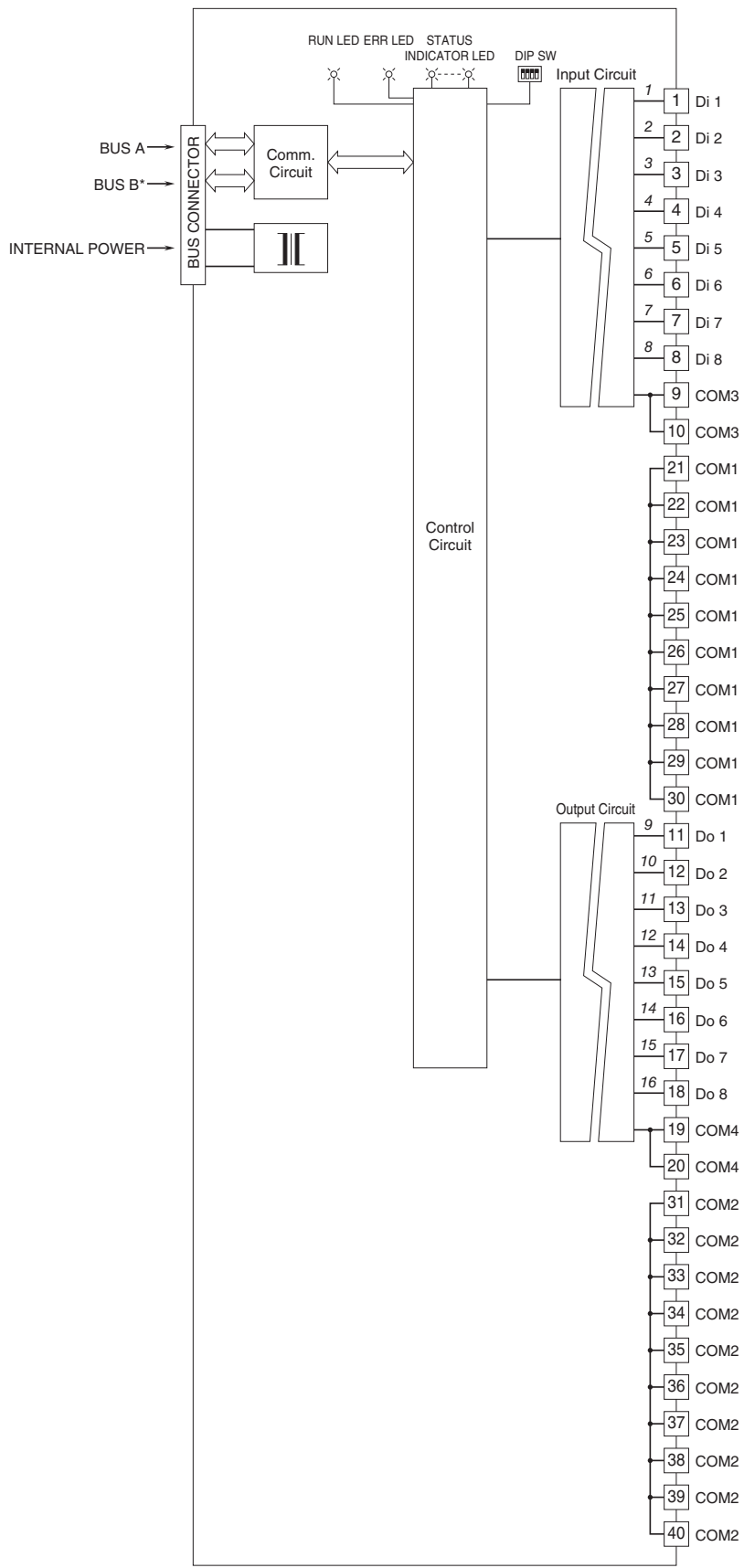
Note. Di 9 – 16 data is not practical discrete input data. It is “output completion status” internal data.



**EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm (inch)**



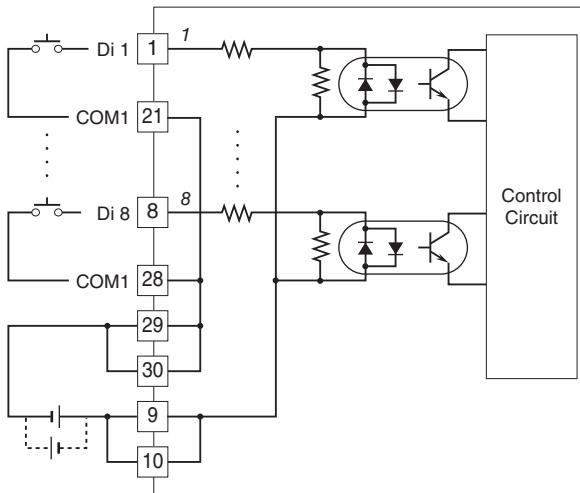
**SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM**



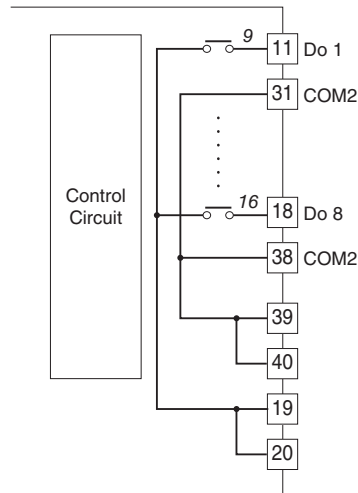
\* For dual redundant communication.  
Numbers in italic indicate LED No.s assigned to the front panel LEDs.



## Input Circuit

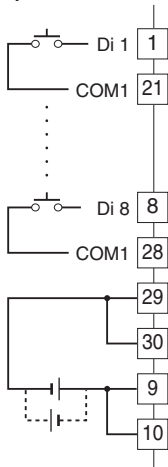


## Output Circuit

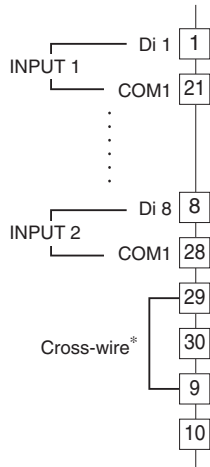


## Input Connection Example

• Dry Contact



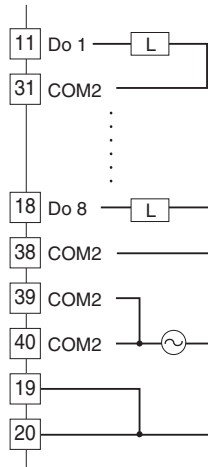
• Wet Contact



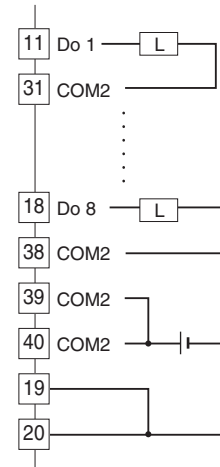
\* Cross-wire between terminals 29 or 30 and 9 or 10 for wet contact.

## Output Connection Example

• AC Power



• DC Power



## I/O TERMINAL PIN ASSIGNMENT

PIN No.	FUNCTION	PIN No.	FUNCTION
21	COM1	1	Di 1
22	COM1	2	Di 2
23	COM1	3	Di 3
24	COM1	4	Di 4
25	COM1	5	Di 5
26	COM1	6	Di 6
27	COM1	7	Di 7
28	COM1	8	Di 8
29	COM1	9	COM3
30	COM1	10	COM3
31	COM2	11	Do 1
32	COM2	12	Do 2
33	COM2	13	Do 3
34	COM2	14	Do 4
35	COM2	15	Do 5
36	COM2	16	Do 6
37	COM2	17	Do 7
38	COM2	18	Do 8
39	COM2	19	COM4
40	COM2	20	COM4







Specifications are subject to change without notice.

