

# Solid State Pressure Sensors

## D8M

### Solid State Pressure Sensors with Pulse or Frequency Outputs

- Compact housing measures 30L x 30W x 12.4H mm.
- Accept 4 mm OD tubing (D8M-R1); 6 mm OD tubing for D8M-D82.
- Chemical-resistant plastic (PBT) body.
- Metal shield mounted version (D8M-D82) available.
- IP40 enclosure rating for embedded applications.



### Ordering Information

Operating pressure range	Output signal	Output frequency	Power supply voltage	Withstand pressure	Model
0 to 4.9 kPa (0 to 0.71 psi)	Pulse count, 1 pulse/9.81 Pa (1/0.0014 psi)	—	2.2 to 3.4 VDC with regulator	19.6 kPa (2.84 psi) for 5 minutes	<b>D8M-D82</b>
0 to 196.13 Pa (0 to 0.028 psi)	Frequency, 1 kHz/9.81 Pa (1 kHz/0.0014 psi)	80 to 300 kHz	4.2 to 5.5 VDC with regulator	3 kPa (0.435 psi) for 10 seconds	<b>D8M-R1</b>

# Specifications

## ■ Electrical Ratings

Item	D8M-D82	D8M-R1
Power supply voltage	2.2 to 3.4 VDC with regulator	4.2 to 5.5 VDC with regulator
Current consumption	100 mA $\pm$ 5% at 3 VDC	10 mA max.
Leakage current	1 mA or less	1 mA or less
Output pulses	—	80 to 300 kHz
Output resolution	1 pulse/9.81 Pa	1 kHz/9.81 Pa
Operating characteristics	0 kPa = 30 pulses 0.15 kPa = 45 $\pm$ 30 pulses 2 kPa = 204 $\pm$ 15 pulses 4 kPa = 438 $\pm$ 46 pulses	0 Pa = 180 $\pm$ 100 kHz; Incremental change from 0 value: 49.03 Pa = 5 $\pm$ 0.9 kHz 73.55 Pa = 7.5 $\pm$ 1.0 kHz 147.10 Pa = 15 $\pm$ 0.8 kHz 196.13 Pa = 20 $\pm$ 1.4 kHz (Note)

Note: Values measured during and after testing.

## ■ Operating Characteristics

Item	D8M-D82	D8M-R1
Pressure range	0 to 4.9 kPa (0 to 0.71 psi)	0 to 196.13 Pa (0 to 0.028 psi)
Withstand pressure	19.6 kPa for 5 minutes	3 kPa for 10 seconds
Repeatability/hysteresis	$\pm$ 0.5% FS	$\pm$ 0.5% FS
Non-linearity characteristics	$\pm$ 2% FS max.	$\pm$ 2% FS max.
Response time	1.5 ms (pressure) 30 ms max. (switch) 45 ms (discharge)	3 seconds max.
Operating temperature (Note)	-10 to 60 °C	-20 to 70 °C
Storage temperature (Note)	-20 to 70 °C	-30 to 80 °C
Operating humidity	25 to 95%	25 to 95%

Note: With no icing or condensation.

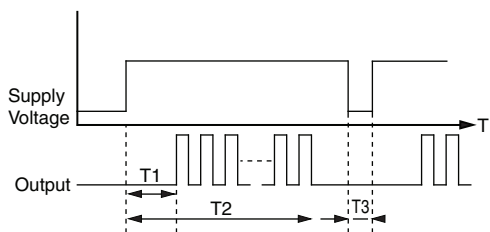
## ■ Environmental Characteristics

Item	D8M-D82	D8M-R1
Insulation resistance	100 M $\Omega$ min., 250 VDC between lead terminals and the base	
Dielectric strength	250 VAC, 50/60 Hz for 1 minute between lead terminals and the base	500 VAC, 50/60 Hz for 1 minute between terminals and the base
Degree of protection	IP40	IP40
Pressure port	6 mm OD	4 mm OD
Connection method	Three AWG26 wires, 115 mm long	Wiring connector on bottom
Material	PBT (polybutylene terephthalate)	

# Operation

## Response Timing Charts

### D8M-D82

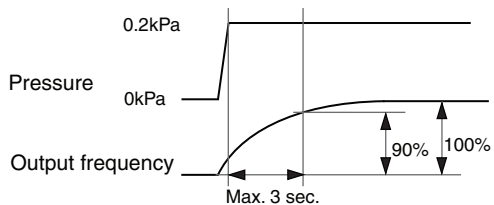


Model	T1	T2	T3
D8M-D82	1.5 ms min.	30 ms max.	45 ms max.

