Devicenet® I/O MODULE

(PNP discrete input, PNP discrete output, 8 points each, tension clamp terminal block)

MODEL **R7F4DD-DAC16D-C**

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 I/O module ....(1)
DIN rail 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 FILE

EDS files are downloadable at our web site.

POINTS OF CAUTION

■ CONFORMITY WITH EU DIRECTIVES

• 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.

■ GENERAL PRECAUTIONS

• Before you remove the unit or mount it, turn off the power supply and I/O signal for safety.
• Before you remove the terminal block or mount it, make sure to turn off the power supply and I/O signal for safety.
• DO NOT set the switches on the module while the power is supplied. The switches are used only for maintenance without the power.

■ 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.
• Observe at the minimum of 10 mm left and right the units for heat dissipation when mounting vertically.
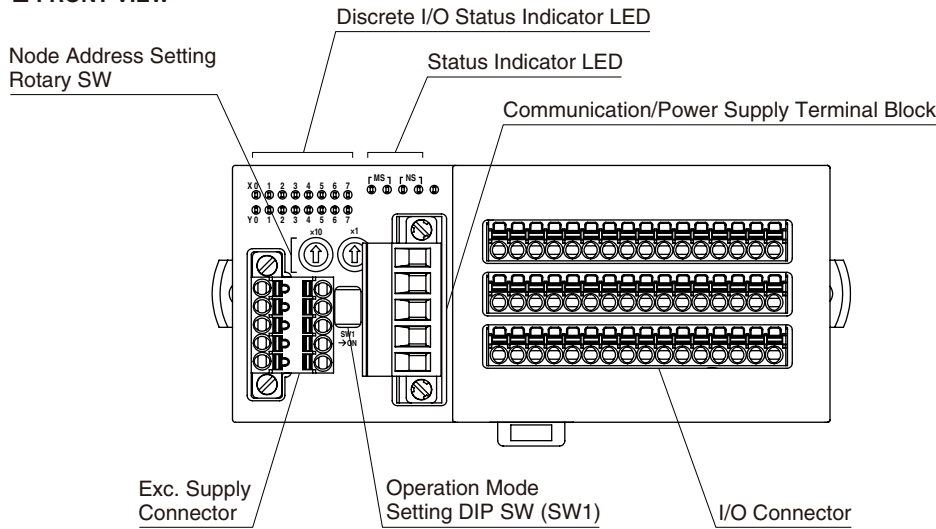
■ WIRING

• 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.
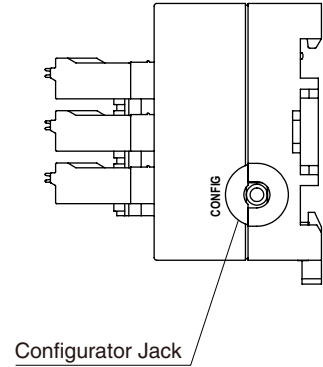
■ AND ....

• 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.

DeviceNet is registered trademark of ODVA.

COMPONENT IDENTIFICATION

■ **FRONT VIEW**

■ **SIDE VIEW**

Discrete I/O Status Indicator LED

Status Indicator LED

Node Address Setting
Rotary SW

Communication/Power Supply Terminal Block

Exc. Supply
Connector

Operation Mode
Setting DIP SW (SW1)

I/O Connector

Configurator Jack

■ STATUS INDICATOR LED

| ID	STATUS	COLOR	FUNCTION
MS	ON	Green	Normal operation
	Blinking	Green	Not set
	ON	Red	Critical failure
	Blinking	Red	Minor faiure
	OFF	–	No power supply
NS	ON	Green	Connections are established
	Blinking	Green	Connections are not established
	ON	Red	Critical Link failure
	Blinking	Red	Minor Link failure
	OFF	–	No power supply

■ DISCRETE INPUT STATUS INDICATOR LED

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

■ NODE ADDRESS

The left switch determines the tenth place digit, while the
right switch does the ones place digit of the address.
Address is selected between 0 to 63.
(Factory setting: 00)

Factory setting : 00

Node Address Setting (x1)

Node Address Setting (x10)
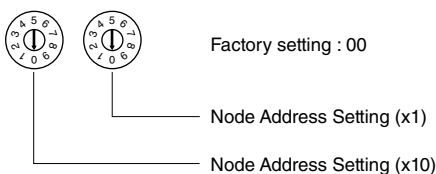
■ OPERATION MODE

(*) Factory default setting

• BAUD RATE (SW1-1, 1-2)

Baud Rate is selected with the rotary switch.

