

## 阅读申明

- 1.本站收集的数据手册和产品资料都来自互联网，版权归原作者所有。如读者和版权方有任何异议请及时告之，我们将妥善解决。
- 2.本站提供的中文数据手册是英文数据手册的中文翻译，其目的是协助用户阅读，该译文无法自动跟随原稿更新，同时也可能存在翻译上的不当。建议读者以英文原稿为参考以便获得更精准的信息。
- 3.本站提供的产品资料，来自厂商的技术支持或者使用者的心得体会等，其内容可能存在描述上的差异，建议读者做出适当判断。
- 4.如需与我们联系，请发邮件到marketing@iczoom.com，主题请标有“数据手册”字样。

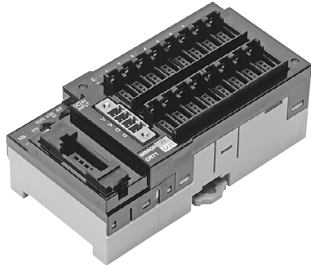
## Read Statement

1. The datasheets and other product information on the site are all from network reference or other public materials, and the copyright belongs to the original author and original published source. If readers and copyright owners have any objections, please contact us and we will deal with it in a timely manner.
2. The Chinese datasheets provided on the website is a Chinese translation of the English datasheets. Its purpose is for reader's learning exchange only and do not involve commercial purposes. The translation cannot be automatically updated with the original manuscript, and there may also be improper translations. Readers are advised to use the English manuscript as a reference for more accurate information.
3. All product information provided on the website refer to solutions from manufacturers' technical support or users the contents may have differences in description, and readers are advised to take the original article as the standard.
4. If you have any questions, please contact us at marketing@iczoom.com and mark the subject with "Datasheets" .

Digital I/O Slave Units with e-CON Connectors  
**CRT1-□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	
e-CON Connectors	Inputs	16 inputs	NPN	Without Short-circuit and Disconnected Line Detection	CRT1-ID16S
			PNP		CRT1-ID16S-1
	Outputs	16 outputs	NPN		CRT1-OD16S
			PNP		CRT1-OD16S-1
	Inputs/ Outputs	8 inputs / 8 outputs	NPN		CRT1-MD16S
			PNP		CRT1-MD16S-1
	Inputs	32 inputs	NPN		CRT1-ID32S
			PNP		CRT1-ID32S-1
	Outputs	32 outputs	NPN		CRT1-OD32S
			PNP		CRT1-OD32S-1
	Inputs/ Outputs	16 inputs / 16 outputs	NPN	CRT1-MD32S	
			PNP	CRT1-MD32S-1	
	Inputs	16 inputs	NPN	With Short-circuit and Disconnected Line Detection	CRT1-ID16SH
			PNP		CRT1-ID16SH-1
	Outputs	16 outputs	NPN		CRT1-OD16SH
			PNP		CRT1-OD16SH-1
	Inputs/ Outputs	8 inputs / 8 outputs	NPN		CRT1-MD16SH
			PNP		CRT1-MD16SH-1
	Inputs	32 inputs	NPN		CRT1-ID32SH
			PNP		CRT1-ID32SH-1
Outputs	32 outputs	NPN	CRT1-OD32SH		
		PNP	CRT1-OD32SH-1		
Inputs/ Outputs	16 inputs / 16 outputs	NPN	CRT1-MD32SH		
		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	Specification			
Model	CRT1-ID16S	CRT1-ID16S-1	CRT1-ID16SH	CRT1-ID16SH-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 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			
Isolation method	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.			
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	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 supply voltage 200 mA max. for 14-VDC power supply voltage		210 mA max. for 24-VDC power supply voltage 235 mA max. for 14-VDC power supply voltage	
Weight	180 g max.			

## Output Section Specifications

### ● Sixteen-point Output Unit

Item	Specification			
Model	CRT1-OD16S	CRT1-OD16S-1	CRT1-OD16SH	CRT1-OD16SH-1
I/O capacity	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.			
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			
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 supply voltage 60 mA max. for 14-VDC power supply voltage		40 mA max. for 24-VDC power supply voltage 65 mA max. for 14-VDC power supply voltage	
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	Specification			
Model	CRT1-OD32S	CRT1-OD32S-1	CRT1-OD32SH	CRT1-OD32SH-1
I/O capacity	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.)	
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	50 mA max. for 24-VDC power supply voltage 80 mA max. for 14-VDC power supply voltage		50 mA max. for 24-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 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 supply voltage 115 mA max. for 14-VDC power supply voltage	
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.			
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	8 inputs/common			
Isolation method	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			
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			
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
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-1
Installation	DIN Track			
Communications power supply current consumption	120 mA max. for 24-VDC power supply voltage 140 mA max. for 14-VDC power supply voltage		135 mA max. for 24-VDC power supply voltage 155 mA max. for 14-VDC power supply voltage	
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.			
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			
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**

