

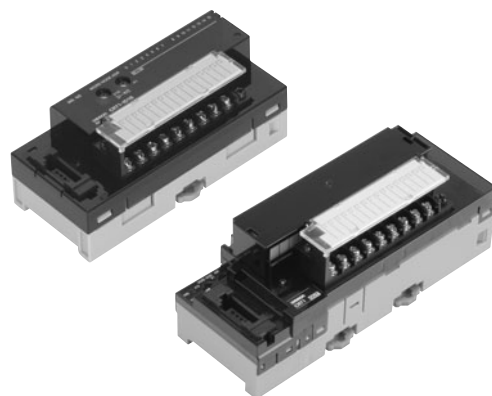
Digital I/O Slave Units with Screw Terminal Blocks (2-tier Terminal Block/Relay Output/SSR Output)

# CRT1-□D08(-1)/□D16(-1)/ROS□/ROF□

## Visualize the actual worksite status! Simple and Intelligent I/O Slave Units.

In addition to the Digital I/O Slave Unit's basic digital ON/OFF signals, collect useful information from the Slave Unit to improve equipment operating rates and maintainability.

- Communications connector and removable I/O terminal block enable faster startup times and improved maintainability.
- One Expansion Unit can be added to each Digital I/O Slave Unit to increase system configuration flexibility.
- Collect various preventive maintenance data required to improve productivity, such as information on equipment deterioration due to aging and equipment operating time data.
- Simplify startup with the communications power supply monitoring function.



## Ordering Information

Name	Specifications			Model
Two-tier Screw Terminal Block	Inputs	8 inputs	NPN	CRT1-ID08
			PNP	CRT1-ID08-1
	Outputs	8 outputs	NPN	CRT1-OD08
			PNP	CRT1-OD08-1
	Inputs	16 inputs	NPN	CRT1-ID16 (See note.)
			PNP	CRT1-ID16-1 (See note.)
	Outputs	16 outputs	NPN	CRT1-OD16 (See note.)
			PNP	CRT1-OD16-1 (See note.)
Screw Terminal Block with Relay Outputs	Inputs/Outputs	8 inputs/ 8 outputs	NPN	CRT1-MD16
			PNP	CRT1-MD16-1
	Outputs	8 outputs	Contacts	CRT1-ROS08
		16 outputs		CRT1-ROS16
Screw Terminal Block with SSR Outputs	Outputs	8 outputs	SSR	CRT1-ROF08
		16 outputs		CRT1-ROF16

**Note:** These Units are also available with a DCN-TB4 Terminal Conversion Adapter included in the package. Add "(-B)" to the end of the model number to receive the Adapter as well.

### ● Expansion Units

One Expansion Unit can be combined with one Digital I/O Slave Unit (CRT1-ID16(-1), CRT1-OD16(-1), CRT1-ROS16, or CRT1-ROF16). The following Expansion Units are available. They can be combined in various ways for flexible I/O capacity expansion.

Model	I/O points	Input capacity	Output capacity
XWT-ID08	8 DC inputs (NPN)	8	0
XWT-ID08-1	8 DC inputs (PNP)	8	0
XWT-OD08	8 transistor outputs (NPN)	0	8
XWT-OD08-1	8 transistor outputs (PNP)	0	8
XWT-ID16	16 DC inputs (NPN)	16	0
XWT-ID16-1	16 DC inputs (PNP)	16	0
XWT-OD16	16 transistor outputs (NPN)	0	16
XWT-OD16-1	16 transistor outputs (PNP)	0	16

## Performance Specifications for CRT1-ROS08/ROS16 (with relay outputs) and CRT1-ROF08/ROF16 (with SSR outputs)

### ● Relay Output

Item	Specification
Communications power supply voltage	14 to 26.4 VDC
Noise immunity	Conforms to IEC 61000-4-4, 2 kV (power line).
Vibration resistance	10 to 55 Hz with double-amplitude of 0.7 mm
Shock resistance	100 m/s <sup>2</sup> (3 times in 6 directions on 3 axes)
Dielectric strength	500 VAC (between isolated circuits)
Insulation resistance	20 MΩ min. (between isolated circuits)
Ambient operating temperature	-10 to 55°C
Ambient operating humidity	25% to 85% (with no condensation)
Ambient operating atmosphere	No corrosive gases
Storage temperature	-25 to 65°C
Storage humidity	25% to 85% (with no condensation)
Terminal block screws tightening torque	M3 wiring screws: 0.5 N·m M3 mounting screws: 0.5 N·m

