

Ideal for Workpiece Presence Detection

- Models with a pressure sensing range of 0 to 14.21 psi are ideal for workpiece position checking
- Models with a pressure sensing range of 0 to 142 psi are ideal for original pressure checking
- Conforms to IEC IP54



Ordering Information

■ SENSOR

Pressure range		ON/OFF output	Linear output	Part number
Positive pressure	0 to 142.1 psi (0 to 980 kPa)	NPN open collector	1 to 5 V	E8EB-10C
		PNP open collector		E8EB-10B
	0 to 14.2 psi (0 to 98 kPa)	NPN open collector		E8EB-01C
		PNP open collector		E8EB-01B
Negative pressure	0 to -14.2 psi (0 to -98 kPa)	NPN open collector	E8EB-N0C2B	
		PNP open collector	E8EB-N0B2B	

Specifications

■ RATINGS

Item/Model	E8EB-10C	E8EB-10B	E8EB-01C	E8EB-01B	E8EB-N0C2B	E8EB-N0B2B
Supply voltage	24 VDC $\pm 10\%$ with a ripple (p-p) of 5% max.					
Current consumption	20 mA max.					
Pressure type	Positive				Negative	
Permissible pressure range	0 to 142 psi (0 to 980 kPa)		0 to 14.2 psi (0 to 98 kPa)		0 to -14.2 psi (0 to -98 kPa)	
Pressure setting range	0 to 142 psi (0 to 980 kPa)		0 to 14.2 psi (0 to 98 kPa)		0 to -14.2 psi (0 to -98 kPa)	
Withstand pressure	290 psi (2.0 MPa)		42 psi (290 kPa)		42 psi (290 kPa)	
Applicable fluid	Noncorrosive and nonflammable gases					
Repeat accuracy (ON/OFF output)	$\pm 1\%$ FS max.					
Accuracy (linear output)	$\pm 3\%$ FS max.					
Hysteresis (linear output)	$\pm 1\%$ FS max.					
Differential travel (ON/OFF output)	0.4 to 1.6% FS max.					
Linearity (linear output)	$\pm 1\%$ FS max.					
Response time	5 ms max.					
Linear output	1 to 5 V with an output impedance of 20 Ω and a permissible resistive load of 10 k Ω min.					
ON/OFF output	NPN open collector	PNP open collector	PNP open collector	PNP open collector	NPN open collector	PNP open collector
	Load current	80 mA max.				
	Output applied voltage	30 VDC max.				
	Residual voltage	NPN: 1 V max. (at the load current of 80 mA) and 0.4 V max. (at the load current of 20 mA) PNP: 2 V max. (at the load current of 80 mA) and 1.5 V max. (at the load current of 20 mA)				
Indicator	Operating indicator (red)					
Ambient temperature	Operating	-10°C to 55°C (14°F to 131°F) with no icing				
	Storage	-25°C to 70°C (-13°F to 158°F) with no icing				
Ambient humidity	Operating	35% to 85% (with no icing)				
Degree of protection	IEC60529 IP54					
Pressure port	R _C (PT) 1/8					

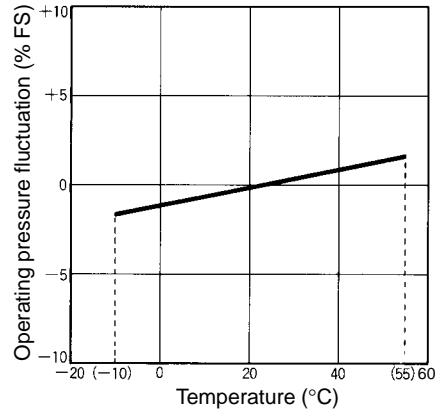
■ CHARACTERISTICS

Item/Model	E8EB-10C, E8EB-10B	E8EB-01C, E8EB-01B, E8EB-N0C2B, E8EB-N0B2B
Temperature influence	$\pm 0.12\%$ FS/°C between 0°C and 50°C (32°F and 122°F)	$\pm 0.2\%$ FS/°C between 0°C and 50°C (32°F and 122°F)
	$\pm 0.2\%$ FS/°C max. between -10°C and 0°C (14°F and 32°F) or 50°C and 55°C (122°F and 131°F)	$\pm 0.3\%$ FS/°C max. between -10°C and 0°C (14°F and 32°F) or 50°C and 55°C (122°F and 131°F)
Voltage influence	$\pm 1\%$ FS max.	
Insulation resistance	100 M Ω min. (at 500 VDC) between current carry parts and case	
Dielectric strength	500 VAC for 1 min between current carry parts and case	
Vibration resistance	10 to 500 Hz, 1.5-mm double amplitude or 100 m/s ² (328 ft/s ²) approx. 10G whichever is smaller, for 2 hours each in X, Y, and Z directions	
Shock resistance	1,000 m/s ² (3280 ft/s ²) approx. 3 times each in X, Y, and Z directions	
Enclosure rating	IEC60529 IP54	
Pressure port material	Zinc die-cast	
Cable	Vinyl-insulated round cable with four conductors, 3.8 dia.; standard length: 2 m (78.74 in)	
Weight	Approx. 120 g (4.23 oz)	

