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Digital I/O Slave Units with e-CON Connectors

CRT1-\(\Box\) D16S(-1)\(\D32S(-1)\(\D16SH(-1)\(\D32SH(-1)\)

Industry-standard Sensor Connectors for Easy Connection to Pre-wired Sensors without Special Tools.

- A digital I/O terminal with industry-standard e-CON connectors.
- Easy to install without the use of special tools. Reduces wiring work.
- Equipped with load short-circuit detection.



Ordering Information

Name			Specifications		Model
	Innuta	16 innute	NPN		CRT1-ID16S
	Inputs	16 inputs	PNP		CRT1-ID16S-1
	Outpute	16 autouta	NPN		CRT1-OD16S
	Outputs	16 outputs	PNP		CRT1-OD16S-1
	Inputs/	8 inputs /	NPN		CRT1-MD16S
	Outputs	8 outputs	PNP	Without Short-circuit and Disconnected	CRT1-MD16S-1
	Innuta	20 innute	NPN	Line Detection	CRT1-ID32S
	Inputs	32 inputs	PNP		CRT1-ID32S-1
	Outpute	20 autouta	NPN		CRT1-OD32S
	Outputs	32 outputs	PNP		CRT1-OD32S-1
	Inputs/	16 inputs /	NPN		CRT1-MD32S
e-CON Connectors	Outputs	16 outputs	PNP		CRT1-MD32S-1
e-CON Connectors	Inputs	16 inputs	NPN		CRT1-ID16SH
		To inputs	PNP		CRT1-ID16SH-1
	0.44-	16 outputs	NPN		CRT1-OD16SH
	Outputs		PNP		CRT1-OD16SH-1
	Inputs/	8 inputs /	NPN		CRT1-MD16SH
	Outputs	8 outputs	PNP	With Short-circuit and Disconnected	CRT1-MD16SH-1
	Innuto	32 inputs	NPN	Line Detection	CRT1-ID32SH
	Inputs	32 IIIputS	PNP		CRT1-ID32SH-1
	Outputo	22 outpute	NPN		CRT1-OD32SH
	Outputs	32 outputs	PNP		CRT1-OD32SH-1
	Inputs/	16 inputs /	NPN		CRT1-MD32SH
	Outputs	16 outputs	PNP		CRT1-MD32SH-1

Note. Output power supply connectors (Phoenix Contact K.K.) are provided with Output Units and I/O Units.

Slave External I/O Connections in the appendix for applicable connectors.

Performance Specifications

For Basic Performance Specifications of Slave Units, refer to page 32.

Input Section Specifications

● Sixteen-point Input Units

Item		Specif	ication				
Model	CRT1-ID16S	CRT1-ID16S-1	CRT1-ID16SH	CRT1-ID16SH-1			
I/O capacity	16 inputs	16 inputs					
Internal I/O common	NPN	PNP	NPN	PNP			
ON voltage	10.5 VDC min. (between each input terminal and the V terminal)	10.5 VDC min. (between each input terminal and the G terminal)	10.5 VDC min. (between each input terminal and the V terminal)	10.5 VDC min. (between each input terminal and the G terminal)			
OFF current	1 mA max.						
Input current	At 24 VDC: 6.0 mA max./input At 11 VDC: 3.0 mA min./input						
ON delay	1.5 ms max.						
OFF delay	1.5 ms max.						
Power supply short-circuit detection			Operates at 50 mA/point min.				
Disconnection detection			Operates at 0.3 mA/point max.				
Number of circuits per common	16 inputs/common	16 inputs/common					
Isolation method	Photocoupler	Photocoupler					
Input indicator	LED (yellow)						
Installation	DIN Track						
Power supply type	Network power supply						
Power short-circuit protection	Operates at 50 mA/point min.						
Current supplied to input devices	50 mA/input						
Communications power supply current consumption	110 mA max. for 24-VDC power supply voltage 125 mA max. for 14-VDC power supply voltage		125 mA max. for 24-VDC power supply voltage 145 mA max. for 14-VDC power supply voltage				
Weight	110 g max.						

● Thirty-two-point Input Units

Item		Specification				
Model	CRT1-ID32S	CRT1-ID32S-1	CRT1-ID32SH	CRT1-ID32SH-1		
I/O capacity	32 inputs					
Internal I/O common	NPN	PNP	NPN	PNP		
ON voltage	10.5 VDC min. (between each input terminal and the V terminal)	10.5 VDC min. (between each input terminal and the G terminal)	10.5 VDC min. (between each input terminal and the V terminal)	10.5 VDC min. (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 11 VDC: 3.0 mA min./input					
ON delay	1.5 ms max.	.5 ms max.				
OFF delay	1.5 ms max.	.5 ms max.				
Power supply short-circuit detection	Operates at 50 mA/point min.					
Disconnection detection			Operates at 0.3 mA/point max.			
Number of circuits per common	32 inputs/common	32 inputs/common				
Isolation method	Photocoupler					
Input indicator	LED (yellow)					
Installation	DIN Track					
Power short-circuit protection	Operates at 50 mA/point min.					
Power supply type	Network power supply					
Current supplied to input devices	50 mA/input					
Communications power supply current consumption	195 mA max. for 24-VDC power 200 mA max. for 14-VDC power		210 mA max. for 24-VDC power 235 mA max. for 14-VDC power	11,		
Weight	180 g max.					

