

## Ideal for Workpiece Position and Original Pressure Checking

- The 0 to 100 kPa model can be used for workpiece position checking.
- The 0 to 1MPa model is ideal for original pressure checking.
- Degree of protection conforms to IEC IP54.



Be sure to read *Safety Precautions* on page 6.

## Ordering Information

| Pressure range    |               | ON/OFF output      |                    | Linear output |
|-------------------|---------------|--------------------|--------------------|---------------|
|                   |               | NPN open collector | PNP open collector |               |
| Positive pressure | 0 to 1 MPa    | <b>E8EB-10C</b>    | <b>E8EB-10B</b>    | 1 to 5 V      |
| Positive pressure | 0 to 100 kPa  | <b>E8EB-01C</b>    | <b>E8EB-01B</b>    |               |
| Negative pressure | 0 to -100 kPa | <b>E8EB-N0C2B</b>  | <b>E8EB-N0B2B</b>  |               |

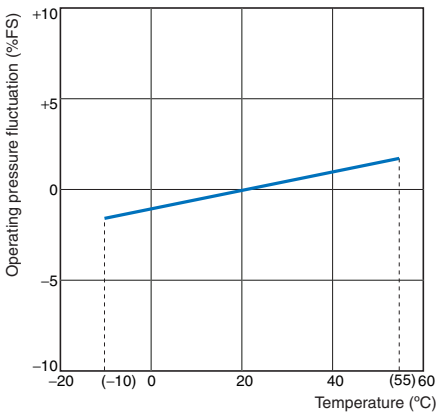
## Ratings and Specifications

| Item                                | Model                                                                                                                                       | E8EB-10C                                                                                                                                                                                 | E8EB-10B           | E8EB-01C                                                | E8EB-01B           | E8EB-N0C2B*        | E8EB-N0B2B*        |
|-------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|---------------------------------------------------------|--------------------|--------------------|--------------------|
| Power supply voltage                | 24 VDC ±10% with a ripple (p-p) of 5% max.                                                                                                  |                                                                                                                                                                                          |                    |                                                         |                    |                    |                    |
| Current consumption                 | 20 mA max.                                                                                                                                  |                                                                                                                                                                                          |                    |                                                         |                    |                    |                    |
| Pressure type                       | Gauge pressure                                                                                                                              |                                                                                                                                                                                          |                    |                                                         |                    |                    |                    |
| Permissible pressure range          | 0 to 1 MPa                                                                                                                                  |                                                                                                                                                                                          |                    | 0 to 100 kPa                                            |                    | 0 to –100 kPa      |                    |
| Pressure setting range              | 0 to 1 MPa                                                                                                                                  |                                                                                                                                                                                          |                    | 0 to 100 kPa                                            |                    | 0 to –100 kPa      |                    |
| Withstand pressure                  | 2 MPa                                                                                                                                       |                                                                                                                                                                                          |                    | 290 kPa                                                 |                    |                    |                    |
| Applicable fluid                    | Noncorrosive and nonflammable gases                                                                                                         |                                                                                                                                                                                          |                    |                                                         |                    |                    |                    |
| Repeat accuracy (ON/OFF output)     | ±1% FS max.                                                                                                                                 |                                                                                                                                                                                          |                    |                                                         |                    |                    |                    |
| Accuracy (linear output)            | ±3% FS max.                                                                                                                                 |                                                                                                                                                                                          |                    |                                                         |                    |                    |                    |
| Hysteresis (linear output)          | ±1% FS max.                                                                                                                                 |                                                                                                                                                                                          |                    |                                                         |                    |                    |                    |
| Differential travel (ON/OFF output) | 0.4 to 1.6% FS max.                                                                                                                         |                                                                                                                                                                                          |                    |                                                         |                    |                    |                    |
| Linearity (linear output)           | ±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 kΩ min.                                                    |                                                                                                                                                                                          |                    |                                                         |                    |                    |                    |
| ON/OFF output                       |                                                                                                                                             | NPN open collector                                                                                                                                                                       | PNP open collector | NPN 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: 0.4 V max. (at the load current of 20 mA) and 1 V max. (at the load current of 80 mA)<br>PNP: 1.5 V max. (at the load current of 20 mA) and 2 V max. (at the load current of 80 mA) |                    |                                                         |                    |                    |                    |
| Indicator                           | Operation indicator (red)                                                                                                                   |                                                                                                                                                                                          |                    |                                                         |                    |                    |                    |
| Ambient temperature                 | Operating: –10°C to 55°C (with no icing)<br>Storage: –25°C to 70°C (with no icing)                                                          |                                                                                                                                                                                          |                    |                                                         |                    |                    |                    |
| Ambient humidity                    | Operating: 35% to 85% (with no condensation)                                                                                                |                                                                                                                                                                                          |                    |                                                         |                    |                    |                    |
| Temperature influence               | ±0.12% FS/°C between 0°C and 50°C                                                                                                           |                                                                                                                                                                                          |                    | ±0.2% FS/°C between 0°C and 50°C                        |                    |                    |                    |
|                                     | ±0.2% FS/°C max. between –10°C and 0°C or 50°C and 55°C                                                                                     |                                                                                                                                                                                          |                    | ±0.3% FS/°C max. between –10°C and 0°C or 50°C and 55°C |                    |                    |                    |
| Voltage influence                   | ±1% FS max.                                                                                                                                 |                                                                                                                                                                                          |                    |                                                         |                    |                    |                    |
| Insulation resistance               | 100 MΩ 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                | Destruction: 10 to 500 Hz, 1.5-mm double amplitude or 100 m/s <sup>2</sup> whichever is smaller, for 2 hours each in X, Y, and Z directions |                                                                                                                                                                                          |                    |                                                         |                    |                    |                    |
| Shock resistance                    | Destruction: 1,000 m/s <sup>2</sup> 3 times each in X, Y, and Z directions                                                                  |                                                                                                                                                                                          |                    |                                                         |                    |                    |                    |
| Degree of protection                | IEC 60529 IP54                                                                                                                              |                                                                                                                                                                                          |                    |                                                         |                    |                    |                    |
| Pressure inlet                      | Rc(PT)1/8                                                                                                                                   |                                                                                                                                                                                          |                    |                                                         |                    |                    |                    |
| Connection method                   | Pre-wired (standard cable length: 2 m)                                                                                                      |                                                                                                                                                                                          |                    |                                                         |                    |                    |                    |
| Weight (packed state)               | Approx. 120 g                                                                                                                               |                                                                                                                                                                                          |                    |                                                         |                    |                    |                    |
| Pressure port material              | Zinc die-cast                                                                                                                               |                                                                                                                                                                                          |                    |                                                         |                    |                    |                    |
| Accessories                         | Instruction manual                                                                                                                          |                                                                                                                                                                                          |                    |                                                         |                    |                    |                    |

