

Pressure Sensor of Stainless Steel Construction is Ideal for a Wide Range of Applications

- Incorporates double diaphragms consisting of SUS316L stainless steel and silicone diaphragms that are applicable to a variety of gases and liquids.
- Pressure sensing range of 0 to 490 kPa (0 to 5 kgf/cm²) or 0 to 980 kPa (0 to 10 kgf/cm²) is available.
- Two models are available according to the application.
- Linear output of 4 to 20 mA.
- Conforms to IEC IP66 and washable with water.



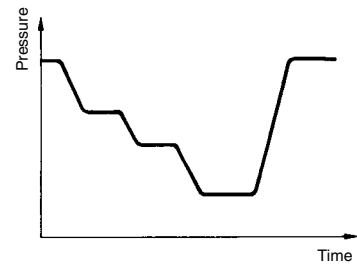
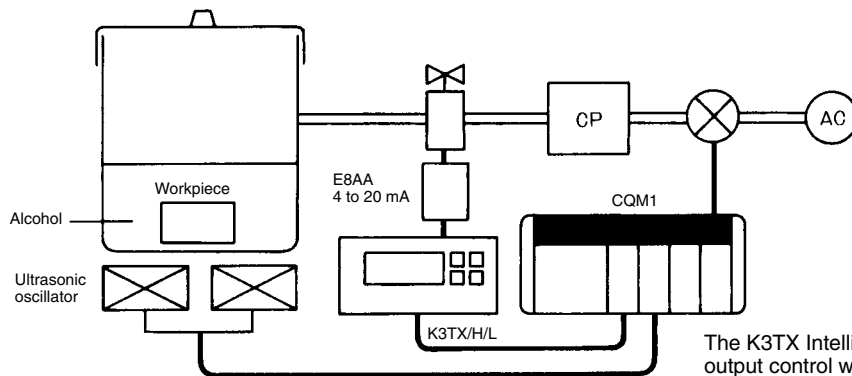
Ordering Information

Pressure range	Output configuration	Model
0 to 5 kgf/cm ² (0 to 490 kPa)	Linear output (4 to 20 mA)	E8AA-M05
0 to 10 kgf/cm ² (0 to 980 kPa)		E8AA-M10

Application Examples

- **Semiconductor Manufacturing Equipment:** Pressure monitoring and control
- **Automatic Assembly Equipment:** Pneumatic pressure control
- **Robots:** Pneumatic pressure control
- **Production Lines:** Pneumatic pressure control
- **Industrial Material Pneumatic Transportation Systems**
- **Pressure Tank:** Pressure control
- **Tank Level Control**

Ultrasonic Cleaning System



The K3TX Intelligent Signal Processor will be in multi-step output control with the analog output of the E8AA and then the peripheral devices will be in multi-step feedback control with the CQM1 Programmable Controller.

Specifications

■ Ratings

Item/Model	E8AA-M05	E8AA-M10
Supply voltage	12 to 24 VDC $\pm 10\%$, ripple (p-p): 5% max.	
Current consumption	40 mA max. (standard value including 20-mA output current) at rated pressure	
Pressure type	Gauge pressure	
Pressure range	0 to 490 kPa (0 to 5 kgf/cm ²)	0 to 980 kPa (0 to 10 kgf/cm ²)
Withstand pressure	980 kPa (10 kgf/cm ²)	2.0 MPa (20 kgf/cm ²)
Applicable material	Non-corrosive gasses, non-corrosive liquids, inert gasses	
Accuracy (linear output)	$\pm 1\%$ FS max. with a resistive load of 150 Ω at 23°C	
Hysteresis (linear output)	$\pm 0.5\%$ FS max.	
Linearity (linear output)	$\pm 1\%$ FS max.	
Response time	100 ms max.	
Linear output	4 to 20 mA with a permissible resistive load of 300 Ω max.	
Ambient temperature	Operating: -10°C to 60°C (with no icing) Storage: -25°C to 70°C	
Ambient humidity	35% to 95% (with no condensation)	
Pressure leading part	R(PT) 1/4	

