E2E 2-Wire DC

Reduce Wiring to Control Devices with Short-Barrel 2-Wire DC Prox Sensors

- Thick nickel-plated brass barrel has wrench flats for easy installation
- Solid potted internal circuitry withstands shocks and water washdown to IP67
- High visibility indicator
- Choose prewired or connector models





Ordering Information (Shaded models are normally stocked.)

Prewired Sensors

Self-diagnostic	Туре	Size	Sensing distance		Model			
output function		Size	Sensing distance		NO (Note 1, 2)	NC		
	Shielded	M12	3 mm		E2E-X3D1S	_		
		M18	7 mm		E2E-X7D1S	_		
Yes		M30	10 mm		E2E-X10D1S	_		
100	Unshielded	M12			E2E-X8MD1S	_		
		M18	14 mm		E2E-X14MD1S	_		
		M30		20 mm	E2E-X20MD1S	_		
	Unshielded	M8	2 mm		E2E-X2D1-N	E2E-X2D2-N		
		M12	3 mm		E2E-X3D1-N	E2E-X3D2-N		
		M18			E2E-X7D1-N	E2E-X7D2-N		
No		M30	10 mm		E2E-X10D1-N	E2E-X10D2-N		
		M8	4 mm		E2E-X4MD1	E2E-X4MD2		
		M12			E2E-X8MD1	E2E-X8MD2		
		M18	14 mm i		E2E-X14MD1	E2E-X14MD2		
		M30		20 mm	E2E-X20MD1	E2E-X20MD2		

Note: 1 .A different oscillating frequency is available. Add a "5" to the part number (e.g., E2E-X3D15-N). 2 .E2E sensors with robotic cable are available. Add a "-R" in the part number (e.g., E2E-X3D1-R).

Sensors With Built-in Connector

Connector	Self-diag-						Model														
size	nostic output function	Туре	Size	Sensing distance			NO (Pins 1 and 4)	NC (Pins 1 and 2)													
		Shielded	M12	3 mm	 	 	E2E-X3D1S-M1														
			M18		l I 7 mm I	 	E2E-X7D1S-M1														
	Yes		M30		10 mm	 	E2E-X10D1S-M1														
	Yes	Unshielded	M12		 8 mm 	 	E2E-X8MD1S-M1														
M12/Micro			M18		14 mm	 	E2E-X14MD1S-M1														
Change [®]			M30		<u> </u>	20 mm	E2E-X20MD1S-M1														
	No	Shielded	M8	2 mm	 	 	E2E-X2D1-M1G	E2E-X2D2-M1G													
			M12	3 mm	 	 	E2E-X3D1-M1G (See Note 1.)	E2E-X3D2-M1G													
			M18		 7 mm	 	E2E-X7D1-M1G (See Note 1.)	E2E-X7D2-M1G													
			M30		10 mm	 	E2E-X10D1-M1G (See Note 1.)	E2E-X10D2-M1G													
			M8	4 mm	 	 	E2E-X4MD1-M1G	E2E-X4MD2-M1G													
M12/Micro			M12		 8 mm	 	E2E-X8MD1-M1G (See Note 1.)	E2E-X8MD2-M1G													
Change [®]		Shielded Unshielded		ļ												M18		14 mm	 	E2E-X14MD1-M1G (See Note 1.)	E2E-X14MD2-M1G
				M30		I	20 mm	E2E-X20MD1-M1G (See Note 1.)	E2E-X20MD2-M1G												
M8/Nano Change®			M8	2 mm	 	 	E2E-X2D1-M3G	E2E-X2D2-M3G													
			IVIO	4 mm	 	 	E2E-X4MD1-M3G	E2E-X4MD2-M3G													

Note: 1 . A different oscillating frequency is available. Add a "5" to the part number (e.g., E2E-X3D15-N).
2 . E2E sensors with a "G" in the part number denotes alternate pin arrangement. Refer to the *Connections* section.
3 . Connector cordsets: For MicroChange® use OMRON Y96E-44□D□; for NanoChange® use Omron XS3F-M42□-40□-R.