### ● SSR Output

Item	Specification
Communications power supply voltage	14 to 26.4 VDC
Noise immunity	Conforms to IEC 61000-4-4, 2 kV (power line).
Vibration resistance	10 to 60 Hz with double-amplitude of 0.7 mm, 60 to 150 Hz and 50 m/s <sup>2</sup> in X, Y, and Z directions for 80 min each
Shock resistance	150 m/s <sup>2</sup> (3 times in 6 directions on 3 axes)
Dielectric strength	500 VAC (between isolated circuits)
Insulation resistance	20 MΩ min. (between isolated circuits)
Ambient operating temperature	-10 to 55°C
Ambient operating humidity	25% to 85% (with no condensation)
Ambient operating atmosphere	No corrosive gases
Storage temperature	-25 to 65°C
Storage humidity	25% to 85% (with no condensation)
Terminal block screws tightening torque	M3 wiring screws: 0.5 N·m M3 mounting screws: 0.5 N·m

For Basic Performance Specifications of Slave Units, refer to page 26.

## Input Section Specifications

### ● Eight-point Input Units (2-tier Terminal Block)

Item	Specification	
Model	CRT1-ID08	CRT1-ID08-1
I/O capacity	8 inputs	
Internal I/O common	NPN	PNP
ON voltage	15 VDC min. (between each input terminal and the V terminal)	15 VDC min. (between each input terminal and the G terminal)
OFF voltage	5 VDC max. (between each input terminal and the V terminal)	5 VDC max. (between each input terminal and the G terminal)
OFF current	1.0 mA max.	
Input current	At 24 VDC: 6.0 mA max./input At 17 VDC: 3.0 mA min./input	
ON delay	1.5 ms max.	
OFF delay	1.5 ms max.	
Number of circuits per common	8 inputs/common	
Isolation method	Photocoupler	
Input indicator	LED (yellow)	
Installation	DIN Track	
Power supply type	Multi-power supply	
Communications power supply current consumption	30 mA max. for 24-VDC power supply voltage 50 mA max. for 14-VDC power supply voltage	
I/O power supply current consumption	5 mA max. for 24-VDC power supply voltage	
Weight	160 g max.	

### ● Sixteen-point Input Units (2-tier Terminal Block)

Item	Specification	
Model	CRT1-ID16	CRT1-ID16-1
I/O capacity	16 inputs	
Internal I/O common	NPN	PNP
ON voltage	15 VDC min. (between each input terminal and the V terminal)	15 VDC min. (between each input terminal and the G terminal)
OFF voltage	5 VDC max. (between each input terminal and the V terminal)	5 VDC max. (between each input terminal and the G terminal)
OFF current	1 mA max.	
Input current	At 24 VDC: 6.0 mA max./input At 17 VDC: 3.0 mA max./input	
ON delay	1.5 ms max.	
OFF delay	1.5 ms max.	
Number of circuits per common	16 inputs/common	
Isolation method	Photocoupler	
Input indicator	LED (yellow)	
Installation	DIN Track mounting	
Power supply type	Multi-power supply	
Communications power supply current consumption	55 mA max. for 24-VDC power supply voltage 85 mA max. for 14-VDC power supply voltage	
I/O power supply current consumption	5 mA max. for 24-VDC power supply voltage	
Weight	141 g max.	

# Output Section Specifications

## ● Eight-point Output Units (2-tier Terminal Block)

Item	Specification	
Model	CRT1-OD08	CRT1-OD08-1
I/O capacity	8 outputs	
Internal I/O common	NPN	PNP
Rated output current	0.5 A/output, 2 A/common	
Residual voltage	1.2 V max. (0.5 A DC, between each output terminal and the G terminal)	1.2 V max. (0.5 A DC, between each output terminal and the V terminal)
Leakage current	0.1 mA max.	
ON delay	0.5 ms max.	
OFF delay	1.5 ms max.	
Number of circuits per common	8 outputs/common	
Isolation method	Photocoupler	
Output indicators	LED (yellow)	
Installation	DIN Track	
Power supply type	Multi-power supply	
Communications power supply current consumption	35 mA max. for 24-VDC power supply voltage 55 mA max. for 14-VDC power supply voltage	
I/O power supply current consumption	15 mA max. for 24-VDC power supply voltage	
Output handling for communications errors	Select either hold or clear from CX-Integrator.	
Weight	160 g max.	