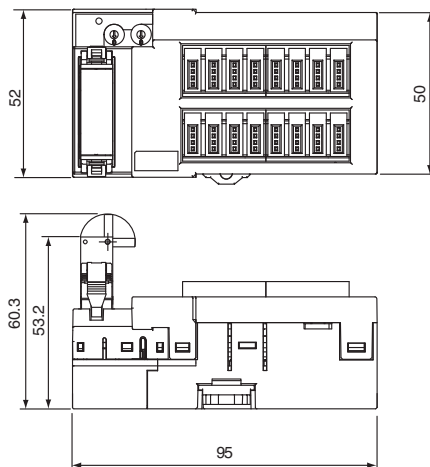
Item	Specification			
Model	CRT1-MD32S	CRT1-MD32S-1	CRT1-MD32SH	CRT1-MD32SH-1
I/O capacity	16 outputs			
Internal I/O common	NPN	PNP	NPN	PNP
Rated output current	0.5 A/output, 4 A/common			
Residual voltage	1.2 V max. (0.5 A DC, between each output terminal and the G terminal)	1.2 V max. (0.5 A DC, between 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.			
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			
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 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)

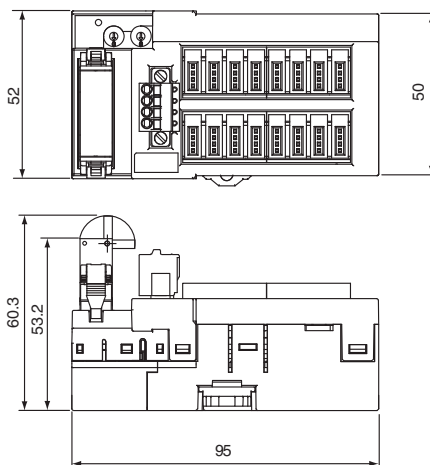
CRT1-ID16S (-1)  
 CRT1-ID16SH (-1)

When a DCN4-TB4 Open Type Connectors Is Mounted



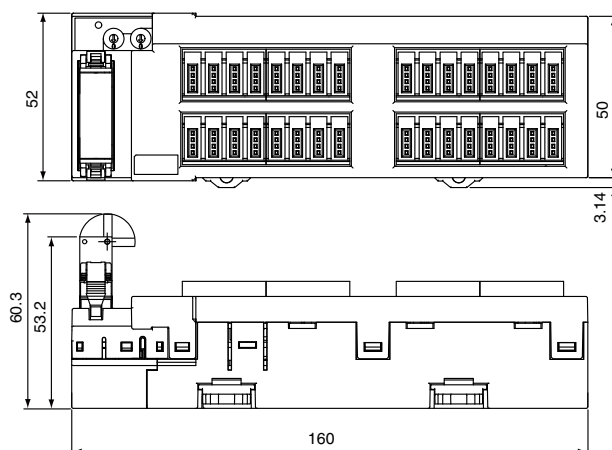
CRT1-MD16S (-1)  
 CRT1-MD16SH (-1)  
 CRT1-OD16S (-1)  
 CRT1-OD16SH (-1)

When a DCN4-TB4 Open Type Connectors Is Mounted



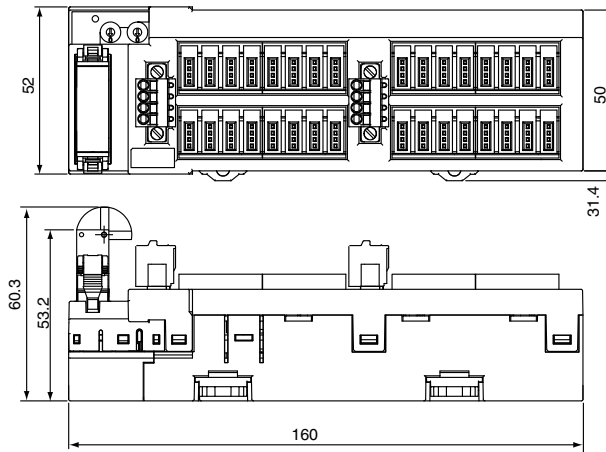
CRT1-ID32S (-1)  
 CRT1-ID32SH (-1)

When a DCN4-TB4 Open Type Connectors Is Mounted



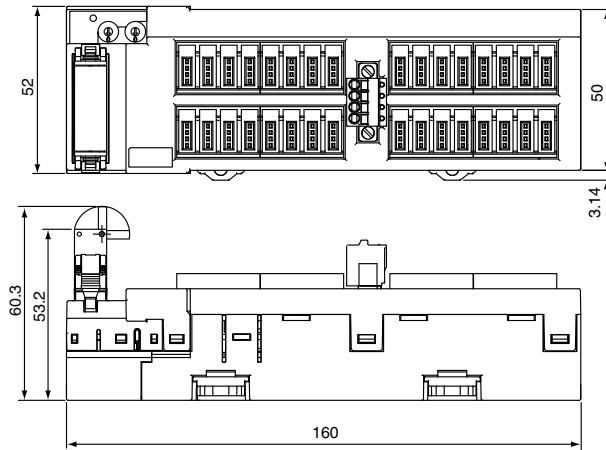
CRT1-OD32S (-1)  
 CRT1-OD32SH (-1)

When a DCN4-TB4 Open Type Connectors Is Mounted



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

When a DCN4-TB4 Open Type Connectors Is Mounted





## Read and Understand This Catalog

Please read and understand this catalog before purchasing the products. Please consult your OMRON representative if you have any questions or comments.