BAUD RATE	SW1	
	1	2
125 kbps	OFF	OFF
250 kbps	ON	OFF
500 kbps	OFF	ON
Auto-tracking (*)	ON	ON

• STATUS (SW1-3)

Status	SW1
	3
Without(*)	OFF
With	ON

• OUTPUT AT THE LOSS OF COMMUNICATION (SW1-4)

Output at the loss of communication	SW1
	4
Hold the output (*) (maintains the last data received normally)	OFF
Reset the output (turned off)	ON

Note: The R7F4DD communicates in the baud rate setting
      detected at the startup with the switch set to the posi-
      tions 0 (125 kbps), 1 (250 kbps) or 2 (500 kbps). For the
      settings auto-tracking, it analyzes the PLC's network
      to determine the baud rate on the network.

■**TERMINAL ASSIGNMENT**
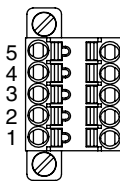
• **Devicenet Terminal Assignment**

Unit side connector: MSTB2,5/5-GF-5,08AU (Phoenix contact)
Cable side connector: MSTB2,5/5-STF-5,08AU (Phoenix contact)
Applicable wire size: 0.2 - 2.5mm^2
Stripped length: 7mm
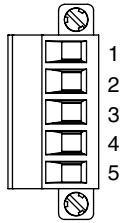
| PIN NO.	COLOR	ID	FUNCTION
1	Red	V+	Network power supply (+)
2	White	CAN_H	Network data High
3	–	Drain	Shield
4	Blue	CAN_L	Network data Low
5	Black	V–	Network power supply (-)

• **Exc. supply Termianl Assignment**

Unit side connector: MCV1,5/5-GF-3,5 (Phoenix contact)
Cable side connector: TFMC1,5/5-STF-3,5 (Phoenix contact)
Applicable wire size: 0.2 - 1.5mm^2
Stripped length: 10mm
Recommended solderless terminal:
AI0,25-10YE 0.25mm^2 (Phoenix contact)
AI0,34-10TQ 0.34mm^2 (Phoenix contact)
AI0,5-10WH 0.5mm^2 (Phoenix contact)
AI0,75-10GY 0.75mm^2 (Phoenix contact)
AI1-10 1.0mm^2 (Phoenix contact)
AI1,5-10 1.5mm^2 (Phoenix contact)

PIN NO.	ID	FUNCTION
1	SNSR.EXC1 +	Exc. supply 1 + (input)
2	SNSR.EXC1 –	Exc. supply 1 – (input)
3	NC	Unused
4	SNSR.EXC2 +	Exc. supply 2 + (output)
5	SNSR.EXC2 –	Exc. supply 2 – (output)