Sensor With Pigtail Connector

Туре	Size	Sensing distance	Polarity	Model
Туре	Size	Sensing distance	li Glanty	NO
	M12	3 mm	Yes	E2E-X3D1-M1GJ
	IVITZ	3 11111	No	E2E-X3D1-M1J-T
Shielded	M18	!!	Yes	E2E-X7D1-M1GJ
Sillelded	IVITO	7 mm	No	E2E-X7D1-M1J-T
	M30	10 !	Yes	E2E-X10D1-M1GJ
		10 mm	No	E2E-X10D1-M1J-T
Unshielded	M12	8 mm		E2E-X8MD1-M1GJ
	M18	14 mm	Yes	E2E-X14MD1-M1GJ
	M30	20 mm		E2E-X20MD1-M1GJ

Note: 1 .A model with no polarity has a residual voltage of 5 V, which must be taken into consideration together with the interface condition (the PLC's ON voltage, for example) when connecting the proximity sensor to a load.

2 .Connector cordsets: Use OMRON Y96E-44□D□.

Sensor With Four-Pin Connector

Туре	Size	Sensing distance	Model		
			NO (Pins 3 and 4)	NC (Pins 2 and 3)	
	M8	2 mm	E2E-X2D1-M1	E2E-X2D2-M1	
Shielded	M12	3 mm	E2E-X3D1-M1	E2E-X3D2-M1	
Silleided	M18	7 imm	E2E-X7D1-M1	E2E-X7D2-M1	
	M30	10 mm	E2E-X10D1-M1	E2E-X10D2-M1	
	M8	4 mm	E2E-X4MD1-M1	E2E-X4MD2-M1	
Unshielded	M12	8 imm	E2E-X8MD1-M1	E2E-X8MD2-M1	
Onsineided	M18	14 mm	E2E-X14MD1-M1	E2E-X14MD2-M1	
	M30	20 mm	E2E-X20MD1-M1	E2E-X20MD2-M1	

Accessories

Description	Model	
	Fits M8 size sensors	Y92E-B8
Mounting brackets	Fits M12 size sensors	Y92E-B12
Mounting brackets	Fits M18 size sensors	Y92E-B18
	Fits M30 size sensors	Y92E-B30
	Fits M12 size sensors	Y92E-E12-2
Silicone rubber covers for shielded sensors	Fits M18 size sensors	Y92E-E18-2
	Fits M30 size sensors	Y92E-E30-2
Connector cordsets	See Y96E and XS Connector Cordsets data sheets for deta	ils

Note: Use OMRON Y96E-44 D cordsets with M12 connector; use XS3F cordsets with M8 connector.

Replacement Parts

Description	Model	
	Fits M8 size sensors	M8-MHWS
Mounting hardware including one pair of metal	Fits M12 size sensors	M12-MHWS
nuts and one washer	Fits M18 size sensors	M18-MHWS
	Fits M30 size sensors	M30-MHWS