## ● Sixteen-point Output Units (2-tier Terminal Block)

Item	Specification	
Model	CRT1-OD16	CRT1-OD16-1
I/O capacity	16 outputs	
Internal I/O common	NPN	PNP
Rated output current	0.5 A/output, 4 A/common	
Residual voltage	1.2 V max. (0.5 A DC, between each output terminal and the G terminal)	1.2 V max. (0.5 A DC, between each output terminal and the V terminal)
Leakage current	0.1 mA max.	
ON delay	0.5 ms max.	
OFF delay	1.5 ms max.	
Number of circuits per common	16 outputs/common	
Isolation method	Photocoupler	
Output indicators	LED (yellow)	
Installation	DIN Track mounting	
Power supply type	Multi-power supply	
Communications power supply current consumption	55 mA max. for 24-VDC power supply voltage 85 mA max. for 14-VDC power supply voltage	
I/O power supply current consumption	15 mA max. for 24-VDC power supply voltage	
Output handling for communications errors	Hold or clear can be selected. (CX-Integrator)	
Weight	141 g max.	

## ● Eight-point Output Units (Relay Outputs)

Item	Specification
Model	CRT1-ROS08
I/O capacity	8 outputs
Mounted Relays	DRTA-NY5W-K (5 VDC)
Rated load	Resistive load 250 VAC, 2 A, common: 8 A 30 VDC, 2 A, common: 8 A
Rated ON current	3 A
Maximum contact voltage	250 VAC, 125 VDC
Maximum contact current	3 A
Maximum switching capacity	750 VA AC, 90 W DC
Minimum applicable load (reference value)	5 VDC, 1 mA
Mechanical service life	20,000,000 operations min.
Electrical service life	100,000 operations min.
Installation method	DIN Track
Communications power supply current consumption	95 mA max. for 24-VDC power supply voltage 150 mA max. for 14-VDC power supply voltage
Output hold for communications errors	Select either hold or clear from CX-Integrator.
Weight	170 g max.

## ● Sixteen-point Output Units (Relay Outputs) (per Output)

Item	Specification
Model	CRT1-ROS16
I/O capacity	16 outputs
Mounted Relays	DRTA-NY5W-K (5 VDC)
Rated load	Resistive load 250 VAC, 2 A, common: 8 A 30 VDC, 2 A, common: 8 A
Rated ON current	3 A
Maximum contact voltage	250 VAC, 125 VDC
Maximum contact current	3 A
Maximum switching capacity	750 VA AC, 90 W DC
Minimum applicable load (reference value)	5 VDC, 1 mA
Mechanical service life	20,000,000 operations min.
Electrical service life	100,000 operations min.
Installation	DIN Track mounting
Communications power supply current consumption	155 mA max. for 24-VDC power supply voltage 255 mA max. for 14-VDC power supply voltage
Output hold for communications errors	Hold or clear can be selected. (CX-Integrator)
Weight	260 g max.

● Eight-point Output Units (SSR Outputs) (per Output)

Item	Specification
Model	CRT1-ROF08
I/O capacity	8 outputs
Load voltage	24 to 265 VAC
Load current	0.3 A (See note.)
Inrush current resistivity	50 A (60 Hz)
Installation method	DIN Track
Communications power supply current consumption	60 mA max. for 24-VDC power supply voltage 90 mA max. for 14-VDC power supply voltage
Output hold for communications errors	Select either hold or clear from CX-Integrator.
Weight	160 g max.

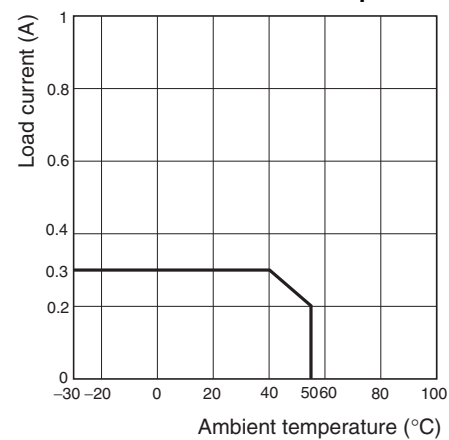
**Note:** The SSRs cannot be replaced.

● Sixteen-point Output Units (SSR Outputs) (per Output)

Item	Specification
Model	CRT1-ROF16
I/O capacity	16 outputs
Load voltage	24 to 265 VAC
Load current	0.3 A
Inrush current resistivity	50 A (60 Hz)
Installation	DIN Track mounting
Communications power supply current consumption	85 mA max. for 24-VDC power supply voltage 130 mA max. for 14-VDC power supply voltage
Output hold for communications errors	Hold or clear can be selected. (CX-Integrator)
Weight	250 g max.