• **I/O Termianal Assignment**

Unit side connector: MCV1,5/16-G-3,5 (Phoenix contact)
Cable side connector: FMC1,5/16-ST-3,5 (Phoenix contact)
Applicable wire size: 0.2 - 1.5mm^2
Stripped length: 10mm
Recommended solderless terminal:
AI0,25-10YE 0.25mm^2 (Phoenix contact)
AI0,34-10TQ 0.34mm^2 (Phoenix contact)
AI0,5-10WH 0.5mm^2 (Phoenix contact)
AI0,75-10GY 0.75mm^2 (Phoenix contact)
AI1-10 1.0mm^2 (Phoenix contact)
AI1,5-10 1.5mm^2 (Phoenix contact)
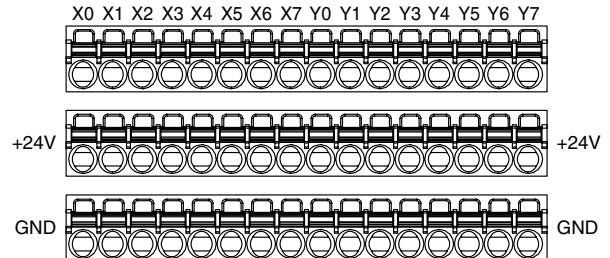
PIN NO.		ID	FUNCTION	PIN NO.		ID	FUNCTION
X0	1	X0	Input 0	Y0	1	Y0	Output 0
	2	+24V	24V DC		2	+24V	24V DC
	3	GND	0V		3	GND	0V
X1	1	X1	Input 1	Y1	1	Y1	Output 1
	2	+24V	24V DC		2	+24V	24V DC
	3	GND	0V		3	GND	0V
X2	1	X2	Input 2	Y2	1	Y2	Output 2
	2	+24V	24V DC		2	+24V	24V DC
	3	GND	0V		3	GND	0V
X3	1	X3	Input 3	Y3	1	Y3	Output 3
	2	+24V	24V DC		2	+24V	24V DC
	3	GND	0V		3	GND	0V
X4	1	X4	Input 4	Y4	1	Y4	Output 4
	2	+24V	24V DC		2	+24V	24V DC
	3	GND	0V		3	GND	0V
X5	1	X5	Input 5	Y5	1	Y5	Output 5
	2	+24V	24V DC		2	+24V	24V DC
	3	GND	0V		3	GND	0V
X6	1	X6	Input 6	Y6	1	Y6	Output 6
	2	+24V	24V DC		2	+24V	24V DC
	3	GND	0V		3	GND	0V
X7	1	X7	Input 7	Y7	1	Y7	Output 7
	2	+24V	24V DC		2	+24V	24V DC
	3	GND	0V		3	GND	0V

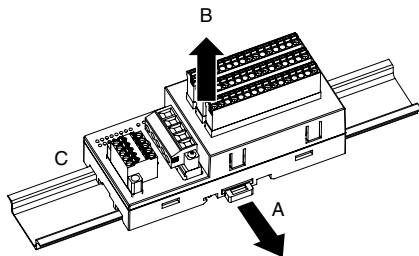# MOUNTING INSTRUCTIONS

■ DIN RAIL MOUNTING (PARALLEL)

• Mounting

1) Set the upper hook at the rear side of the unit on the DIN rail.
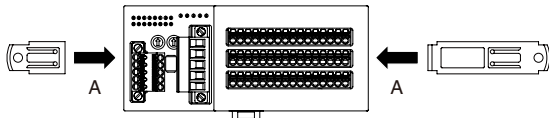2) Push the lower part in.
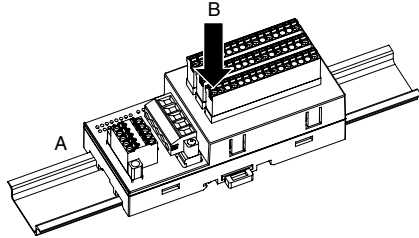
• Dismounting

1) Push down the DIN rail mounter slider with the tip of a flat-blade screwdriver.
2) Pull the lower part of the unit.
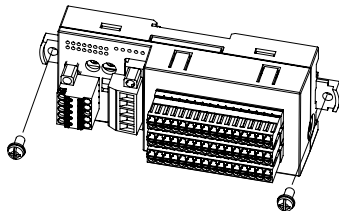3) Remove the upper hook of the unit from the DIN rail.

■ SURFACE MOUNTING

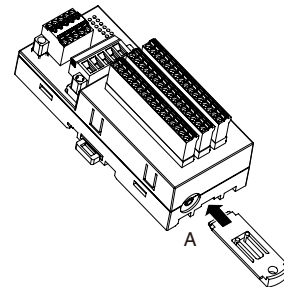1) Insert the two DIN rail mounter sliders until it clicks once, as shown below.