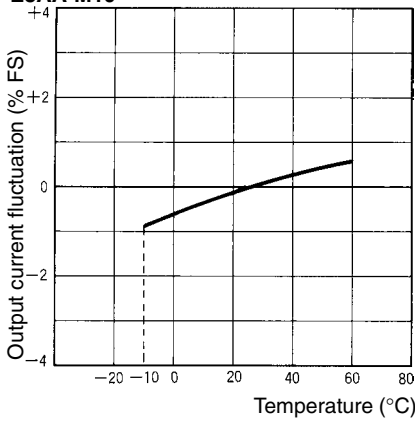
■ Characteristics

Item/Model	E8AA-M05	E8AA-M10
Temperature influence	$\pm 0.09\%$ FS/ $^{\circ}\text{C}$ max. between -10°C and 60°C	
Voltage influence	Max. output current fluctuation of $\pm 0.5\%$ FS at 12 VDC $\pm 10\%$ or 24 VDC $\pm 10\%$ with a ripple of 5%	
Insulation resistance	100 M Ω min. (at 500 VDC) between current carry parts and case	
Dielectric strength	1,000 VAC, 1 min	
Vibration resistance	Destruction: 10 to 500 Hz, 1.5-mm double amplitude or 100 m/s ² (approx. 10G) for 2 hours each in X, Y, and Z directions	
Shock resistance	Destruction: 1,000 m/s ² (approx. 100G) 3 times each in X, Y, and Z directions.	
Degree of protection	IEC60529 IP67	
Material	Pressure port and casing: SUS316 Diaphragm: SUS316L O-ring: Fluorocarbon rubber	
Cord	Vinyl-insulated round cord, 6 dia. with 3 cores Standard length: 2 m	
Weight	Approx. 250 g	

Engineering Data

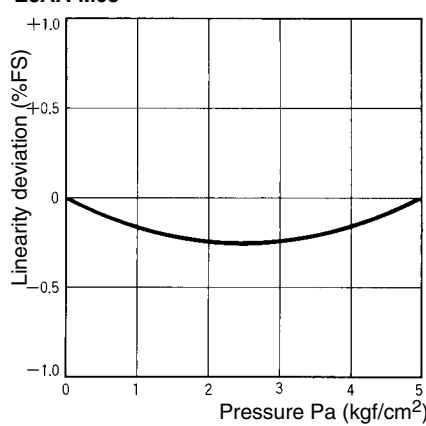
Temperature vs. Output Current Fluctuation (Typical)

E8AA-M10



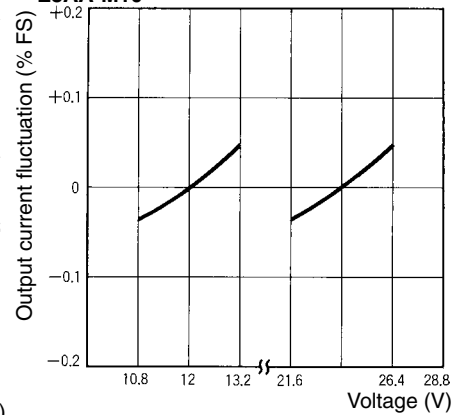
Linearity (Typical)

E8AA-M05



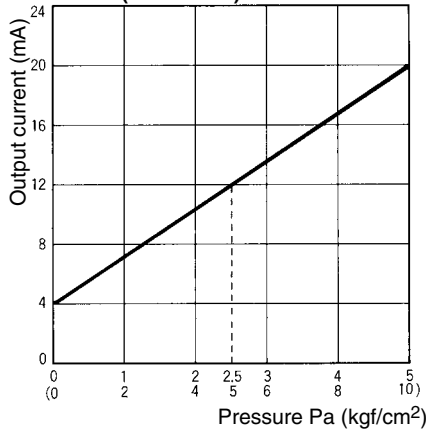
Voltage vs. Output Current Fluctuation (Typical)

E8AA-M10



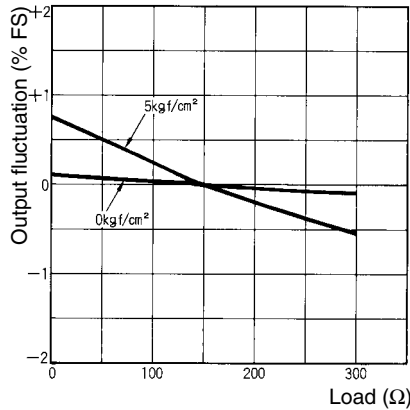
Pressure vs. Output Current (Typical)

E8AA-M05 (E8AA-M10)



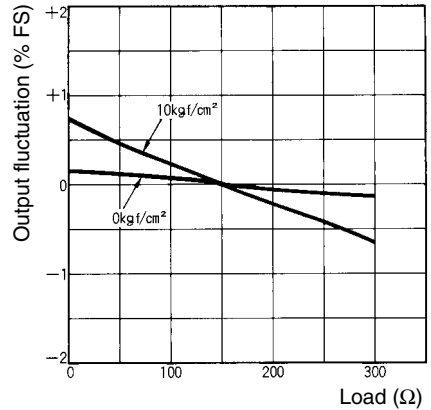
Load vs. Output Current (Typical)

