


## 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 6.

## Ordering Information

### Sensors

| Pressure range    |               | ON/OFF output                               | Linear output | Model      |            |
|-------------------|---------------|---|---------------|------------|------------|
|                   |               |   |               | NPN output | PNP output |
| Positive pressure | 0 to 100 kPa  | Open collector<br>(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  |

### Accessories (Order Separately)

| Appearance  | Name                   | Model         | Remarks                 |
|---|------------------------|---------------|-------------------------|
|  | Mounting Bracket       | <b>E89-F3</b> | Provided with the E8F2. |
|  | Panel-mounting Bracket | <b>E89-F4</b> | Spacer provided.        |

## Ratings and Specifications

### Sensor

| Item                            | Model   | NPN output<br>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<br>PNP open collector output: 2 V max. with 30 mA load current |            |  |               |  |           |  |
| Display *2                      | 3.5-digit red LED<br>Green LED bar indicator<br>The orange LED is lit for two independent outputs with output transistor turned ON.<br>Green unit indicator |  |            |  |               |  |           |  |
| Display accuracy                | ±3%FS±1 digit max.  |  |            |  |               |  |           |  |
| Protection circuits             | Reverse polarity protection, load short-circuit protection  |  |            |  |               |  |           |  |
| Ambient temperature range       | Operating: 0 to 55°C<br>Storage: -10 to 60°C (with no icing)  |  |            |  |               |  |           |  |
| Ambient humidity range          | 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 <sup>2</sup> , three times each for 11 min in the X, Y, and Z directions                      |  |            |  |               |  |           |  |
| Shock resistance                | Destruction: 300 m/s <sup>2</sup> 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-resistive ABS   |            |  |               |  |           |  |
| Accessories                     | Mounting Bracket, Instruction manual  |  |            |  |               |  |           |  |

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

\*2. Display Example of Digital Indicator

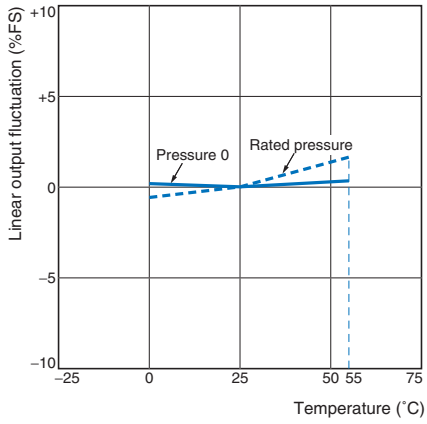
| Model     | Setting unit     |                 |   |   |       |
|-----------|------------------|-----------------|---|---|-------|
|           | kPa              |                 |   |   |       |
|           | Applied pressure | Digital display |   |   |       |
| E8F2-A01C | 100              |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

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

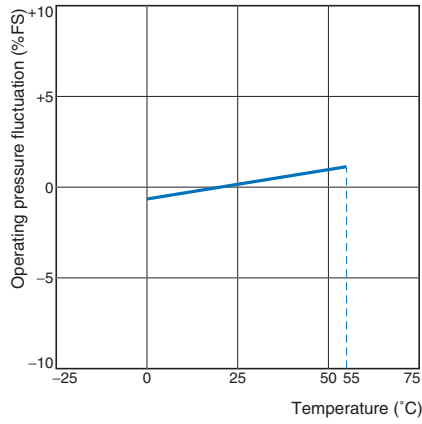
# Engineering Data (Typical)