**Note:** The SSRs cannot be replaced.

**Load Current vs. Ambient Temperature**



## Input and Output Section Specifications

### ● Eight-point Input and Eight-point Output Units (2-tier Terminal Block)

#### CRT1-MD16/CRT1-MD16-1

#### Common Specifications

Item	Specification	
Model	CRT1-MD16	CRT1-MD16-1
Installation	DIN Track	
Communications power supply current consumption	35 mA max. for 24-VDC power supply voltage 60 mA max. for 14-VDC power supply voltage	
Weight	170 g max.	

#### Input Section Specifications

Item	Specification	
Model	CRT1-MD16	CRT1-MD16-1
I/O capacity	8 inputs	
Internal I/O common	NPN	PNP
ON voltage	15 VDC min. (between each input terminal and the V terminal)	15 VDC min. (between each input terminal and the G terminal)
OFF voltage	5 VDC max. (between each input terminal and the V terminal)	5 VDC max. (between each input terminal and the G terminal)
OFF current	1.0 mA max.	
Input current	At 24 VDC: 6.0 mA max./input At 17 VDC: 3.0 mA min./input	
ON delay	1.5 ms max.	
OFF delay	1.5 ms max.	
Number of circuits per common	8 inputs/common	
Isolation method	Photocoupler	
Input indicator	LED (yellow)	
Power supply type	Multi-power supply	
I/O power supply current consumption	5 mA max. for 24-VDC power supply voltage	

#### Output Section Specifications

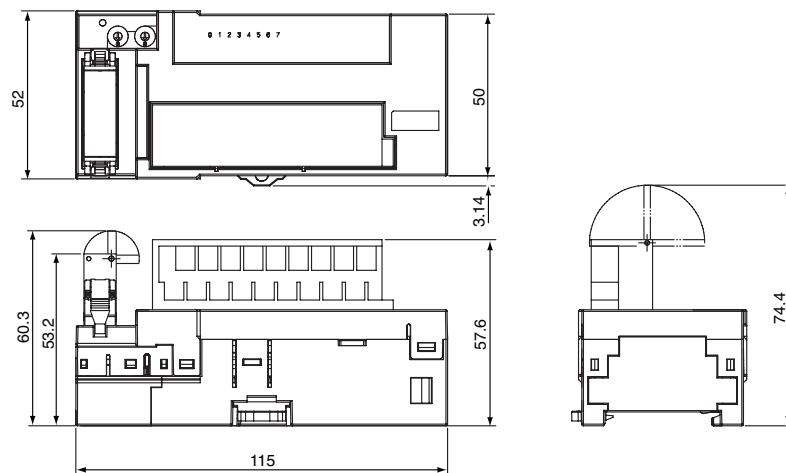
Item	Specification	
Model	CRT1-MD16	CRT1-MD16-1
I/O capacity	8 outputs	
Internal I/O common	NPN	PNP
Rated output current	0.5 A/output, 2A/common	
Residual voltage	1.2 V max. (0.5 A DC, between each output terminal and the G terminal)	1.2 V max. (0.5 A DC, between each output terminal and the V terminal)
Leakage current	0.1 mA max.	
ON delay	0.5 ms max.	
OFF delay	1.5 ms max.	
Number of circuits per common	8 outputs/common	
Isolation method	Photocoupler	
Output indicators	LED (yellow)	
I/O power supply current consumption	15 mA max. for 24-VDC power supply voltage	
Output handling for communications errors	Select either hold or clear from CX-Integrator.	

# Dimensions

(Unit: mm)

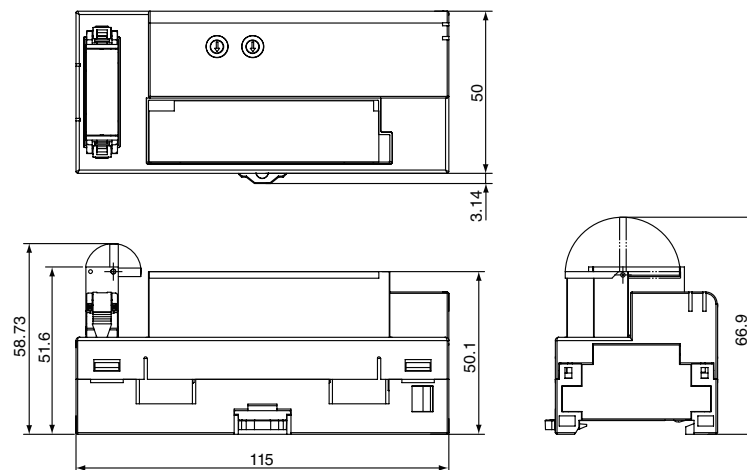
CRT1-ID08 (-1)  
CRT1-OD08 (-1)

