


Pressure Sensor with Easy-to-Read LED Display

- Pressure status can be checked at a glance from the red digital pressure value and analog bar displays.
- Measurement pressure is averaged by the chattering prevention function to prevent incorrect outputs due to momentary pressure changes.
- The automatic teaching function teaches pressure values for good and bad products.
- Industry's smallest models at just 28 × 28 × 29 mm.



 Be sure to read *Safety Precautions* on page 1119.

Pressure Sensors



Ordering Information

Sensors

Sensing Guide	Pressure range		ON/OFF output	Linear output	Model	
					NPN output	PNP output
Pressure Sensors	Positive pressure	0 to 100 kPa	NPN open collector (two independent outputs)	1 to 5 V	E8F2-A01C	E8F2-A01B
		0 to 1 MPa			E8F2-B10C	E8F2-B10B
	Negative pressure	0 to -101 kPa			E8F2-AN0C	E8F2-AN0B

Other Information

Accessories (Order Separately)

Appearance	Name	Model	Remarks
	Mounting Bracket	E89-F3	Provided with the E8F2.
	Panel-mounting Bracket	E89-F4	Spacer provided.

E8F2

E8MS
/E8M

E8Y

E8Y-C-F3

Ratings and Specifications

Sensor

Item	Model	NPN output PNP output	E8F2-A01C		E8F2-B10C		E8F2-AN0C	
			E8F2-A01B		E8F2-B10B		E8F2-AN0B	
Power supply voltage	12 to 24 VDC±10% with a ripple (p-p) of 10% max.							
Current consumption	70 mA max. *1							
Pressure type	Gauge pressure							
Rated pressure range	0 to 100 kPa		0 to 1 MPa		0 to -101 kPa			
Pressure setting range	0 to 100 kPa		0 to 1 MPa		0 to -101 kPa			
Withstand pressure	400 kPa		1.5 MPa		400 kPa			
Applicable fluid	Non-corrosive gas and non-flammable gas							
Operating mode	Hysteresis mode, window mode, and automatic teaching mode							
Repeat accuracy (ON/OFF output)	±1%FS max.							
Linearity (linear output)	±1%FS max.							
Response time (ON/OFF output)	5 ms max.							
Linear output	1 to 5 V with an output impedance of 1 kΩ and a permissible resistive load of 500 kΩ.							
ON/OFF outputs	NO or NC open collector (depending on whether the output configuration is NPN or PNP)							
	Load current	30 mA max.						
	Output applied voltage	30 VDC max.						
	Residual voltage	NPN open collector output: 1 V max. with 30 mA load current PNP open collector output: 2 V max. with 30 mA load current						
Display *2	3.5-digit red LED Green LED bar indicator The orange LED is lit for two independent outputs with output transistor turned ON. Green unit indicator							
Display accuracy	±3%FS±1 digit max.							
Protection circuits	Reverse polarity protection, load short-circuit protection							
Ambient temperature	Operating: 0 to 55°C Storage: -10 to 60°C (with no icing)							
Ambient humidity	Operating/Storage: 35% to 85% (with no condensation)							
Temperature influence	±3%FS max.							
Voltage influence	±1.5%FS max.							
Insulation resistance	100 MΩ min. (at 500 VDC) between current-carrying parts and case							
Dielectric strength	1,000 VAC at 1 min							
Vibration resistance	Destruction: 10 to 500 Hz, 1.0-mm double amplitude or 150 m/s ² , three times each for 11 min in the X, Y, and Z directions							
Shock resistance	Destruction: 300 m/s ² 3 times each in the X, Y, and Z directions							
Degree of protection	IP50 (IEC)							
Pressure port	R (PT) 1/8 taper screw and M5 female screw							
Connection method	Pre-wired (standard length: 2 m)							
Cable	Approved by UL							
Weight (packed state)	Approx. 110 g							
Material	Pressure port	Aluminum die-cast						
	Case	Heat-resistant ABS						
Accessories	Mounting Bracket, Instruction manual							

Pressure Sensors

Sensing Guide

Pressure Sensors

Other Information

E8F2

E8MS
/E8M

E8Y

E8Y-□-F□

*1. The current consumption is approximately 43 mA in energy-saving mode.