Specifications

Ratings/Characteristics

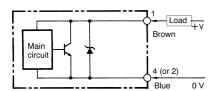
Model		E2E-X2D	E2E-X4MD	E2E-X3D	E2E-X8MD	E2E-X7D	E2E-X14MD	E2E-X10D	E2E-X20MD	
Size		M8		M12		M18		M30		
Туре		Shielded	Unshielded	Shielded	Unshielded	Shielded	Unshielded	Shielded	Unshielded	
Sensing d	istance	2 mm (0.08 in) ±10%	4 mm (0.16 in) ±10%	3 mm (0.12 in) ±10%	8 mm (0.31 in) ±10%	7 mm (0.28 in) ±10%	14 mm (0.55 in) ±10%	10 mm (0.39 in) ±10%	20 mm (0.79 in) ±10%	
Supply voltage (operating voltage) 12 to 24 VDC, ripple (p-p): 1			10% max., (10) to 30 VDC)						
Leakage o	urrent	0.8 mA max.								
Sensing o	bject	Magnetic me	tals (refer to <i>E</i>	ngineering Da	ta for non-mag	gnetic metals)				
Setting dis	stance	0 to 1.6 mm (0 to 0.06 in)	0 to 3.2 mm (0 to 0.13 in)	0 to 2.4 mm (0 to 0.09 in)			0 to 11.2 mm (0 to 0.44 in)	0 to 8.0 mm (0 to 0.31 in)	0 to 16.0 mm (0 to 0.63 in)	
Standard (mild steel		8 x 8 x 1 mm (0.31 x 0.31 x 0.04 in)	20 x 20 x 1 mm (0.79 x 0.79 x 0.04 in)	12 x 12 x 1 mm (0.47 x 0.47 x 0.04 in)	30 x 30 x 1 mm (1.18 x 1.18 x 0.04 in)	18 x 18 x 1 mm (0.71 x 0.71 x 0.04 in)	30 x 30 x 1 mm (1.18 x 1.18 x 0.04 in)	30 x 30 x 1 mm (1.18 x 1.18 x 0.04 in)	54 x 54 x 1 mm (2.13 x 2.13 x 0.04 in)	
Differentia	l travel	15% max. of sensing distance		10% max. of sensing distance						
Response frequency		1.5 kHz	1.0 kHz	1.0 kHz	0.8 kHz	0.5 kHz	0.4 kHz	0.4 kHz	0.1 kHz	
Operation (with targe approachi	et object	D1 models: Load ON D2 models: Load OFF								
Control ou (switching		3 to 100 mA (5 to 100 mA with residual voltage of 5V for -M1J-T models) Diagnostic output: 50 mA for -D1S models								
Diagnostic delay	output	0.3 to 1 s								
Circuit pro	tection	Surge absorb	er, load short-	I short-circuit protection (for control and diagnostic output)						
Indicator		D1 models: Operation indicator (red LED), operation set indicator (green LED) D2 models: Operation indicator (red LED)								
Enclosure	IEC	IP67								
rating	NEMA	1, 4, 6, 12, 13	3							
	Body	Stainless ste		Brass						
Material	Sensing face	РВТ								

Operation

Output Circuits

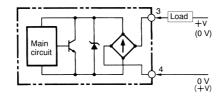
E2E-X□D□ DC 2-wire Models

E2E-X□D□ Without Diagnostic Output



E2E-X2D

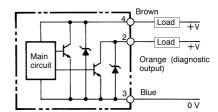
E2E-X□D1-M1J-T No Polarity



Note: 1 . The load can be connected to either the +V or 0-V side.

2 .The E2E-X□D1-M1J-T has no polarity.
Therefore, terminals 3 and 4 have no polarity.

E2E-X□D1S Without Diagnostic Output



Dimensions

Unit: mm (inch)

Prewired Models (Shielded)

Fig. 1:



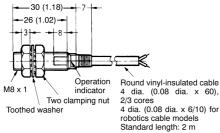
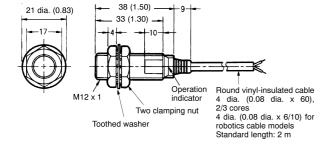


Fig. 3: E2E-X3D□



Prewired Models (Unshielded)

Fig. 2: E2E-X4MD□

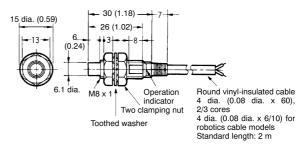
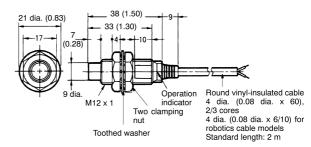


Fig. 4: E2E-X8MD□



Unit: mm (inch)

Prewired Models (Shielded)

Fig. 5: E2E-X7D□

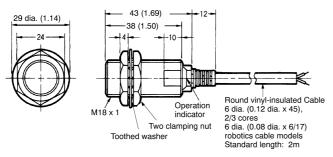
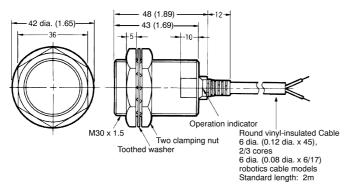


Fig. 7: E2E-X10D□



Prewired Models (Unshielded)

