OMRON

Pressure Sensor

E8AA

Stainless Steel Pressure Sensor 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
- Available pressure sensing range of 0 to 71 psi or 0 to 142 psi
- Two models are available, based on application
- Linear output of 4 to 20 mA
- Conforms to IEC IP66; water-washable

ISO 9001 and 14001 Approved
OMRON Corporation, Ayabe Factory, Sensing Components and Systems

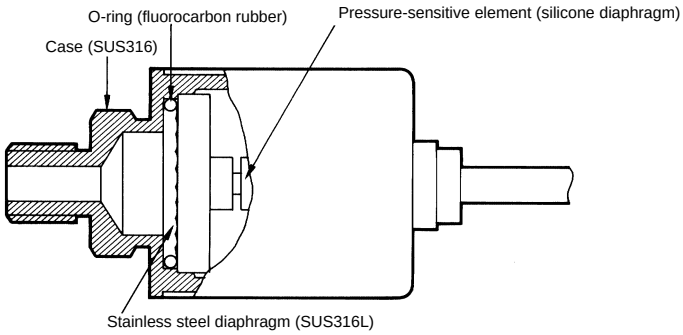
Ordering Information

■ SENSOR

Pressure range	Output configuration	**Part number**
0 to 71 psi (0 to 490 kPa)	4 to 20 mA linear output	**E8AA-M05**
0 to 142 psi (0 to 980 kPa)		**E8AA-M10**

Construction

■ CONFIGURATION

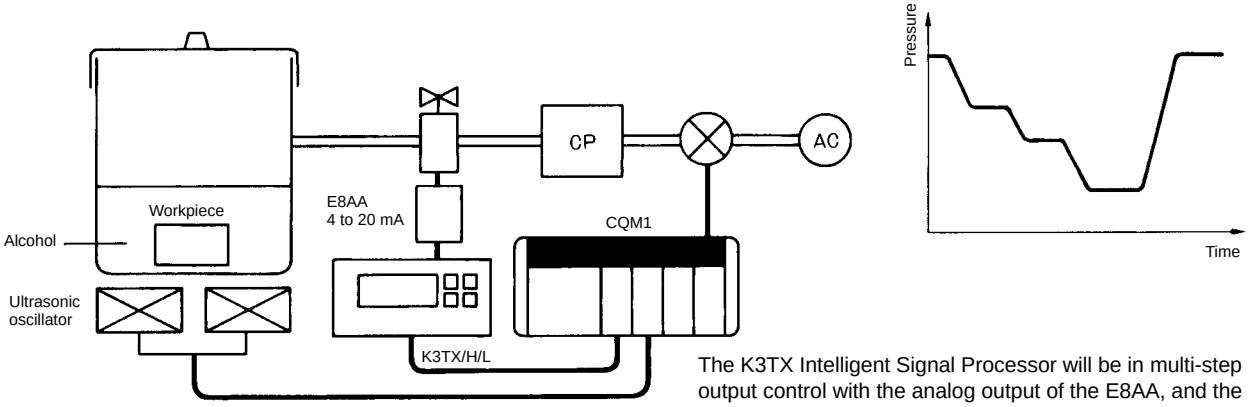


Application Examples

- **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

Ultrasonic Cleaning System



The K3TX Intelligent Signal Processor will be in multi-step output control with the analog output of the E8AA, and 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 ±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 71.0 psi (0 to 490 kPa)	0 to 142.1 psi (0 to 980 kPa)
Withstand pressure		142.1 psi (980 kPa)	290 psi (2.0 MPa)
Applicable material		Non-corrosive gasses, non-corrosive liquids, inert gasses	
Accuracy (linear output)		±1% FS max. with a resistive load of 150 Ω at 73.4°F (23°C)	
Hysteresis (linear output)		±0.5% FS max.	
Linearity (linear output)		±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 (14°F to 140°F) with no icing	
	Storage	–25°C to 70°C (–13°F to 158°F) with no icing	
Ambient humidity		35% to 95% (with no condensation)	
Pressure leading part		R(PT) 1/4	

