Digital Pressure Sensor

E8F2

CSM_E8F2_DS_E_4_1

Pressure Sensor with Easy-to-Read LED Display

- Pressure status can be checked at a glance from the digital display and bar display.
- Measurement pressure prevents incorrect outputs due to momentary pressure changes.
- Perform automatic teaching simply by teaching pressure values for good and bad products.
- Industry's smallest models at just $28 \times 28 \times 29$ mm.



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

Ordering Information

Sensors (Refer to Dimensions on page 7.)

Pressure range		ON/OFF output	Linear output	Model	
				NPN output	PNP output
Positive pressure	0 to 100 kPa	Open collector (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) (Refer to Dimensions on page 7.)

Appearance	Name	Model	Remarks
2	Mounting Bracket	E89-F3	Provided with the E8F2.
	Panel-mounting Bracket	E89-F4	Spacer provided.

Ratings and Specifications

Sensor

	NPN output	E8F2-A01C	E8F2-B10C	E8F2-AN0C		
ltem	Model PNP output	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 t	уре	Gauge pressure				
Rated pres	ssure range	0 to 100 kPa 0 to 1 MPa 0 to -101 kPa				
Pressure a	setting range	0 to 100 kPa	0 to 1 MPa	0 to -101 kPa		
Withstand	pressure	400 kPa	1.5 MPa	400 kPa		
Applicable	e fluid	Non-corrosive gas and non-flammable gas				
Operating	mode	Hysteresis mode, window mode, a	nd automatic teaching mode			
Repeat aco (ON/OFF o		±1%FS max.				
Linearity (linear output)	±1%FS max.				
Response	time (ON/OFF output)	5 ms max.				
Linear out	put	1 to 5 V with an output impedance of 1 k Ω and a permissible resistive load of 500 k Ω .				
ON/OFF ou	utputs	NO or NC open collector (depending on whether the output configuration is NPN or PNP)				
Load	l current	30 mA max.				
Outp	out applied voltage	30 VDC max.				
Resi	dual voltage	NPN open collector output: 1 V max. with 30 mA load current PNP open collector output: 2 V max. with 30 mA load current				
Display *2		3.5-digit red LED Green LED bar indicator The orange LED is lit for two independent outputs with output transistor turned ON. Green unit indicator				
Display ac	curacy	±3%FS±1 digit max.				
Protection	circuits	Reverse polarity protection, load short-circuit protection				
Ambient temperature range		Operating: 0 to 55°C Storage: -10 to 60°C (with no icing)				
Ambient h	umidity range	Operating/Storage: 35% to 85% (with no condensation)				
Temperatu	ire influence	±3%FS max.				
Voltage in	fluence	±1.5%FS max.				
Insulation	resistance	100 M Ω 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 ² , three times each for 11 min in the X, Y, and Z directions				
Shock resistance		Destruction: 300 m/s ² 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				
	Pressure port	Aluminum die-cast				
Material	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

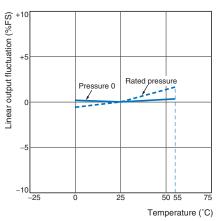
	Setting unit				
Model	kPa				
	Applied pressure	Digital display			
E8F2-A01C	100	1	0	0	0
E8F2-B10C	1000	1	0	0	0
E8F2-AN0C	-101	-1	0	1 0	0

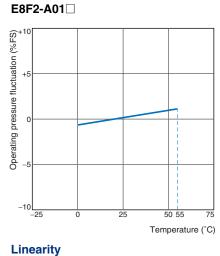
Note: The period (•) in the display indicates the decimal point. Its position will not change unless the setting unit is changed.

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

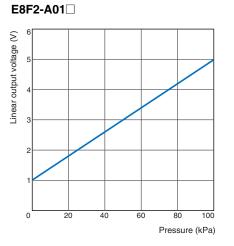
E8F2-A01

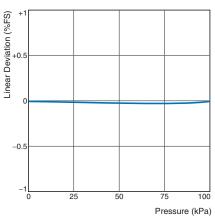
E8F2-A01





Pressure vs. Linear Output





I/O Circuit Diagrams

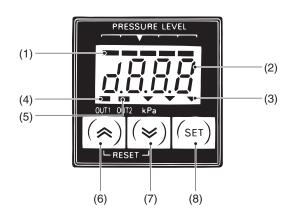
NPN Output

Oper-	Model	Tim			
ating mode		Model	Hysteresis mode	Window mode	Output circuit
NO	E8F2-A01C	Pressure ON point OFF point OFF point OUT Indicator OFF OUT Indicator OFF	Pressure OFF point OFF point OFF point -10% FS max. Output ON OUT OFF ON OFF ON OFF ON ON ON ON ON ON ON ON ON ON	Brown +12 to 24 V Load 30 mA Black Load max.	
NC	- E8F2-B10C E8F2-AN0C	Pressure ON point OFF point OFF point OUT Indicator OFF ON OFF	Pressure OFF point OFF point -10% FS ON point -10% FS ON point -10% FS ON point -10% FS ON point -10% FS max. Output ON OUT OFF indicator ON (orange) OFF	Pressure main circuit	