Output Section Specifications

● Sixteen-point Output Unit

Item		Specif	ication			
Model	CRT1-OD16S	CRT1-OD16S-1	CRT1-OD16SH	CRT1-OD16SH-1		
I/O capacity	16 outputs	1	1	ı		
Internal I/O common	NPN	PNP	NPN	PNP		
Rated output current	0.5 A/output, 4 A/common	1	1	ı		
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)	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.	.5 ms max.				
Load short-circuit detection	Supported.					
Disconnection detection		Operates at 3 mA/point max. (Does not operate at over 3 mA.)				
Number of circuits per common	16 outputs/common					
Isolation method	Photocoupler					
Output indicators	LED (yellow)					
Installation	DIN Track					
Power supply type	Multi-power supply					
Current supplied to output devices	100 mA/output					
Communications power supply current consumption	40 mA max. for 24-VDC power s 60 mA max. for 14-VDC power s		40 mA max. for 24-VDC power 65 mA max. for 14-VDC power			
I/O power supply current consumption	20 mA max. for 24-VDC power supply voltage		15 mA max. for 24-VDC power supply voltage	60 mA max. for 24-VDC power supply voltage		
Output handling for communications errors	Select either hold or clear from CX-Integrator.					
Weight	110 g max.					

● Thirty-two-point Output Unit

Item		Specif	fication		
Model	CRT1-OD32S	CRT1-OD32S-1	CRT1-OD32SH	CRT1-OD32SH-1	
I/O capacity	32 outputs	32 outputs			
Internal I/O common	NPN	PNP	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)	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.				
Load short-circuit detection	Supported.				
Disconnection detection	Operates at 3 mA/point max. (Does not operate at over 3 mA			loes not operate at over 3 mA.)	
Number of circuits per common	16 outputs/common				
Isolation method	Photocoupler	Photocoupler			
Output indicators	LED (yellow)				
Installation	DIN Track				
Power supply type	Multi-power supply				
Current supplied to output devices	100 mA/output				
Communications power supply current consumption	50 mA max. for 24-VDC power supply voltage 80 mA max. for 14-VDC power supply voltage 90 mA max. for 14-VDC power supply voltage				
I/O power supply current consumption	15 mA max. for 24-VDC power s	supply voltage		60 mA max. for 24-VDC power supply voltage	
Output handling for communications errors	Select either hold or clear from CX-Integrator.				
Weight	170 g max.				

Input and Output Section Specifications

● 8-point Input and 8-point Output Units

Common Specifications

Item	Specification				
Model	CRT1-MD16S	CRT1-MD16S-1	CRT1-MD16SH	CRT1-MD16SH-1	
Installation	DIN Track				
Communications power supply current consumption	75 mA max. for 24-VDC power supply voltage 95 mA max. for 14-VDC power supply voltage		95 mA max. for 24-VDC power s 115 mA max. for 14-VDC power		
Weight	120 g max.				

Input Section Specifications

Item	Specification					
Model	CRT1-MD16S	CRT1-MD16S-1	CRT1-MD16SH	CRT1-MD16SH-1		
I/O capacity	8 inputs					
Internal I/O common	NPN	PNP	NPN	PNP		
ON voltage	10.5 VDC min. (between each input terminal and the V terminal)	10.5 VDC min. (between each input terminal and the G terminal)	10.5 VDC min. (between each input terminal and the V terminal)	10.5 VDC min. (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 11 VDC: 3.0 mA min./input					
ON delay	1.5 ms max.	1.5 ms max.				
OFF delay	1.5 ms max.	1.5 ms max.				
Power supply short-circuit detection			Operates at 50 mA/point min.			
Disconnection detection		Operates at 0.3 mA/point max.				
Number of circuits per common	8 inputs/common					
Isolation method	Photocoupler	Photocoupler				
Input indicator	LED (yellow)					
Power supply type	Network power supply					
Power short-circuit protection	Operates at 50 mA/point min.					
Current supplied to input devices	50 mA/input					

Output Section Specifications

Item		Specification				
Model	CRT1-MD16S	CRT1-MD16S-1	CRT1-MD16SH	CRT1-MD16SH-1		
I/O capacity	8 outputs	8 outputs				
Internal I/O common	NPN	PNP	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)	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.					
Load short-circuit detection			Supported.			
Disconnection detection			Operates at 3 mA/point max. (Does not operate at over 3 mA.)			
Number of circuits per common	8 outputs/common	8 outputs/common				
Isolation method	Photocoupler					
Output indicators	LED (yellow)					
Power supply type	Multi-power supply					
Current supplied to output devices	100 mA/output					
I/O power supply current consumption	15 mA max. for 24-VDC power supply voltage 35 mA max. for 24-VDC power supply voltage			35 mA max. for 24-VDC power supply voltage		
Output handling for communications errors	Select either hold or clear from CX-Integrator.					