Engineering Data

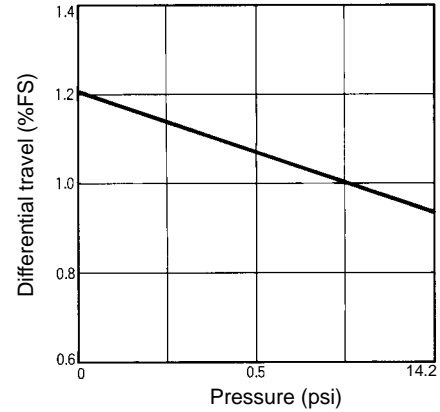
■ TEMPERATURE VS OPERATING PRESSURE (TYPICAL)

E8EB-01C



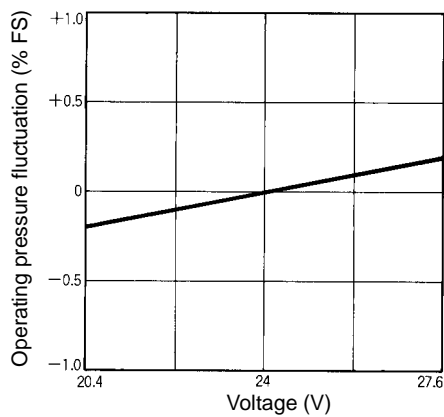
■ PRESSURE VS. DIFFERENTIAL TRAVEL (TYPICAL)

E8EB-01C

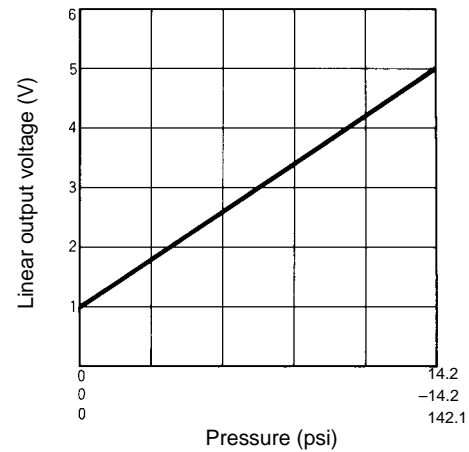


■ VOLTAGE VS. OPERATING PRESSURE (TYPICAL)

E8EB-01C

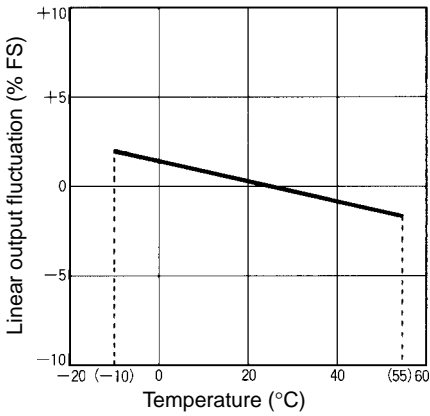


■ PRESSURE VS. LINEAR OUTPUT VOLTAGE (TYPICAL)



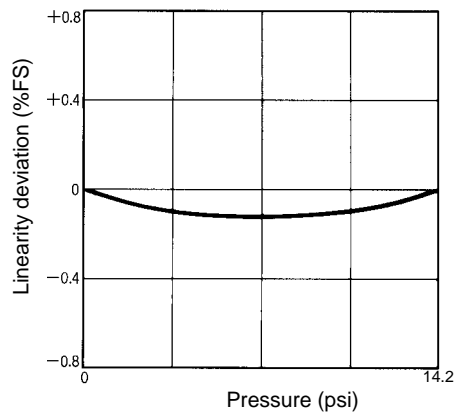
■ LINEAR OUTPUT FLUCTUATION VS. TEMPERATURE CHARACTERISTICS (TYPICAL)