*2. Display Example of Digital Indicator

Model	Setting unit				
	kPa				
	Applied pressure	Digital display			
E8F2-A01C	100	1	0	0	0 ● 0
E8F2-B10C	1000	1	0	0	0 0
E8F2-AN0C	-101	-1	0	1	● 0

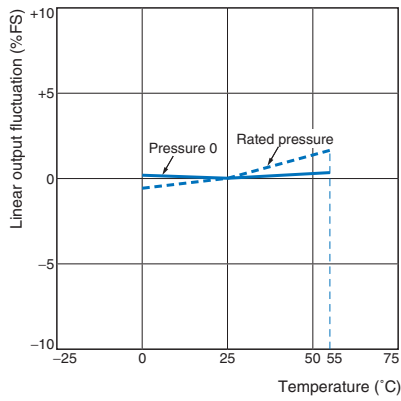
Note: The period (●) in the display indicates the decimal point.
Its position will not change unless the setting unit is changed.

E8F2

Engineering Data (Typical)

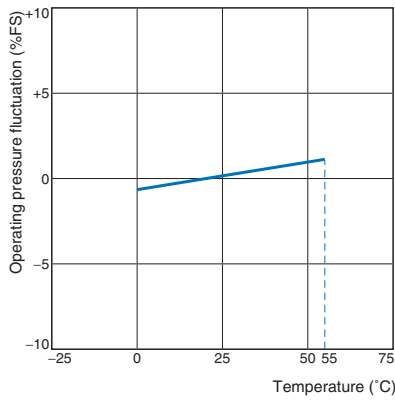
Temperature vs. Linear Output Current Fluctuation

E8F2-A01 □



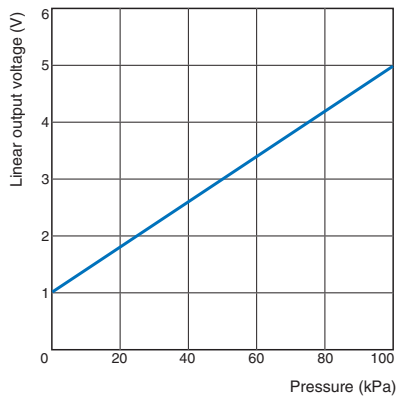
Temperature vs. Operating Pressure Fluctuation

E8F2-A01 □



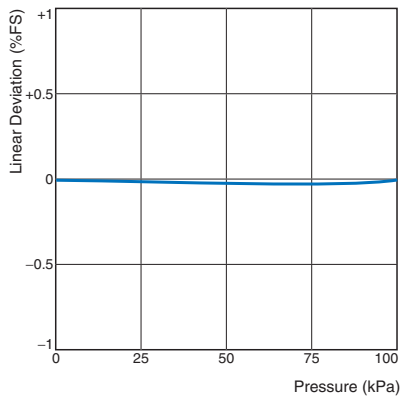
Pressure vs. Linear Output

E8F2-A01 □



Linearity

E8F2-A01 □



Pressure Sensors

Sensing Guide

Pressure Sensors

Other Information

E8F2

E8MS

E8M

E8Y

E8Y-□-□

I/O Circuit Diagrams

NPN Output

Operating mode	Model	Timing chart		Output circuit
		Hysteresis mode	Window mode	
NO	E8F2-A01C E8F2-B10C E8F2-ANOC			
NC	E8F2-A01C E8F2-B10C E8F2-ANOC			

Pressure Sensors

PNP Output

Operating mode	Model	Timing chart		Output circuit
		Hysteresis mode	Window mode	
NO	E8F2-A01B E8F2-B10B E8F2-ANOB			
NC	E8F2-A01B E8F2-B10B E8F2-ANOB			