● 16-point Input and 16-point Output Units

Common Specifications

Item	Specification					
Model	CRT1-MD32S CRT1-MD32S-1 CRT1-MD32SH CRT1-MD32SH					
Installation	DIN Track	DIN Track				
Communications power supply current consumption	120 mA max. for 24-VDC power supply voltage 135 mA max. for 24- 140 mA max. for 14-VDC power supply voltage 155 mA max. for 14-			11,7		
Weight	180 g max.					

Input Section Specifications

Item		Specification				
Model	CRT1-MD32S	CRT1-MD32S-1	CRT1-MD32SH	CRT1-MD32SH-1		
I/O capacity	16 inputs					
Internal I/O common	NPN	PNP	NPN	PNP		
ON voltage	10.5 VDC min. (between each input terminal and the V terminal)	10.5 VDC min. (between each input terminal and the G terminal)	10.5 VDC min. (between each input terminal and the V terminal)	10.5 VDC min. (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 11 VDC: 3.0 mA min./input					
ON delay	1.5 ms max.	1.5 ms max.				
OFF delay	1.5 ms max.					
Power supply short-circuit detection		Operates at 50 mA/point min.				
Disconnection detection		Operates at 0.3 mA/point max.				
Number of circuits per common	16 inputs/common					
Isolation method	Photocoupler	Photocoupler				
Input indicator	LED (yellow)					
Power supply type	Network power supply					
Power short-circuit protection	Operates at 50 mA/point min.					
Current supplied to input devices	50 mA/input					

Output Section Specifications

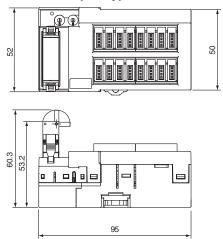
Item		Specif	fication				
Model	CRT1-MD32S	CRT1-MD32S-1	CRT1-MD32SH	CRT1-MD32SH-1			
I/O capacity	16 outputs	16 outputs					
Internal I/O common	NPN	PNP	NPN	PNP			
Rated output current	0.5 A/output, 4 A/common						
Residual voltage	1.2 V max. (0.5 A DC, between each output terminal and the G terminal)	1.2 V max. (0.5 A DC, between each output terminal and the V terminal)	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.	0.1 mA max.					
ON delay	0.5 ms max.						
OFF delay	1.5 ms max.						
Load short-circuit detection			Supported.				
Disconnection detection			Operates at 3 mA/point max. (Does not operate at over 3 mA.)				
Number of circuits per common	16 outputs/common	16 outputs/common					
Isolation method	Photocoupler						
Output indicators	LED (yellow)						
Power supply type	Multi-power supply						
Current supplied to output devices	100 mA/output						
I/O power supply current consumption	20 mA max. for 24-VDC power s	supply voltage	15 mA max. for 24-VDC power supply voltage	60 mA max. for 24-VDC power supply voltage			
Output handling for communications errors	Select either hold or clear from CX-Integrator.						



Dimensions (Unit: mm)

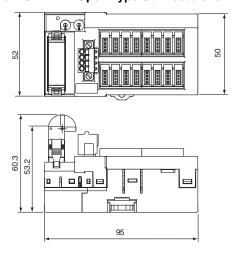
CRT1-ID16S (-1) CRT1-ID16SH (-1)

When a DCN4-TB4 Open Type Connectors Is Mounted



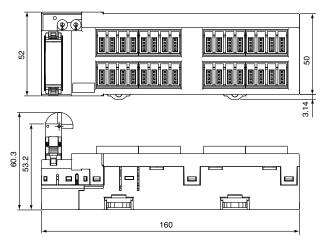
CRT1-MD16S (-1) CRT1-MD16SH (-1) CRT1-OD16S (-1) CRT1-OD16SH (-1)

When a DCN4-TB4 Open Type Connectors Is Mounted



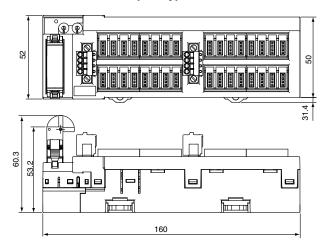
CRT1-ID32S (-1) CRT1-ID32SH (-1)

When a DCN4-TB4 Open Type Connectors Is Mounted



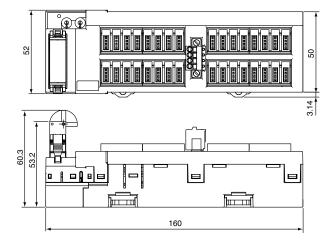
CRT1-OD32S (-1) CRT1-OD32SH (-1)

When a DCN4-TB4 Open Type Connectors Is Mounted



CRT1-MD32S (-1) CRT1-MD32SH (-1)

When a DCN4-TB4 Open Type Connectors Is Mounted



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