E8EB-01C



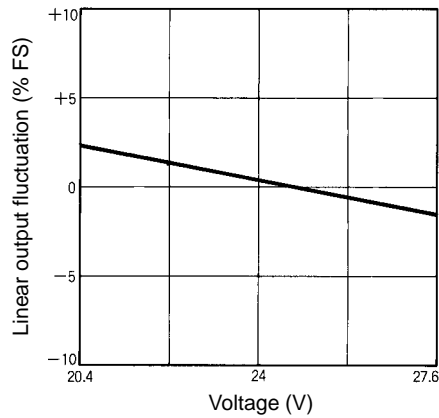
■ LINEARITY (TYPICAL)

E8EB-01C



■ VOLTAGE VS. LINEAR OUTPUT FLUCTUATION (TYPICAL)

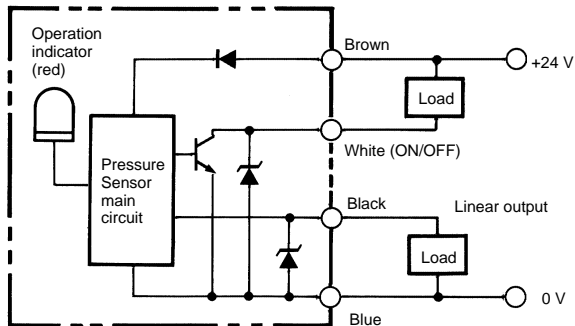
E8EB-01C



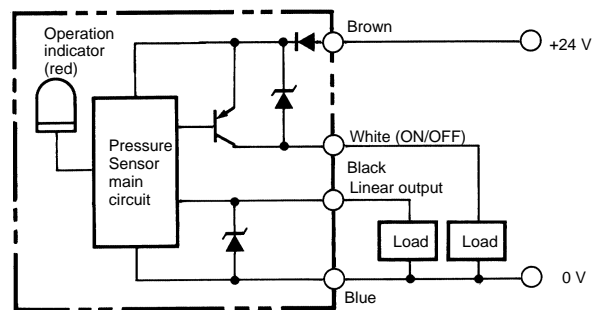
Operation

OUTPUT CIRCUITS

E8EB-10C, E8EB-01C, E8EB-N0C2B

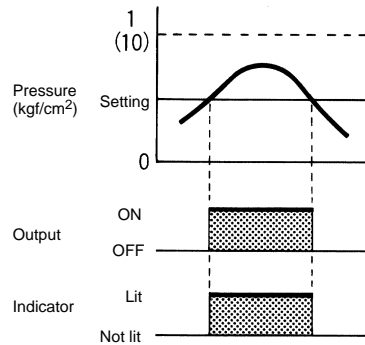


E8EB-10B, E8EB-01B, E8EB-N0B2B

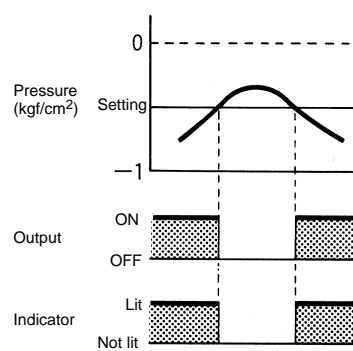


TIMING CHARTS

E8EB-10C, E8EB-10B, E8EB-01C, E8EB-01B

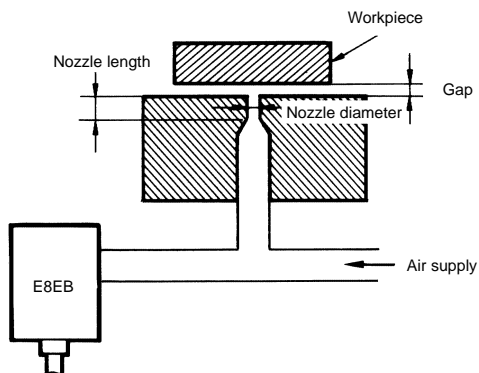


E8EB-N0C2B, E8EB-N0B2B



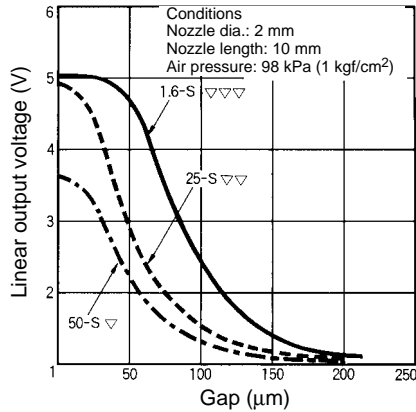
GAP MEASUREMENT

When checking the gap between the workpiece and the nozzle, as shown in the illustration, the output of the E8EB varies with the surface roughness of the workpiece or the dimensions of the nozzle.