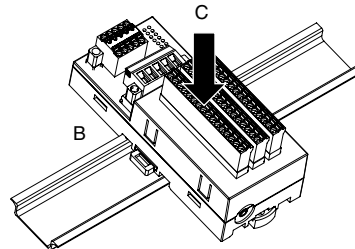2) Mount the unit with M4 screws referring to the External Dimensions. (Torque: 1.4 N·m)

■ DIN RAIL MOUNTING (RIGHT ANGLE)

• Mounting

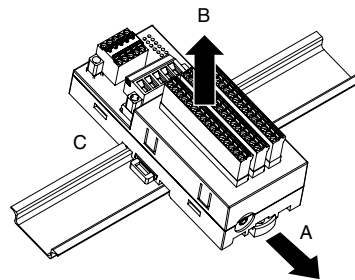1) Insert the longer DIN rail mounter slider until it clicks twice, as shown below.

2) Set the upper hook at the rear side of the unit on the DIN rail.
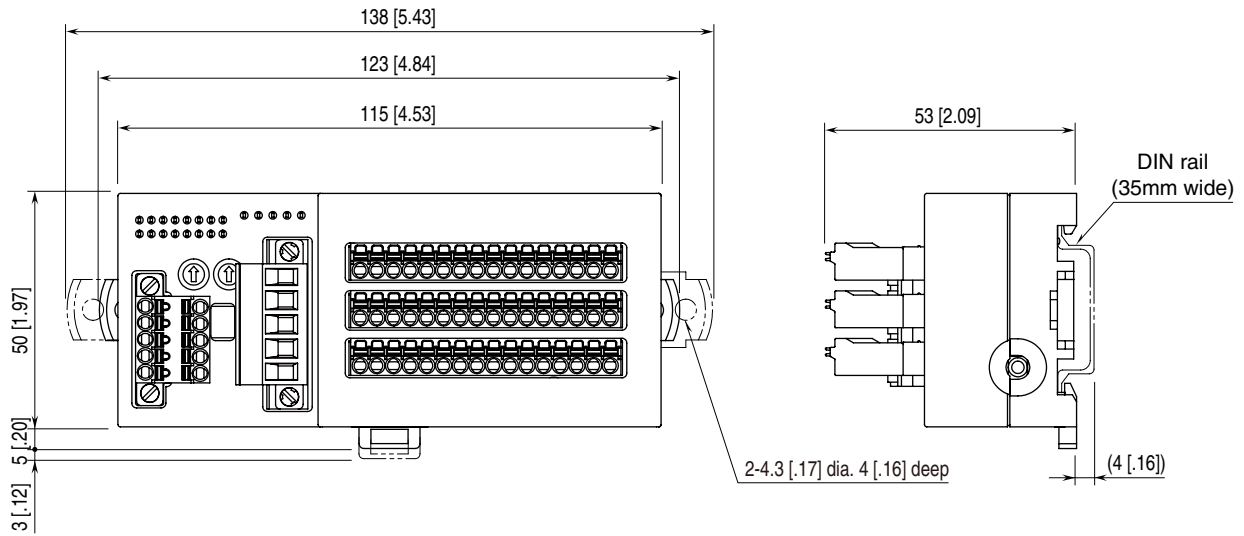3) Push the lower part in.