Legend: T1, Pressure measurement time  
 T2, Response time  
 T3, Electrical discharge time

### D8M-R1

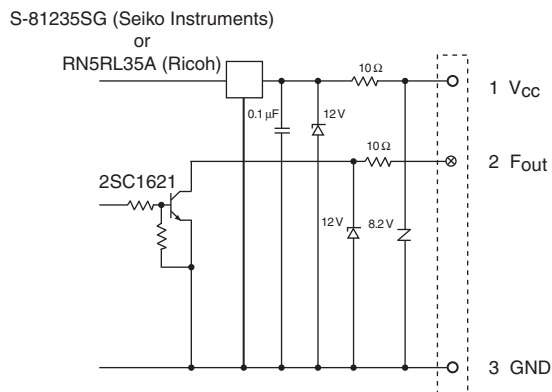
Response time to 90% of 0.2kPa  
 Max. 3 seconds (excluding time for pressure change)



## Interface Circuit Diagram

### D8M-R1

Response time to 90% of 0.2kPa  
 Max. 3 seconds (excluding time for pressure change)



## Application Examples

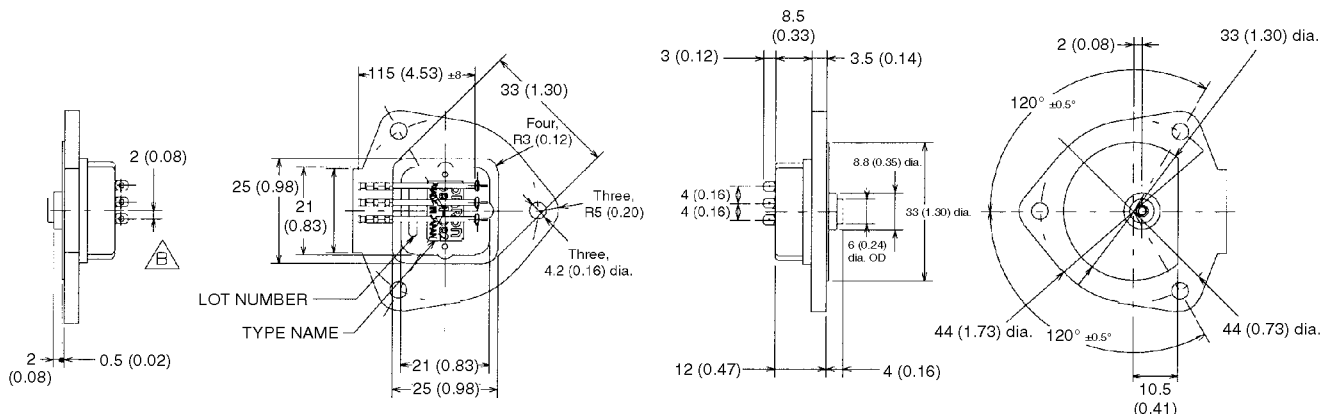
Compact D8M solid state pressure sensors provide reliable detection for gas and air inflow for burner controls in water heaters, furnaces and other gas-fired devices. They can also be used in gas usage meters.



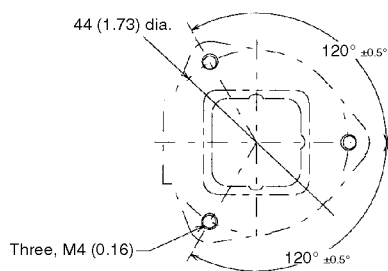
# Dimensions

Unit: mm (inch)

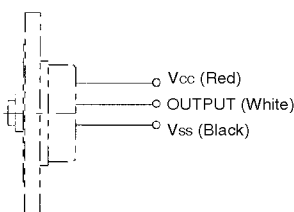
## ■ D8M-D82



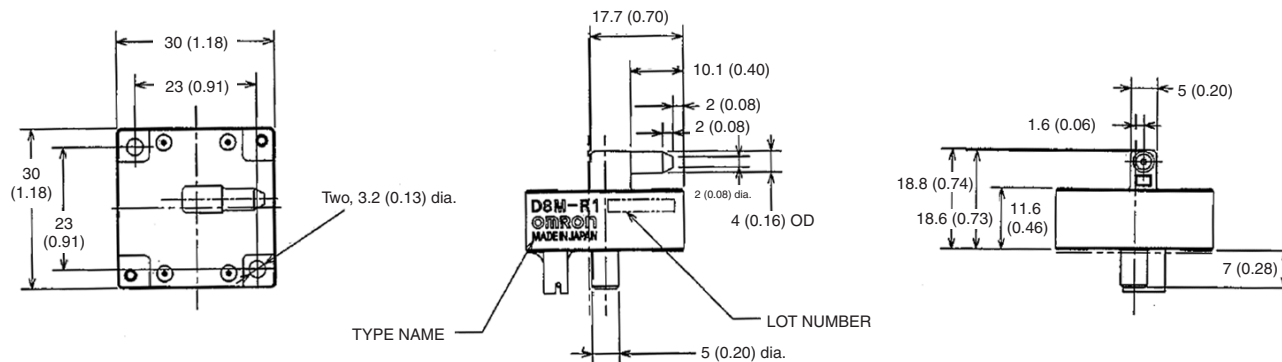
Mounting Hole



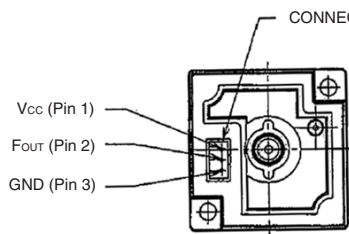
Lead Arrangement (Left Side View)



## ■ D8M-R1



CONNECTOR



# Precautions

Be sure to abide by the following precautions for the safe operation of the Sensor.

## Mounting

For proper operation, mount the sensor within ±10 degrees of level.

A large grid of 20 columns and 30 rows of small squares, intended for taking notes. The grid is composed of thin, light gray lines forming a uniform pattern of squares across the page.

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**ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.**

To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

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