E8AA-M05



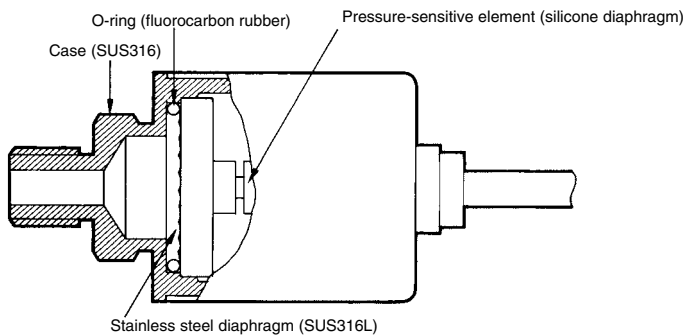
Load vs. Output Current (Typical)

E8AA-M10

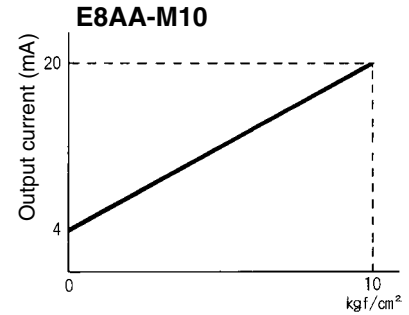
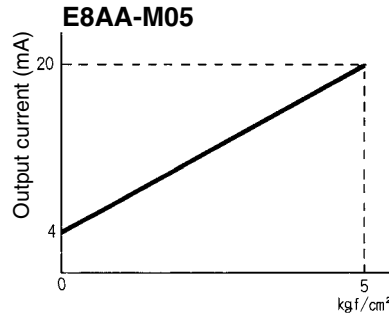
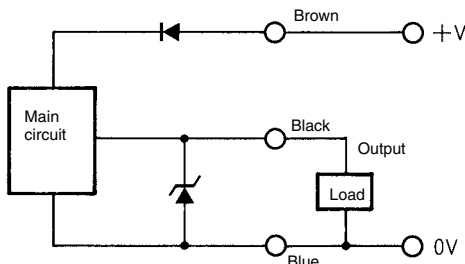


Nomenclature

■ Configuration



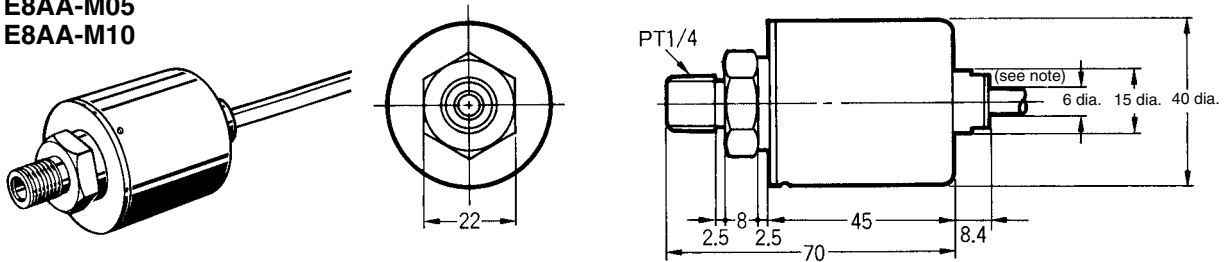
Operation



Dimensions

Note: All units are in millimeters unless otherwise indicated.

E8AA-M05
E8AA-M10



Note: Vinyl-insulated round cord, 6 dia. with 3 cores
Standard length: 2 m

ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.

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

Precautions

Correct Use

Hollow Pipe

The cord has a hollow pipe in order to keep the pressure inside the Sensor the same as the atmospheric pressure. If the pipe is clogged, the accuracy of the Sensor may be lowered.

Do not bend or impose a heavy weight on the output cord.

Make sure that the tip of the output cord is open and not clogged with dust or water.

If it is necessary to cut the output cord, make sure that the tip of the hollow pipe is not clogged.

Diaphragms

If the diaphragms are damaged, the Unit will not operate properly. Do not insert a screwdriver or steel wire into the interior of the pressure-sensitive parts.

The characteristics of the Unit will change if foreign material is stuck to the stainless steel diaphragm.

Mounting

The mounting screw for the pressure leading part is a PT1/4 taper screw. Do not use any other type of screw.

Apply sealing tape to the PT1/4 screw part so that there will be no pressure leakage.

The most suitable wrench is 22 mm in size.

Make sure that the maximum tightening torque applied to mount the E8AA is 49 N • m (500 kgf • cm).

Do not use the E8AA for applications in which the E8AA comes into direct contact with medical or food products.

This document provides information mainly for selecting suitable models. Please read the Instruction Sheet carefully for information that the user must understand and accept before purchase, including information on warranty, limitations of liability, and precautions.

Cat. No. D069-E1-01A In the interest of product improvement, specifications are subject to change without notice.

OMRON Corporation
Industrial Automation Company

Application Sensors Division
Sensing Devices and Components Division H.Q.
Shiokoji Horikawa, Shimogyo-ku,
Kyoto, 600-8530 Japan
Tel: (81)75-344-7068/Fax: (81)75-344-7107

Printed in Japan
1204-0.2M (0498) (A)