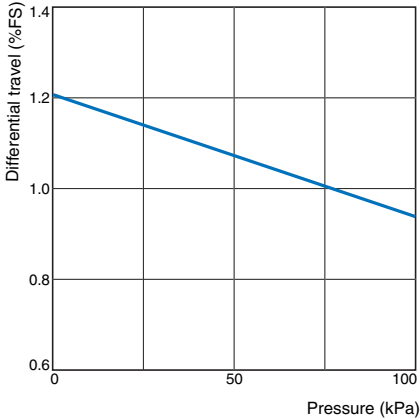
\* These models are negative-pressure models.

Engineering Data (Typical)

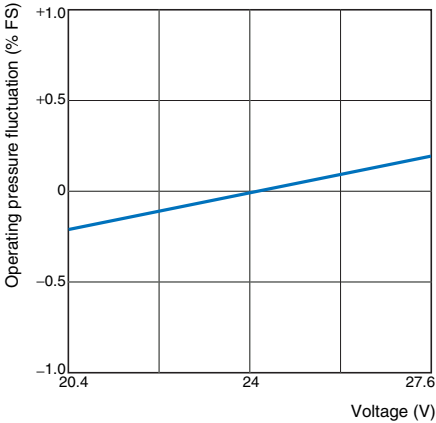
Operating Pressure Fluctuation vs. Temperature  
E8EB-01C