## Temperature vs. Linear Output Current Fluctuation      Temperature vs. Operating Pressure Fluctuation

E8F2-A01 □

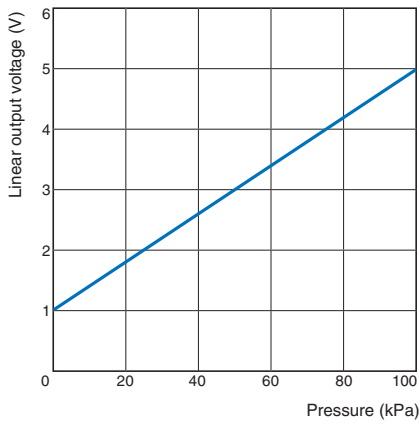


E8F2-A01 □



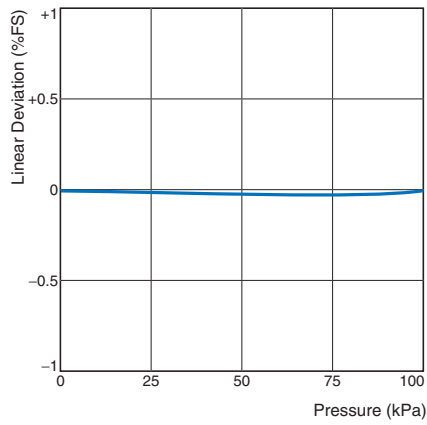
## Pressure vs. Linear Output

E8F2-A01 □



## Linearity

E8F2-A01 □



# I/O Circuit Diagrams

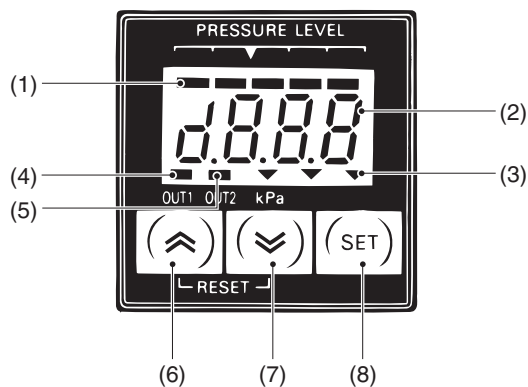
## NPN Output

| Operating mode | Model                               | Timing chart    |             | Output circuit |
|----------------|-------------------------------------|-----------------|-------------|----------------|
|                |                                     | Hysteresis mode | Window mode |                |
| NO             | E8F2-A01C<br>E8F2-B10C<br>E8F2-AN0C |                 |             |                |
|                |                                     |                 |             |                |

## PNP Output

| Operating mode | Model                               | Timing chart    |             | Output circuit |
|----------------|-------------------------------------|-----------------|-------------|----------------|
|                |                                     | Hysteresis mode | Window mode |                |
| NO             | E8F2-A01B<br>E8F2-B10B<br>E8F2-AN0B |                 |             |                |
|                |                                     |                 |             |                |

## 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.
- (8) 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.

## Safety Precautions

Refer to *Warranty and Limitations of Liability*.

### WARNING

This product is not designed or rated for ensuring safety of persons either directly or indirectly. Do not use it for such purposes.



### Precautions for Correct Use

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

#### ● Installation

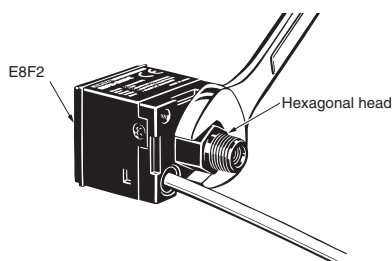
Do not use the Sensor in an environment subject to corrosive or combustible gas.

#### ● 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  $\pm 3\%$  FS  $\pm 1$  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.

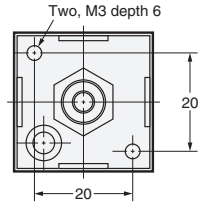
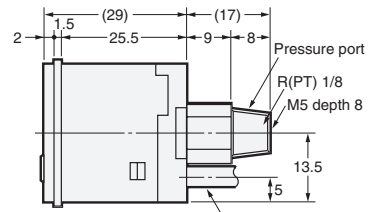
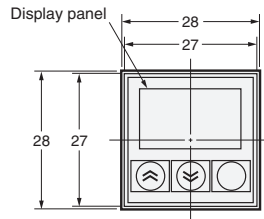
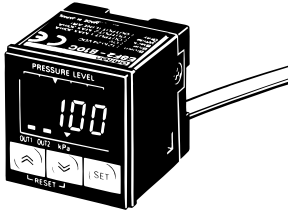
#### ● Others

Make sure the Sensor does not get wet.