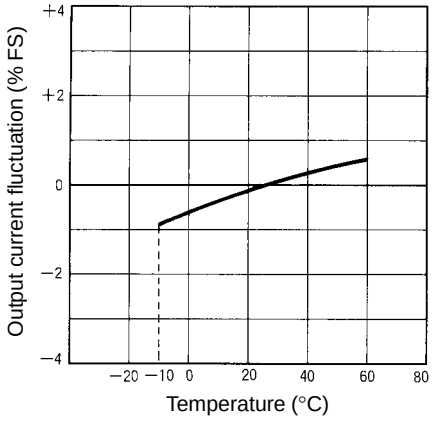
■ CHARACTERISTICS

Item/Model	E8AA-M05	E8AA-M10
Temperature influence	±0.16% fs/°F (±0.09% FS/°C) max. between –10°C and 60°C (14°F and 140°F)	
Voltage influence	Max. output current fluctuation of ±0.5% FS at 12 VDC ±10% or 24 VDC ±10% with a ripple of 5%	
Insulation resistance	100 MΩ min. (at 500 VDC) between current carry parts and case	
Dielectric strength	1,000 VAC, 1 min	
Vibration resistance	10 to 500 Hz, 1.5-mm double amplitude or 3280 ft/s^2 (100 m/s$^{2)}$ (approx. 10G) for 2 hours each in X, Y, and Z directions	
Shock resistance	3280 ft/s^2 (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	
Cable	Vinyl-insulated round cable, 6 dia. with 3 cores Standard length: 2 m (78.74 in.)	
Weight	Approx. 250 g (8.8oz)	

Engineering Data

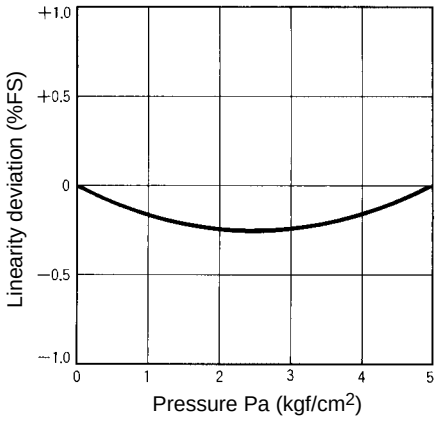
■ TEMPERATURE VS. OUTPUT CURRENT FLUCTUATION (TYPICAL)

E8AA-M10



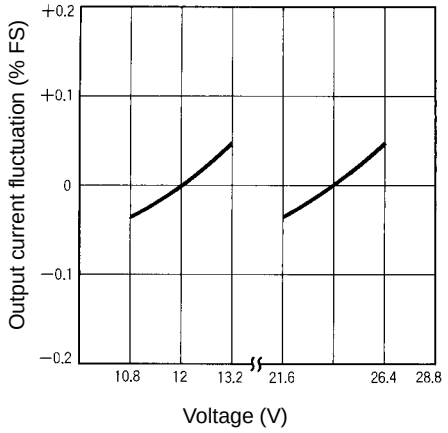
■ LINEARITY (TYPICAL)

E8AA-M05



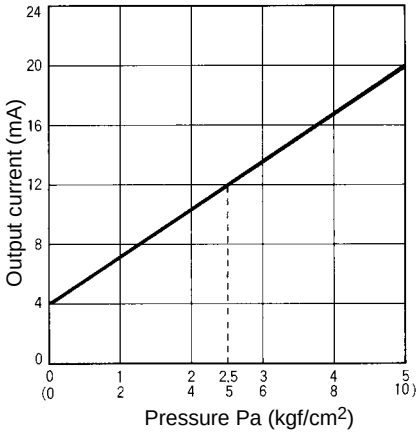
■ VOLTAGE VS. OUTPUT CURRENT FLUCTUATION (TYPICAL)

E8AA-M10



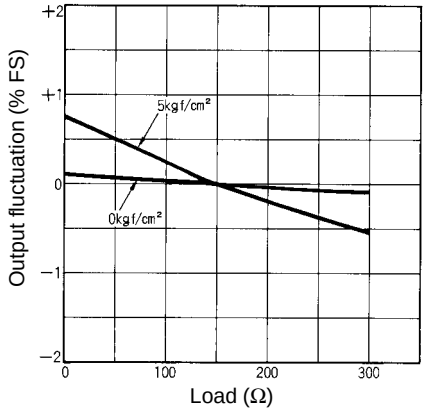
■ PRESSURE VS. OUTPUT CURRENT (TYPICAL)