Differential Travel vs. Pressure  
E8EB-01C

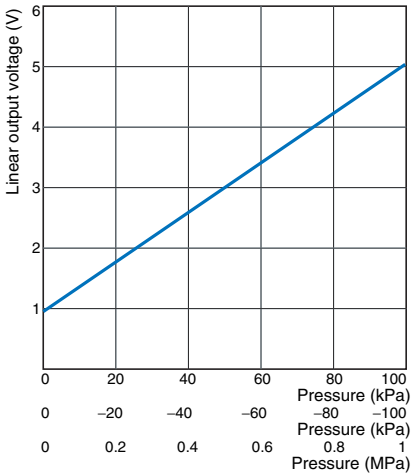


Operating Pressure Fluctuation vs. Voltage  
E8EB-01C

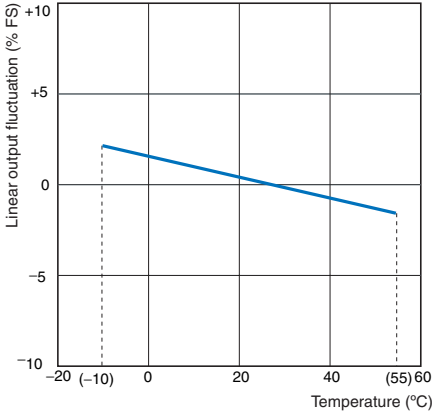


Linear Output Voltage vs. Pressure

E8EB

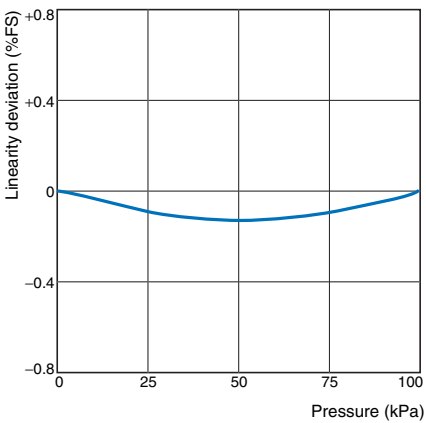


Linear Output Fluctuation vs. Temperature  
E8EB-01C

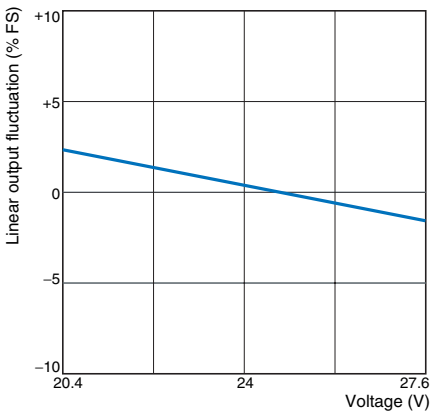


Linearity

E8EB-01C

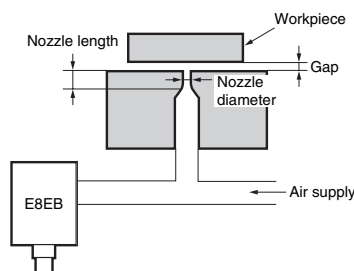


Linear Output Fluctuation vs. Voltage  
E8EB-01C



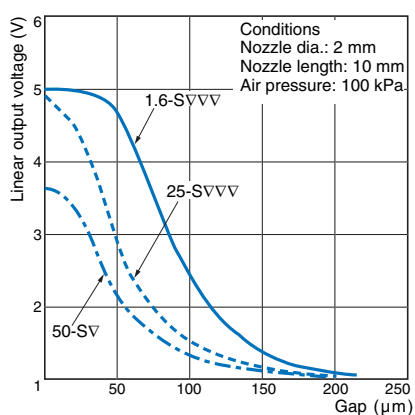
## Gap Measurement

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.



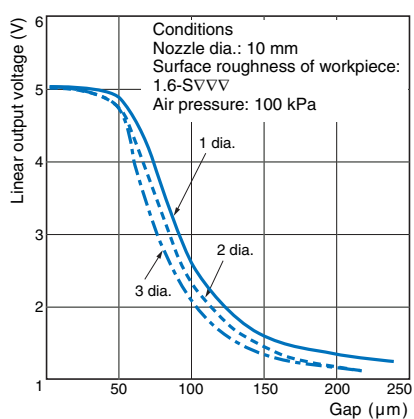
### Examples with E8EB-01C (Typical)

#### Influence of Surface Roughness of Workpieces



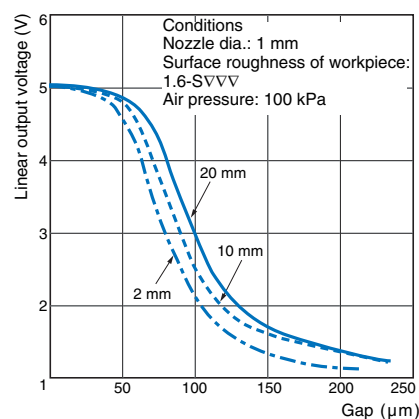
- The output varies with the surface roughness of the workpiece even though the gap is constant.
- The rougher the surface of the workpiece is, the more noticeable the variation of output is with a small gap. The variation rate versus gap change is not large in such cases.