• Dismounting

1) Push down the DIN rail mounter slider with the tip of a flat-blade screwdriver.
2) Pull the lower part of the unit.
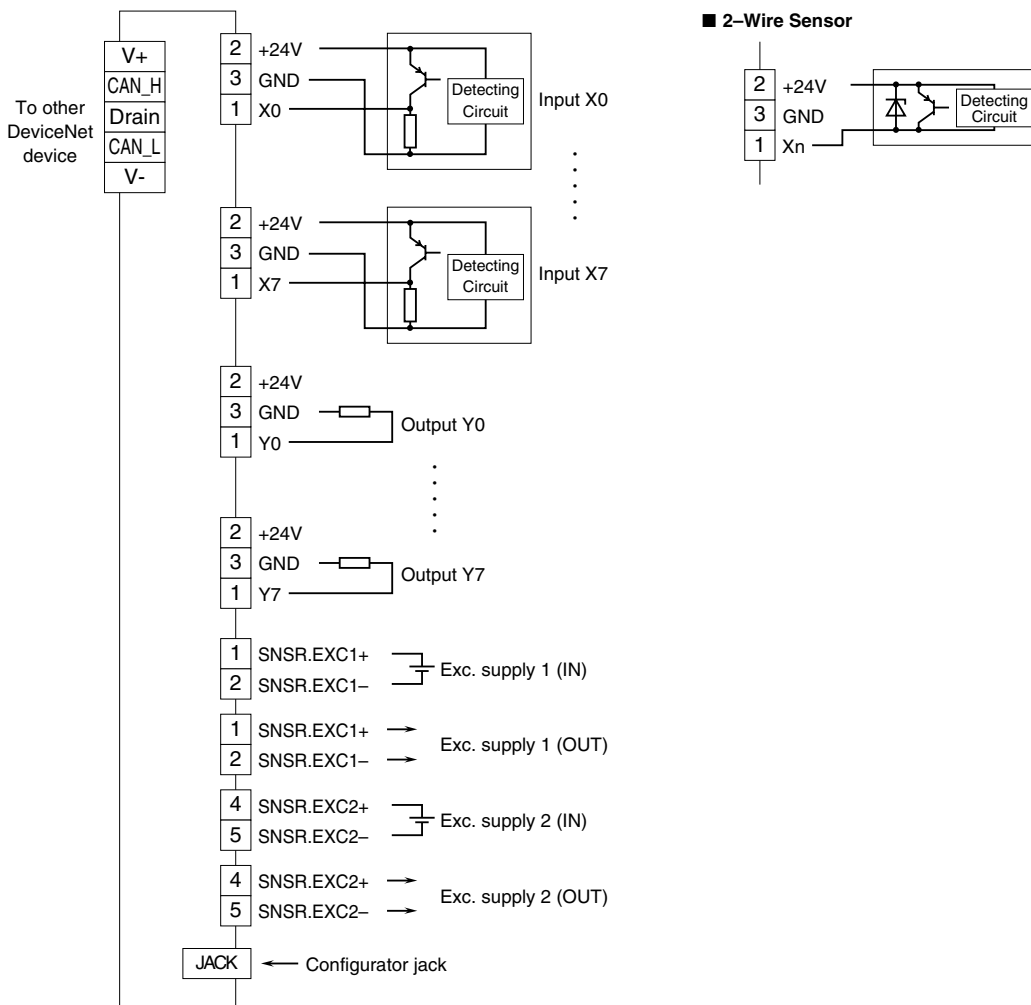3) Remove the upper hook of the unit from the DIN rail.

TERMINAL CONNECTIONS

Connect the unit as in the diagram below.

■ EXTERNAL DIMENSIONS unit: mm [inch]

138 [5.43]
123 [4.84]
115 [4.53]
50 [1.97]
5 [.20]
3 [.12]

53 [2.09]

DIN rail (35mm wide)

2-4.3 [.17] dia. 4 [.16] deep

(4 [.16])

■ CONNECTION DIAGRAM

To other DeviceNet device

V+
CAN_H
Drain
CAN_L
V-

2	+24V
3	GND
1	X0

Detecting Circuit — Input X0

2	+24V
3	GND
1	X7

Detecting Circuit — Input X7

2	+24V
3	GND
1	Y0

Output Y0

2	+24V
3	GND
1	Y7

Output Y7

| 1 | SNSR.EXC1+ |
| 2 | SNSR.EXC1− |

Exc. supply 1 (IN)

| 1 | SNSR.EXC1+ |
| 2 | SNSR.EXC1− |

Exc. supply 1 (OUT)

| 4 | SNSR.EXC2+ |
| 5 | SNSR.EXC2− |

Exc. supply 2 (IN)

| 4 | SNSR.EXC2+ |
| 5 | SNSR.EXC2− |

Exc. supply 2 (OUT)

JACK ← Configurator jack

■ 2–Wire Sensor

2	+24V
3	GND
1	Xn

Detecting Circuit

MOUNTING REQUIREMENTS unit: mm [inch]

125 [4.92]

2-M4
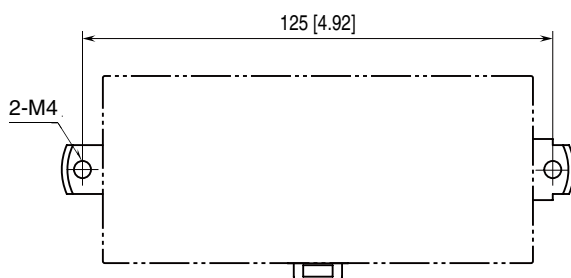
PC CONFIGURATOR

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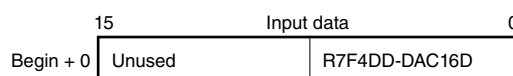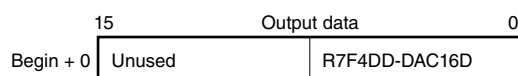Refer to the users manual of the software for detailed operations.