Sensing Guide

Pressure Sensors

Other Information

E8F2

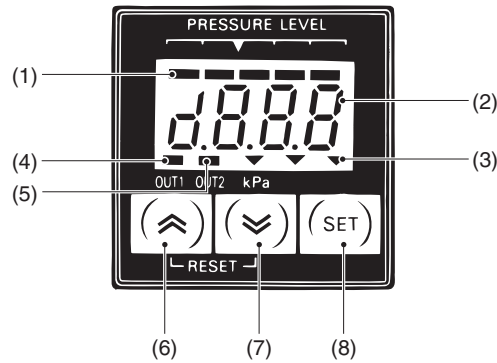
E8MS
/E8M

E8Y

E8Y-□-F□

E8F2

Nomenclature



Display Panel

- (1) **Bar Indicator (Green)**
Indicates the degree of measured pressure in relation to the set pressure.
- (2) **Numeric and Menu Display (Red)**
Indicates measurement values and setting menu items.
- (3) **Unit indicator (Green)**
Indicates the unit used for detection. The unit indicated on the indicator is the one currently set.
- (4) **OUT1 Indicator (Orange)**
Lit when OUT1 is turned ON.
- (5) **OUT2 Indicator (Orange)**
Lit when OUT2 is turned ON.

Operation Keys

- (6) **Up Key, (7) Down Key**
 - Used to select or change the set items, set contents, and set values in setting mode.
 - Press either key to check the ON and OFF points in measurement mode. The values are reset by pressing both keys simultaneously.
 - Use together with the SET Key for setting the Sensor to a special setting mode or energy-saving mode.
- (7) **SET Key**
 - Used for entering the set contents and set values in setting mode.
 - Used for setting the Sensor to basic setting mode or pressure setting mode.

Pressure Sensors

Sensing Guide

Pressure Sensors

Other Information

E8F2

E8MS
/E8M

E8Y

E8Y-C-F1

Safety Precautions

Refer to *Warranty and Limitations of Liability* on page F-2.

⚠ WARNING

This product is not designed or rated for ensuring safety of persons. Do not use it for such purpose.



Precautions for Correct Use

Do not use this product in atmospheres or environments that exceed product ratings.

● Installation

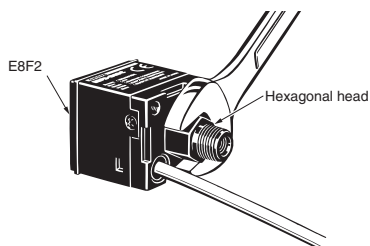
Do not use the Sensor in an environment subject to corrosive or combustible gas.

● Wiring

If no linear output is used, cut the gray lead wire short and apply insulating tape to the lead wire so that it will not come into contact with any other terminal.

● Mounting

- Do not apply a tensile strength in excess of 50 N to the cables or connectors.
- The pressure port (made of aluminum die-cast) is fixed with tapered R(PT) 1/8 male screws and M5 female screws. When using tapered screws, use tapered Rc(PT) 1/8 female screws.
- Wrap the tapered R(PT) 1/8 male screws with sealing tape to prevent any leakage. Tighten the male screws to a torque of 10 N·m max.
- Tighten M5 female screws to a torque of 2 N·m max.
- Tighten each male screw by using a 12-mm wrench to hold its hexagonal head, not its body.



- When attaching the Mounting Bracket to the Sensor, make sure that each M3 screw is tightened to a torque of 0.5 N·m max.

● Adjustments

- Filter the gas with an appropriate air filter so that the applied gas will be free of moisture or oil.
- Be sure to use the Sensor under the rated pressure.
- When setting the set pressure of the ON or OFF point of the output transistor by pressing the mode selection key, use a manometer if precise pressure settings are required. The Sensor has a display error of 3% FS±1 digit at room temperature. Refer to *Display accuracy* in *Ratings and Specifications*.
- Turning ON the power
The Sensor is ready to operate 0.5 s after it is turned ON. When the load and Sensor are connected to separate power supplies, be sure to turn ON the Sensor first.