#### Influence of Nozzle Diameter



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

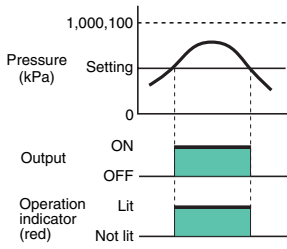
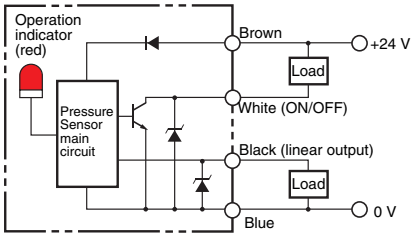
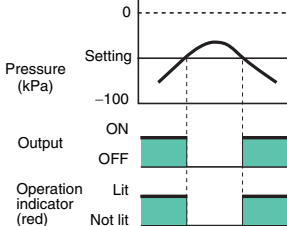
#### Influence of Nozzle Length



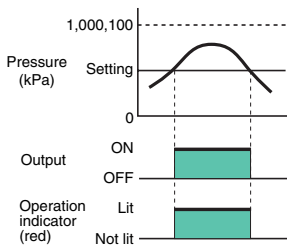
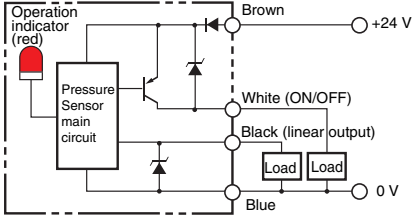
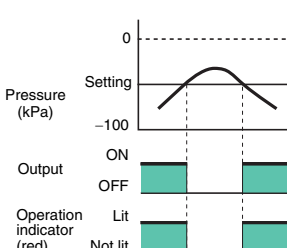
- The smaller the nozzle length is, the larger the variation rate of output versus gap change is.

I/O Circuit Diagrams

NPN Output

| Model                | Timing Charts                                                                     | Output Circuit                                                                     |
|----------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| E8EB-10C<br>E8EB-01C |  |  |
| E8EB-N0C2B           |  |                                                                                    |

PNP Output

| Model                | Timing Charts                                                                       | Output Circuit                                                                       |
|----------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| E8EB-10B<br>E8EB-01B |   |  |
| E8EB-N0B2B           |  |                                                                                      |

## Safety Precautions

### ⚠ WARNING

This product is not designed or rated for ensuring safety of persons.

Do not use it for such purposes.



### Precautions for Correct Use

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

#### ● Mounting

- 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.
- The pressure inlet has an R (PT) 1/8 taper screw and M5 female screw that conforms to JIS Standards. 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 less.

#### ● Adjustment

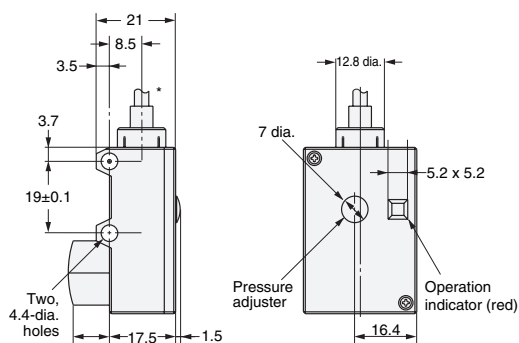
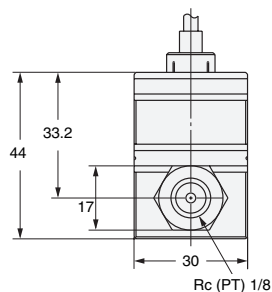
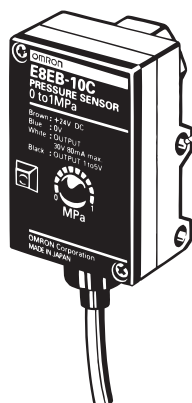
##### Pressure Setting

- 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.

## Dimensions

(Unit: mm)

### E8EB



\*3.8-dia. vinyl-insulated round cable with 4 conductors,  
(Conductor cross-section: 0.2 mm<sup>2</sup>, Insulator diameter: 1.0 mm);  
Standard length: 2 m

In the interest of product improvement, specifications are subject to change without notice.