PNP Output

Oper-	Model	Tim	ing chart		
ating mode		Hysteresis mode	Window mode	Output circuit	
NO	E8F2-A01B - E8F2-B10B	Pressure ON point OFF point OFF point OUT Indicator ORF OUT ON OFF ON OFF	Pressure OFF point	Brown +12 to 24 V Pressure sensor main circuit White (ON/OFF1) White (ON/OFF2)	
NC	E8F2-ANOB	Pressure ON point OFF point OUT Indicator Orange) OFF	Pressure OFF point ON point OFF point ON point ON point ON point ON point ON point ON point ON point OFF point ON point ON point ON point OFF point ON point ON point OFF point ON point ON point OFF point ON point OFF point ON point OFF point ON point OFF point OFF point ON point OFF point OFF point ON point OFF point OFF point ON point OFF poi	Gray 1 to 5 V 30 mA r(Linear) Load Load max. Blue 0 V	

Nomenclature



Display Panel

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.

<u> WARNING</u>

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

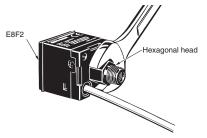
Do not use the Sensor in an environment subject to corrosive or combustible gas.

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.
- \bullet 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 ±3% FS±1 digit at room temperature. Refer to *Display accuracy* in *Ratings and Specifications*.
- Turning ON the power

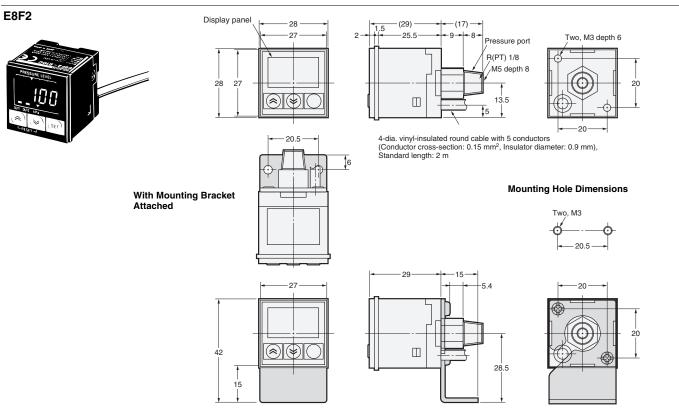
The Sensor is ready to operate 0.5 s after it is turned ON. When the load and Sensor are connected to separate power supplies, be sure to turn ON the Sensor first.

Others

Make sure the Sensor does not get wet.

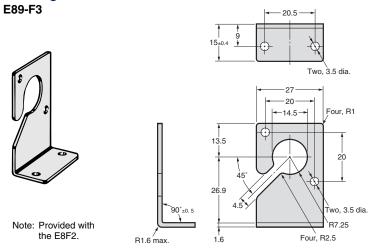
Dimensions

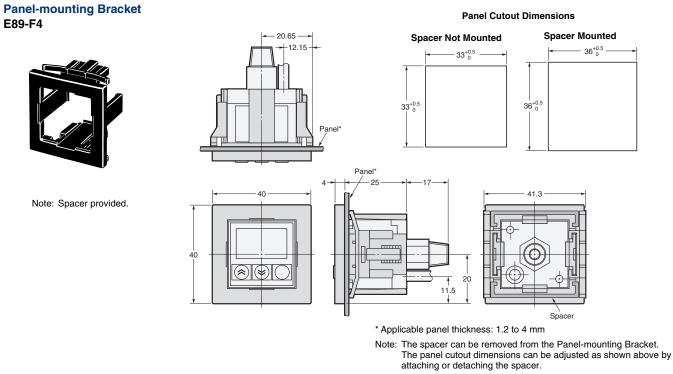
Sensors



Accessories (Order Separately)

Mounting Bracket





Panel Cutout Dimensions

Read and Understand This Catalog

Please read and understand this catalog before purchasing the products. Please consult your OMRON representative if you have any questions or comments.

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- Nuclear energy control systems, combustion systems, railroad systems, aviation systems, medical equipment, amusement machines, vehicles, safety equipment, and installations subject to separate industry or government regulations.
- · Systems, machines, and equipment that could present a risk to life or property.

Please know and observe all prohibitions of use applicable to the products.

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