● Others

Make sure the Sensor does not get wet.

Pressure
Sensors

Sensing
Guide

Pressure
Sensors

Other
Information

E8F2

E8MS
/E8M

E8Y

E8Y-□-□

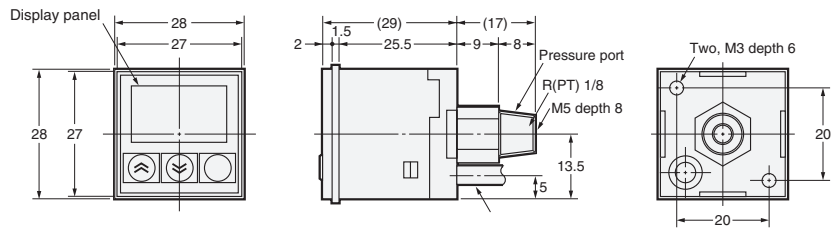
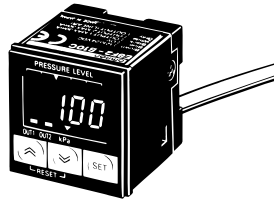
E8F2

Dimensions

(Unit: mm)

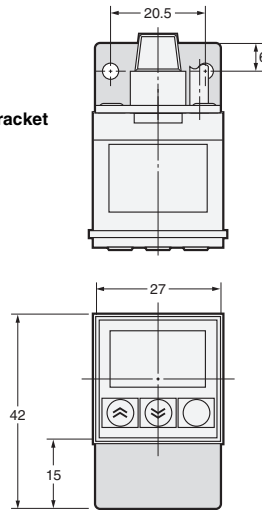
Sensors

E8F2

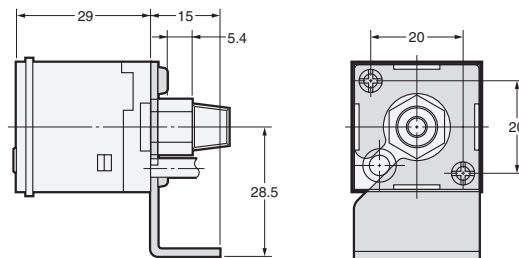
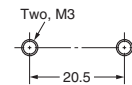


4-dia. vinyl-insulated round cable with 5 conductors
(Conductor cross-section: 0.15 mm², Insulator diameter: 0.9 mm),
Standard length: 2 m

With Mounting Bracket Attached



Mounting Hole Dimensions



Pressure
Sensors

CAD data

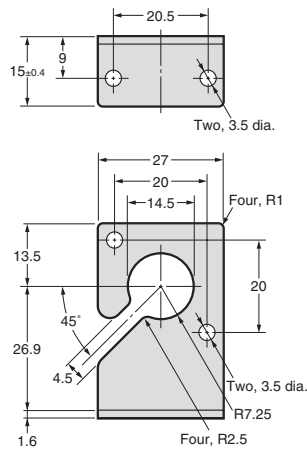
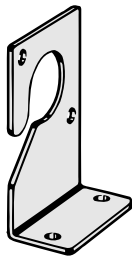
Sensing
Guide

Accessories

Pressure
Sensors

Mounting Bracket E89-F3

Other
Information



Note: Provided with
the E8F2.