Fig. 6: E2E-X14MD□

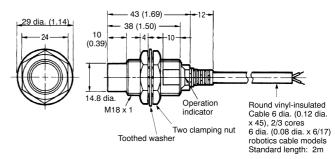
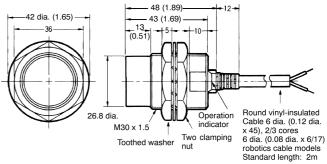


Fig. 8: E2E-X20MD□



Connector Models (Shielded)

Fig. 9: E2E-X2D□-M1G

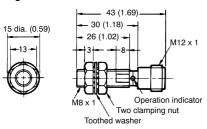


Fig. 11: E2E-X3D□-M1G

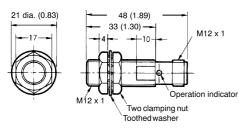
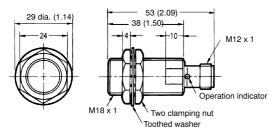


Fig. 13: E2E-X7D□-M1G



Connector Models (Unshielded)

Fig. 10: E2E-X4MD□-M1G

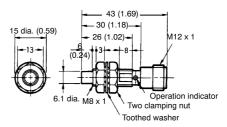


Fig. 12: E2E-X8MD□-M1G

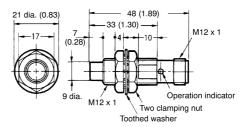
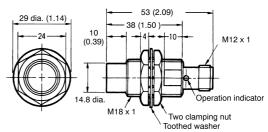
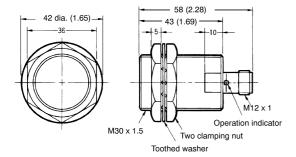


Fig. 14: E2E-X14MD□-M1G



Unit: mm (inch)

Fig. 15: E2E-X10D□-M1G



M8 Connector Models (Shielded)

Fig. 17: E2E-X2D□-M3G

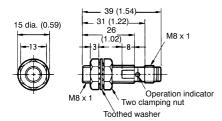
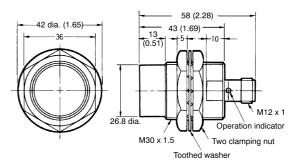
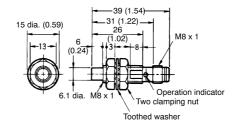


Fig. 16: E2E-X20MD□-M1G



M8 Connector Models (Unshielded)

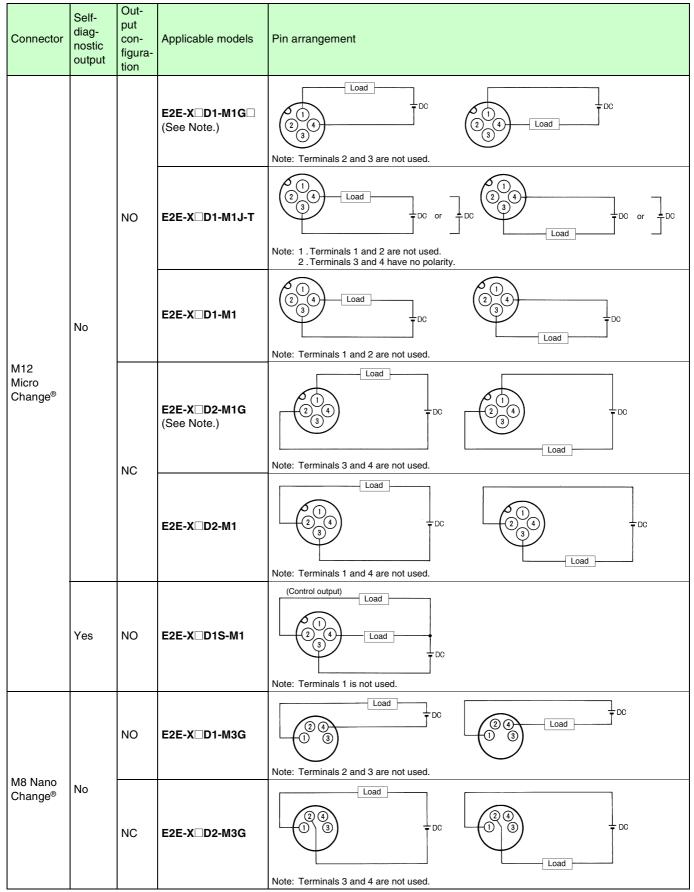
Fig. 18: E2E-X4MD□-M3G



Connection

Pin Arrangements

E2E-X D -M DC 2-wire Models



Note: Pin arrangements conform to IEC standards.