When a DCN4-TB4 Open Type Connectors Is Mounted



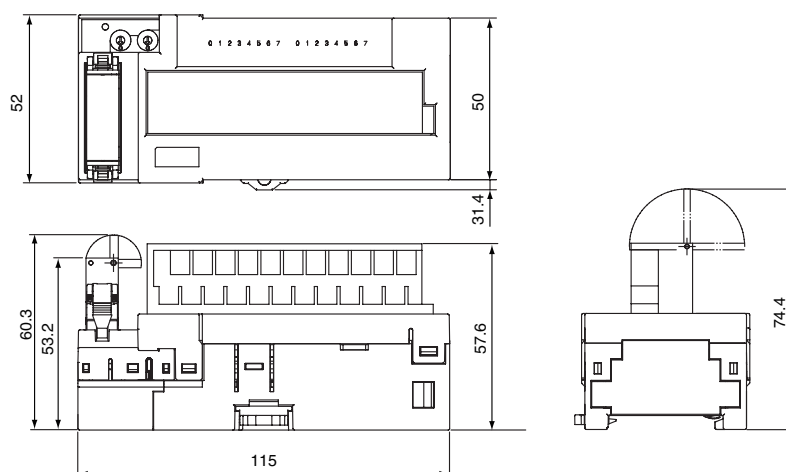
CRT1-ID16 (-1)  
CRT1-OD16 (-1)

When a DCN4-TB4 Open Type Connectors Is Mounted



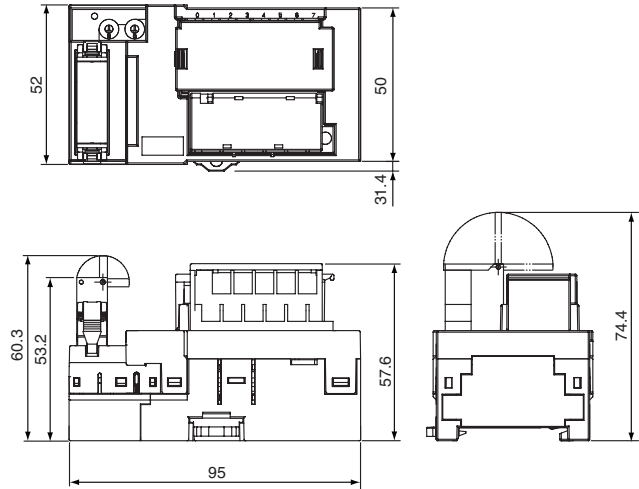
CRT1-MD16 (-1)

When a DCN4-TB4 Open Type Connectors Is Mounted



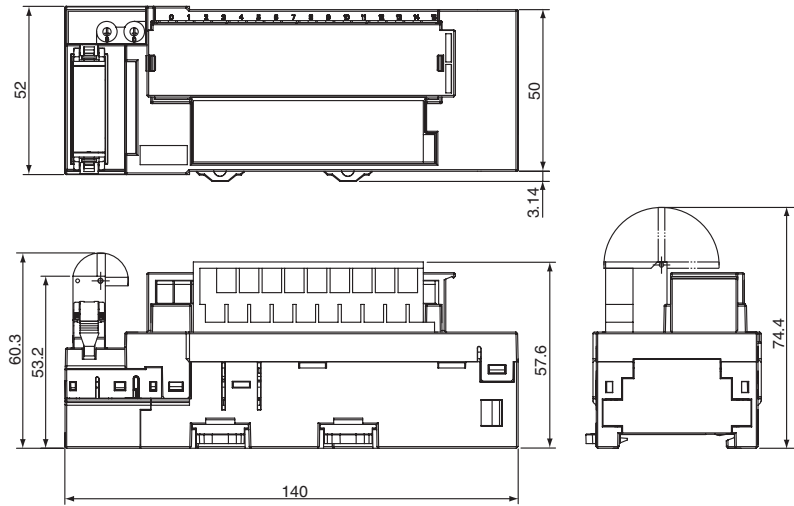
CRT1-ROS08  
CRT1-ROF08

When a DCN4-TB4 Open Type Connectors Is Mounted



CRT1-ROS16  
CRT1-ROF16

When a DCN4-TB4 Open Type Connectors Is Mounted



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