Dimensions

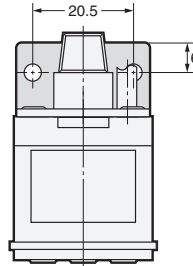
Sensors

E8F2

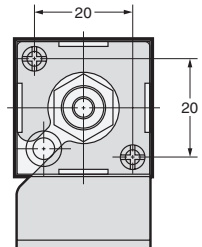
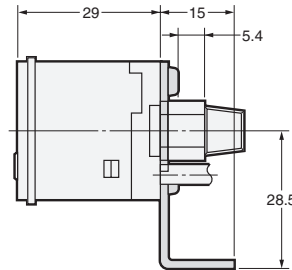
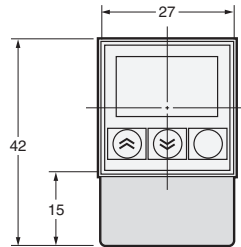
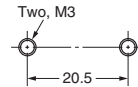


4-dia. vinyl-insulated round cable with 5 conductors  
(Conductor cross-section: 0.15 mm<sup>2</sup>, Insulator diameter: 0.9 mm),  
Standard length: 2 m

With Mounting Bracket Attached



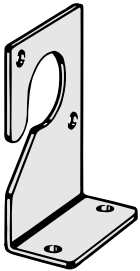
Mounting Hole Dimensions



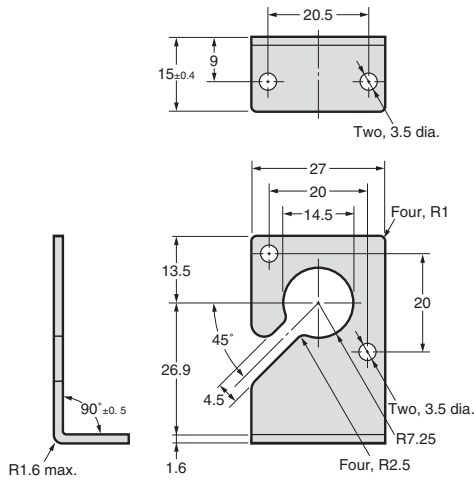
Accessories (Order Separately)

Mounting Bracket

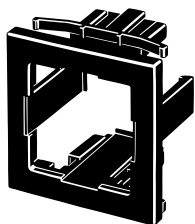
E89-F3



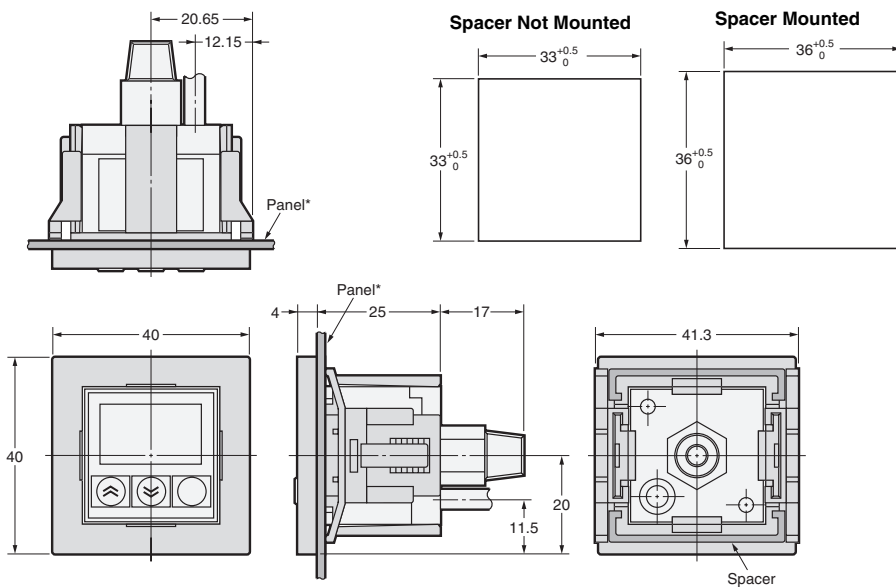
Note: Provided with the E8F2.



**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.



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