Terms and Conditions of Sale

- Offer: Acceptance. These terms and conditions (these "Terms") are deemed part of all quotes, agreements, purchase orders, acknowledgments, price lists, catalogs, manuals, brochures and other documents, whether electronic or in writing, relating to the sale of products or services (collectively, the "<u>Products</u>") by Omron Electronics LLC and its subsidiary companies ("<u>Omron</u>"). Omron objects to any terms or conditions proposed in Buyer's purchase order or other documents which are inconsistent with, or in addition to, these Terms
- Prices: Payment Terms. All prices stated are current, subject to change without notice by Omron. Omron reserves the right to increase or decrease prices on any unshipped portions of outstanding orders. Payments for Products are due net 30 days unless otherwise stated in the invoice.
- Discounts. Cash discounts, if any, will apply only on the net amount of invoices sent to Buyer after deducting transportation charges, taxes and duties, and will be allowed only if (i) the invoice is paid according to Omron's payment terms
- and (ii) Buyer has no past due amounts.

 Interest. Omron, at its option, may charge Buyer 1-1/2% interest per month or the maximum legal rate, whichever is less, on any balance not paid within the stated terms
- Orders. Omron will accept no order less than \$200 net billing.
- Governmental Approvals. Buyer shall be responsible for, and shall bear all costs involved in, obtaining any government approvals required for the importation or sale of the Products.
- Taxes. All taxes, duties and other governmental charges (other than general real property and income taxes), including any interest or penalties thereon, imposed directly or indirectly on Omron or required to be collected directly or indirectly by Omron for the manufacture, production, sale, delivery, importation, consumption or use of the Products sold hereunder (including customs duties and sales, excise, use, turnover and license taxes) shall be charged to and remitted by Buyer to Omron.
- Financial. If the financial position of Buyer at any time becomes unsatisfactory to Omron, Omron reserves the right to stop shipments or require satisfactory security or payment in advance. If Buyer fails to make payment or otherwise comply with these Terms or any related agreement, Omron may (without liability and in addition to other remedies) cancel any unshipped portion of Products sold hereunder and stop any Products in transit until Buyer pays all amounts, including amounts payable hereunder, whether or not then due, which are owing to it by Buyer. Buyer shall in any event remain liable for all
- Cancellation: Etc. Orders are not subject to rescheduling or cancellation unless Buyer indemnifies Omron against all related costs or expenses.
- 10. Force Majeure. Omron shall not be liable for any delay or failure in delivery resulting from causes beyond its control, including earthquakes, fires, floods, strikes or other labor disputes, shortage of labor or materials, accidents to machinery, acts of sabotage, riots, delay in or lack of transportation or the requirements of any government authority.
- Shipping: Delivery. Unless otherwise expressly agreed in writing by Omron:
 Shipments shall be by a carrier selected by Omron; Omron will not drop ship except in "break down" situations.
 - b. Such carrier shall act as the agent of Buyer and delivery to such carrier shall constitute delivery to Buyer; c. All sales and shipments of Products shall be FOB shipping point (unless oth-
 - erwise stated in writing by Omron), at which point title and risk of loss shall pass from Omron to Buyer; provided that Omron shall retain a security interest in the Products until the full purchase price is paid; d. Delivery and shipping dates are estimates only; and e. Omron will package Products as it deems proper for protection against nor-
- mal handling and extra charges apply to special conditions.

 12. Claims. Any claim by Buyer against Omron for shortage or damage to the Products occurring before delivery to the carrier must be presented in writing to Omron within 30 days of receipt of shipment and include the original transportation bill signed by the carrier noting that the carrier received the Products term Omron in the condition claims. from Omron in the condition claimed.
- Warranties. (a) Exclusive Warranty. Omron's exclusive warranty is that the Products will be free from defects in materials and workmanship for a period of twelve months from the date of sale by Omron (or such other period expressed in writing by Omron). Omron disclaims all other warranties, express or implied.