E8AA-M05 (E8AA-M10)



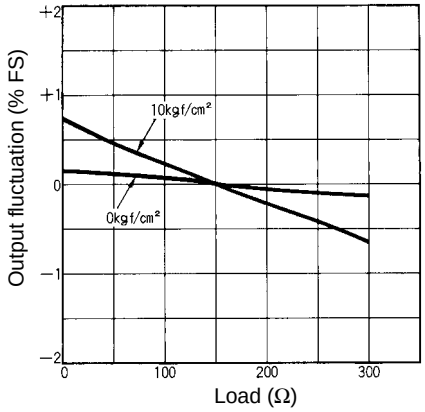
■ LOAD VS OUTPUT CURRENT (TYPICAL)

E8AA-M05



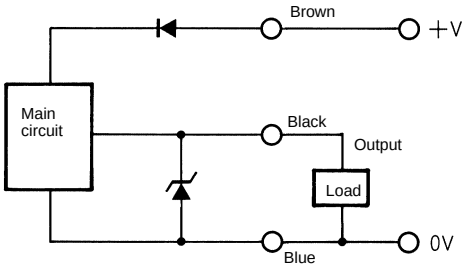
■ LOAD VS OUTPUT CURRENT (TYPICAL)

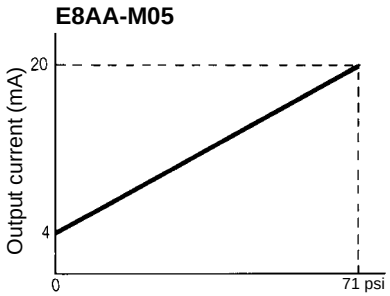
E8AA-M10

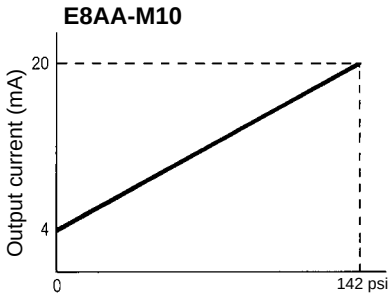


Operation

■ CIRCUIT DIAGRAM



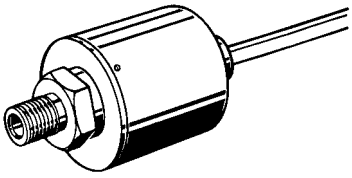


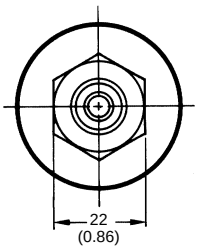


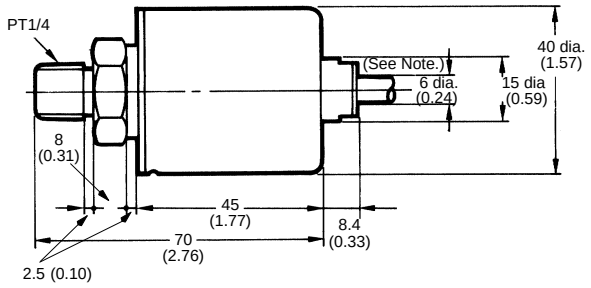
Dimensions

Unit: mm (inch)

■ E8AA-M05
E8AA-M10







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

Precautions

■ 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 (0.866 in.) in size.

Make sure that the maximum tightening torque applied to mount the E8AA is 36.14 ft • lbf (49 N • m).

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

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.

■ CORRECT USE

Hollow Pipe

The cable 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 cable.

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

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

NOTE: DIMENSIONS SHOWN ARE IN MILLIMETERS. To convert millimeters to inches divide by 25.4.

OMRON®

OMRON ELECTRONICS, INC.
One East Commerce Drive
Schaumburg, IL 60173
1-800-55-OMRON

OMRON CANADA, INC.
885 Milner Avenue
Scarborough, Ontario M1B 5V8
416-286-6465

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