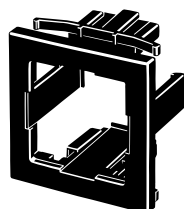
E8F2

E8MS
/E8M

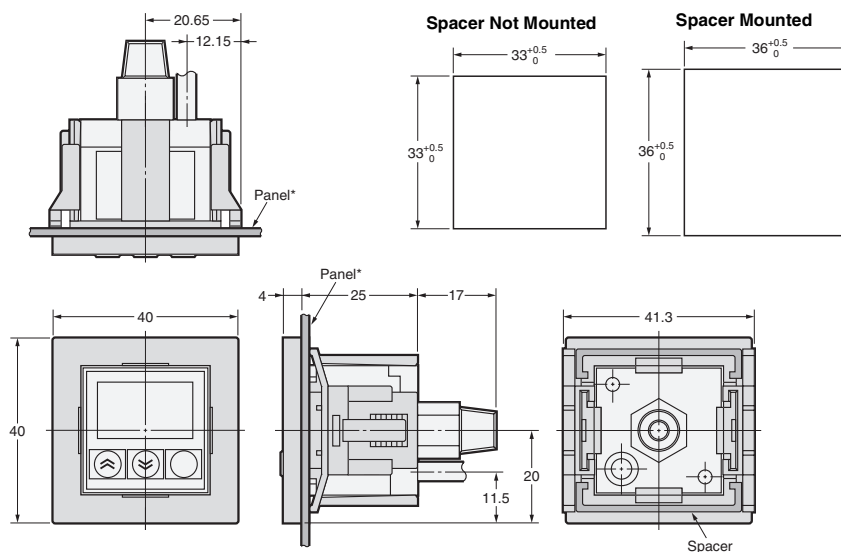
E8Y

E8Y-C-F3

Panel-mounting Bracket E89-F4



Note: Spacer provided.



* Applicable panel thickness: 1.2 to 4 mm

Note: The spacer can be removed from the Panel-mounting Bracket.
The panel cutout dimensions can be adjusted as shown above by attaching or detaching the spacer.

Pressure
Sensors

Sensing
Guide

Pressure
Sensors

Other
Information

E8F2

E8MS
/E8M

E8Y

E8Y-□-□

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 "Products") by Omron Electronics LLC and its subsidiary companies ("Omron"). 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 unpaid accounts.
- Cancellation; Etc.** Orders are not subject to rescheduling or cancellation unless Buyer indemnifies Omron against all related costs or expenses.
- 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.
 - Such carrier shall act as the agent of Buyer and delivery to such carrier shall constitute delivery to Buyer;
 - All sales and shipments of Products shall be FOB shipping point (unless otherwise 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;
 - Delivery and shipping dates are estimates only; and
 - Omron will package Products as it deems proper for protection against normal handling and extra charges apply to special conditions.
- 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 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) **Limitations.** OMRON MAKES NO WARRANTY OR REPRESENTATION, EXPRESS OR IMPLIED, ABOUT NON-INFRINGEMENT, MERCHANTABILITY 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 any type for claims or expenses based on infringement by the Products or otherwise of any intellectual property right. (c) **Buyer Remedy.** 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 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://www.omron247.com> or contact your Omron representative for published 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 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.
- Export Controls.** Buyer shall comply with all applicable laws, regulations and licenses regarding (i) export of products or information; (ii) sale of products to "forbidden" or other proscribed persons; and (iii) disclosure to non-citizens of regulated technology or information.
- 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. (g) **Definitions.** As used herein, "including" means "including without limitation"; and "Omron Companies" (or similar words) mean Omron Corporation and any direct or indirect subsidiary or affiliate thereof.

Certain Precautions on Specifications and Use

- Suitability of Use.** 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.
 - Use in consumer products or any use in significant quantities.
 - 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 this Product.

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.
- 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.
- Errors and Omissions.** 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.

Complete "Terms and Conditions of Sale" for product purchase and use are on Omron's website at www.omron.com/oei – under the "About Us" tab, in the Legal Matters section.

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. (52) 555 660 31 44
Ciudad Juárez (52) 656 623 70 83
Monterrey, N.L. (52) 818 377 42 81
Mexicali, B.C. (52) 686 838 01 15

BRAZIL SALES OFFICES

Sao Paulo (55) 11 2101 6300

ARGENTINA SALES OFFICES

Cono Sur (54) 11 4787 1129

CHILE SALES OFFICES

Santiago (56) 2206 4592

OTHER LATIN AMERICAN SALES

mela@omron.com

OMRON ON-LINE

Global –
www.omron.com

USA –
www.omron247.com

Canada –
www.omron.ca

Brazil –
www.omron.com.br