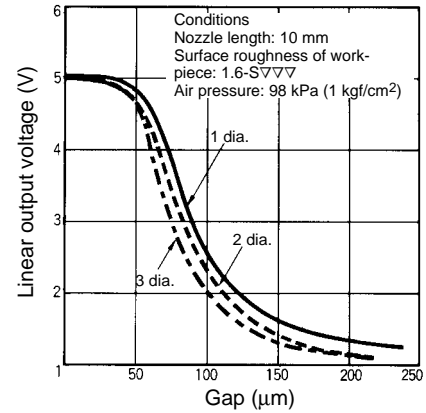
Examples with E8EB-01C (Typical)

Influence of Surface Roughness of Workpieces



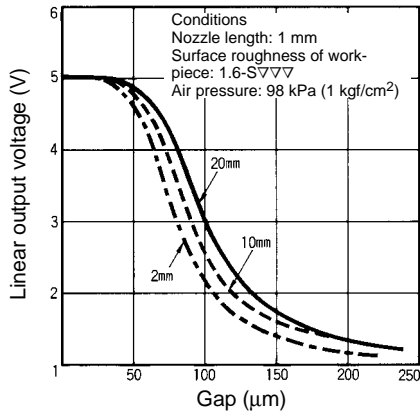
- The output varies with the surface roughness of the workpiece even though the gap is constant.
- The rougher the surface of the workpiece is, the more noticeable the variation of output is with a small gap. The variation rate versus gap change is not large in cases like these.

Influence of Nozzle Diameter



- The larger the nozzle diameter is, the larger the variation rate of output versus gap change is.

Influence of Nozzle Length

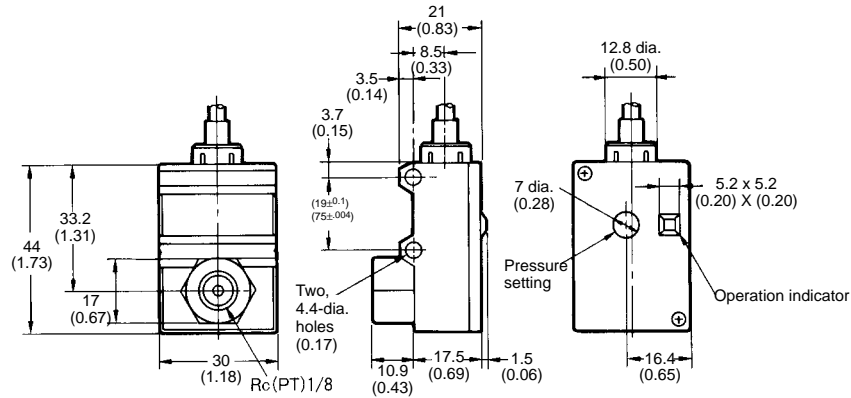
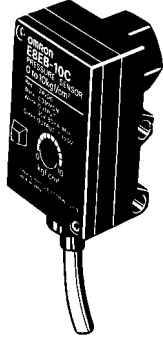


- The smaller the nozzle length is, the larger the variation rate of output versus gap change is.

Dimensions

Unit: mm (inch)

■ E8EB



Vinyl-insulated round cable with four conductors, 3.8 dia. (standard length: 2 m)

Precautions

■ MOUNTING

The pressure port has an Rc (PT) 1/8 taper screw. Apply sealing tape around the female taper screw so that no pressure leakage will occur.

The most-suitable wrench is 17 mm in size.

Make sure that the tightening torque of the M5 female screw is 9.8 N • m or 100 kgf • cm (7.22 ft • lbf)

Diaphragm

If the diaphragm is damaged, the Pressure Sensor will not operate properly. Do not insert a screwdriver or steel wire into the interior of the pressure-sensitive parts through the pressure port.

■ CORRECT USE

Available Gases

No corrosive or flammable gas can be used.

Filter the gas with an appropriate air filter so that the applied gas will be free of moisture or oil.

Pressure Setting

A rubber bushing is provided with the E8EB. After the pressure is set with the pressure adjuster, cover the adjuster with the rubber bushing so that no dust or any other foreign material will penetrate into the interior of the E8EB.

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

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