 (b) <u>Limitations</u>. OMRON MAKES NO WARRANTY OR REPRESENTATION, EXPRESS OR IMPLIED, ABOUT NON-INFRINGEMENT, MERCHANTABIL-

- ITY OR FITNESS FOR A PARTICULAR PURPOSE OF THE PRODUCTS. BUYER ACKNOWLEDGES THAT IT ALONE HAS DETERMINED THAT THE PRODUCTS WILL SUITABLY MEET THE REQUIREMENTS OF THEIR INTENDED USE. Omron further disclaims all warranties and responsibility of INI ENDED USE. Office further disclaims all warranties and responsibility of any type for claims or expenses based on infringement by the Products or otherwise of any intellectual property right. (c) <u>Buyer Remedy</u>. Omron's sole obligation hereunder shall be, at Omron's election, to (i) replace (in the form originally shipped with Buyer responsible for labor charges for removal or replacement thereof) the non-complying Product, (ii) repair the non-complying Product, or (iii) repay or credit Buyer an amount equal to the purchase price of the non-complying Product; provided that in no event shall Omron be responsible for warranty repair indemnity or any other claims or expresse readding. ble for warranty, repair, indemnity or any other claims or expenses 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. Return of any Products by Buyer must be approved in writing by Omron before shipment. Omron Companies shall not be liable for the suitability or unsuitability or the results from the use of Products in combination with any electrical or electronic components, circuits, system assemblies or any other materials or substances or environments. Any advice, recommendations or information given orally or in writing, are not to be construed as an amendment or addition to the above warranty See http://oeweb.omron.com or contact your Omron representative for published information.
- lished information.

 Limitation on Liability: Etc. OMRON COMPANIES SHALL NOT BE LIABLE FOR SPECIAL, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, LOSS OF PROFITS OR PRODUCTION OR COMMERCIAL LOSS IN ANY WAY CONNECTED WITH THE PRODUCTS, WHETHER SUCH CLAIM IS BASED IN CONTRACT, WARRANTY, NEGLIGENCE OR STRICT LIABILITY. Further, in no event shall liability of Omron Companies exceed the individual price of the Product on which liability is asserted.

 Indemnities. Buyer shall indemnify and hold harmless Omron Companies and their employees from and against all liabilities, losses, claims, costs and expenses (including attorneys fees and expenses) related to any claim inves-
- expenses (including attorney's fees and expenses) related to any claim, investigation, litigation or proceeding (whether or not Omron is a party) which arises or is alleged to arise from Buyer's acts or omissions under these Terms or in any way with respect to the Products. Without limiting the foregoing, Buyer (at its own expense) shall indemnify and hold harmless Omron and defend or settle any action brought against such Companies to the extent based on a claim that any Product made to Buyer specifications infringed intellectual property
- rights of another party.

 Property: Confidentiality. Any intellectual property in the Products is the exclusive property of Omron Companies and Buyer shall not attempt to duplicate it in any way without the written permission of Omron. Notwithstanding any charges to Buyer for engineering or tooling, all engineering and tooling shall remain the exclusive property of Omron. All information and materials supplied by Omron to Buyer relating to the Products are confidential and proprietary, and Buyer shall limit distribution thereof to its trusted employees and strictly
- prevent disclosure to any third party.

 <u>Export Controls.</u> Buyer shall comply with all applicable laws, regulations and licenses regarding (i) export of products or information; (iii) sale of products to "forbidden" or other proscribed persons; and (ii) disclosure to non-citizens of regulated technology or information.