## Warranty and Limitations of Liability

### WARRANTY

OMRON's exclusive warranty is that the products are free from defects in materials and workmanship for a period of one year (or other period if specified) from date of sale by OMRON.

OMRON MAKES NO WARRANTY OR REPRESENTATION, EXPRESS OR IMPLIED, REGARDING NON-INFRINGEMENT, MERCHANTABILITY, OR FITNESS FOR PARTICULAR PURPOSE OF THE PRODUCTS. ANY BUYER OR USER ACKNOWLEDGES THAT THE BUYER OR USER ALONE HAS DETERMINED THAT THE PRODUCTS WILL SUITABLY MEET THE REQUIREMENTS OF THEIR INTENDED USE. OMRON DISCLAIMS ALL OTHER WARRANTIES, EXPRESS OR IMPLIED.

### LIMITATIONS OF LIABILITY

OMRON SHALL NOT BE RESPONSIBLE FOR SPECIAL, INDIRECT, OR CONSEQUENTIAL DAMAGES, LOSS OF PROFITS OR COMMERCIAL LOSS IN ANY WAY CONNECTED WITH THE PRODUCTS, WHETHER SUCH CLAIM IS BASED ON CONTRACT, WARRANTY, NEGLIGENCE, OR STRICT LIABILITY.

In no event shall the responsibility of OMRON for any act exceed the individual price of the product on which liability is asserted.

IN NO EVENT SHALL OMRON BE RESPONSIBLE FOR WARRANTY, REPAIR, OR OTHER CLAIMS REGARDING THE PRODUCTS UNLESS OMRON'S ANALYSIS CONFIRMS THAT THE PRODUCTS WERE PROPERLY HANDLED, STORED, INSTALLED, AND MAINTAINED AND NOT SUBJECT TO CONTAMINATION, ABUSE, MISUSE, OR INAPPROPRIATE MODIFICATION OR REPAIR.

## Application Considerations

### SUITABILITY FOR USE

OMRON shall not be responsible for conformity with any standards, codes, or regulations that apply to the combination of products in the customer's application or use of the products.

At the customer's request, OMRON will provide applicable third party certification documents identifying ratings and limitations of use that apply to the products. This information by itself is not sufficient for a complete determination of the suitability of the products in combination with the end product, machine, system, or other application or use.

The following are some examples of applications for which particular attention must be given. This is not intended to be an exhaustive list of all possible uses of the products, nor is it intended to imply that the uses listed may be suitable for the products:

- Outdoor use, uses involving potential chemical contamination or electrical interference, or conditions or uses not described in this catalog.
- Nuclear energy control systems, combustion systems, railroad systems, aviation systems, medical equipment, amusement machines, vehicles, safety equipment, and installations subject to separate industry or government regulations.
- Systems, machines, and equipment that could present a risk to life or property.

Please know and observe all prohibitions of use applicable to the products.

NEVER USE THE PRODUCTS FOR AN APPLICATION INVOLVING SERIOUS RISK TO LIFE OR PROPERTY WITHOUT ENSURING THAT THE SYSTEM AS A WHOLE HAS BEEN DESIGNED TO ADDRESS THE RISKS, AND THAT THE OMRON PRODUCTS ARE PROPERLY RATED AND INSTALLED FOR THE INTENDED USE WITHIN THE OVERALL EQUIPMENT OR SYSTEM.

### PROGRAMMABLE PRODUCTS

OMRON shall not be responsible for the user's programming of a programmable product, or any consequence thereof.

## Disclaimers

### CHANGE IN SPECIFICATIONS

Product specifications and accessories may be changed at any time based on improvements and other reasons.

It is our practice to change model numbers when published ratings or features are changed, or when significant construction changes are made. However, some specifications of the products may be changed without any notice. When in doubt, special model numbers may be assigned to fix or establish key specifications for your application on your request. Please consult with your OMRON representative at any time to confirm actual specifications of purchased products.

### DIMENSIONS AND WEIGHTS

Dimensions and weights are nominal and are not to be used for manufacturing purposes, even when tolerances are shown.

### PERFORMANCE DATA

Performance data given in this catalog is provided as a guide for the user in determining suitability and does not constitute a warranty. It may represent the result of OMRON's test conditions, and the users must correlate it to actual application requirements. Actual performance is subject to the OMRON Warranty and Limitations of Liability.

### ERRORS AND OMISSIONS

The information in this document has been carefully checked and is believed to be accurate; however, no responsibility is assumed for clerical, typographical, or proofreading errors, or omissions.

2011.12

In the interest of product improvement, specifications are subject to change without notice.

**OMRON Corporation**  
Industrial Automation Company

<http://www.ia.omron.com/>

(c)Copyright OMRON Corporation 2011 All Right Reserved.