■INTERFACE SETTING

PARAMETER	SETTING RANGE	DEFAULT SETTING
Communication Timeout	0 – 32767 (0.1 sec.)	10 (0.1 sec.)

DATA ALLOCATION

'Begin' address is determined by the R7F4DD's node address and the master setting.

■ Without status

	15	Output data	0
Begin + 0	Unused		R7F4DD-DAC16D

	15	Input data	0
Begin + 0	Unused		R7F4DD-DAC16D

■ With status

	15	Output data	0
Begin + 0	Unused		R7F4DD-DAC16D
+1	Status		

	15	Input data	0
Begin + 0	Unused		R7F4DD-DAC16D
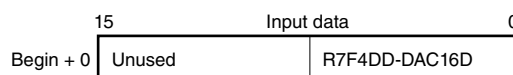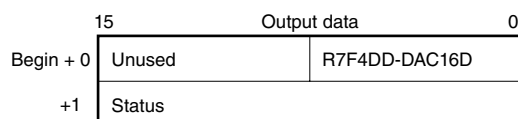
I/O DATA DESCRIPTION

■ DISCRETE I/O

```
 15                                    0
┌──┬──┬──┬──┬──┬──┬──┬──┬──┬──┬──┬──┬──┬──┬──┬──┐
└──┴──┴──┴──┴──┴──┴──┴──┴──┴──┴──┴──┴──┴──┴──┴──┘
```

Input 0	0: OFF / 1: ON
Input 1	0: OFF / 1: ON
Input 2	0: OFF / 1: ON
Input 3	0: OFF / 1: ON
⋮	⋮
Input 7	0: OFF/1: ON
Unused	
⋮	
Unused	

```
 15                                    0
┌──┬──┬──┬──┬──┬──┬──┬──┬──┬──┬──┬──┬──┬──┬──┬──┐
└──┴──┴──┴──┴──┴──┴──┴──┴──┴──┴──┴──┴──┴──┴──┴──┘
```

Output 0	0: OFF / 1: ON
Output 1	0: OFF / 1: ON
Output 2	0: OFF / 1: ON
Output 3	0: OFF / 1: ON
⋮	⋮
Output 7	0: OFF / 1: ON
Unused	
⋮	
Unused	

■ STATUS

```
 15        10 9  8                     0
┌──┬──┬──┬──┬──┬──┬──┬──┬──┬──┬──┬──┬──┬──┬──┬──┐
└──┴──┴──┴──┴──┴──┴──┴──┴──┴──┴──┴──┴──┴──┴──┴──┘
```

Unused	
⋮	
Unused	
Communication/power supply	0: Normal / 1: Voltage drops (≤ Approx. 16 V)
Exc. supply 1 (input)	0: Normal / 1: Voltage drops (≤ Approx. 16 V)
Exc. supply 2 (output)	0: Normal / 1: Voltage drops (≤ Approx. 16 V)
Unused	
⋮	
Unused	

TRANSMISSION DATA DESCRIPTIONS

■ **I/O DATA**

(Unit: word)

MODEL	OUTPUT DATA*1 (R7F4DD to master)	INPUT DATA*2 (master to R7F4DD)
R7F4DD-DAC16D	1	1

■ **STATUS**

Status signal can be included in the transmission data when the SW1-3 is ON.
For details, refer to "STATUS in I/O DATA DESCRIPTIONS".

(Unit: word)

STATUS	OUTPUT DATA*1 (R7F4DD to master)	INPUT DATA*2 (master to R7F4DD)
With	1	0
Without	0	0

*1. Output Data means those sent to the master.

*2. Input Data means those received from the master.