 Miscellaneous. (a) Waiver. No failure or delay by Omron in exercising any right
 - Miscellaneous. (a) Waiver. No failure or delay by Omron in exercising any right and no course of dealing between Buyer and Omron shall operate as a waiver of rights by Omron. (b) Assignment. Buyer may not assign its rights hereunder without Omron's written consent. (c) Law. These Terms are governed by the law of the jurisdiction of the home office of the Omron company from which Buyer is purchasing the Products (without regard to conflict of law principles). (d) Amendment. These Terms constitute the entire agreement between Buyer and Omron relating to the Products, and no provision may be changed or waived unless in writing signed by the parties. (e) Severability. If any provision hereof is rendered ineffective or invalid, such provision shall not invalidate any other provision. (f) Setoff. Buyer shall have no right to set off any amounts against the amount owing in respect of this invoice. (a) Definitions. As used against the amount owing in respect of this invoice. (g) <u>Definitions</u>. As used herein, "including" means "including without limitation"; and "<u>Omron Companies</u>" (or similar words) mean Omron Corporation and any direct or indirect subsidiary or affiliate thereof.

Certain Precautions on Specifications and Use

- <u>Suitability of Use.</u> Omron Companies shall not be responsible for conformity with any standards, codes or regulations which apply to the combination of the Product in the Buyer's application or use of the Product. At Buyer's request, Omron will provide applicable third party certification documents identifying ratings and limitations of use which apply to the Product. This information by itself is not sufficient for a complete determination of the suitability of the Product in combination with the end product, machine, system, or other application or use. Buyer shall be solely responsible for determining appropriateness of the particular Product with respect to Buyer's application, product or system. Buyer shall take application responsibility in all cases but the following is a non-exhaustive list of applications for which particular attention must be given: Outdoor use, uses involving potential chemical contamination or electrical interference, or conditions or uses not described in this document.

 - (ii) Use in consumer products or any use in significant quantities.
 (iii) 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. (iv) Systems, machines and equipment that could present a risk to life or property. Please know and observe all prohibitions of use applicable to this Prod-
 - NEVER USE THE PRODUCT FOR AN APPLICATION INVOLVING SERIOUS RISK TO LIFE OR PROPERTY OR IN LARGE QUANTITIES WITHOUT ENSURING THAT THE SYSTEM AS A WHOLE HAS BEEN DESIGNED TO

- ADDRESS THE RISKS, AND THAT THE OMRON'S PRODUCT IS PROPERLY RATED AND INSTALLED FOR THE INTENDED USE WITHIN THE OVERALL EQUIPMENT OR SYSTEM.
- OVERALL EQUIPMENT OR SYSTEM.

 Programmable Products. Omron Companies shall not be responsible for the user's programming of a programmable Product, or any consequence thereof.

 Performance Data. Data presented in Omron Company websites, catalogs and other materials 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 user must correlate it to actual application requirements. Actual performance is subject to the Omron's Warranty and Limitations of Liability.
- 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 part numbers when published ratings or features are changed, or when significant construction changes are made. However, some specifications of the Product may be changed without any notice. When in doubt, special part numbers may be assigned to fix or establish key specifications for your application. Please consult with your Omron's representative at any time
- to confirm actual specifications of purchased Product.

 <u>Errors and Omissions.</u> Information presented by Omron Companies has been checked and is believed to be accurate; however, no responsibility is assumed for clerical, typographical or proofreading errors or omissions.

 $\label{lem:complete$

ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.

To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

OMRON

OMRON ELECTRONICS LLC

1 Commerce Drive Schaumburg, IL 60173 Tel: 847.843.7900

For U.S. technical support or other inquiries: 800.556.6766

OMRON CANADA, INC.

885 Milner Avenue Toronto, Ontario M1B 5V8 Tel: 416.286.6465

MEXICO SALES OFFICES

 Mexico, D.F.
 555.660.3144

 Ciudad Juárez
 656.623.7083

 Monterrey, N.L.
 818.377.4281

 Querétaro
 442.135.4510

BRAZIL SALES OFFICE

Sao Paulo 55.11.2101.6310

ARGENTINA SALES OFFICE

Cono Sur 54.114.787.1129

CHILE SALES OFFICE

Santiago 562.206.4592

OTHER LATIN AMERICAN SALES Florida 954.227.2121

OMRON ON-LINE

Global -

www.omron.com

USA -

www.omron.com/oei

Canada www.omron.ca

Brazil -

www.omron.com.br

Latin America -

www.espanol.omron.com