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	**D8M-D82**
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	**D8M-R1**

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 ± 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 ± 30 pulses 2 kPa = 204 ± 15 pulses 4 kPa = 438 ± 46 pulses	0 Pa = 180 ± 100 kHz; Incremental change from 0 value: 49.03 Pa = 5 ± 0.9 kHz 73.55 Pa = 7.5 ± 1.0 kHz 147.10 Pa = 15 ± 0.8 kHz 196.13 Pa = 20 ± 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	±0.5% FS	±0.5% FS
Non-linearity characteristics	±2% FS max.	±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.

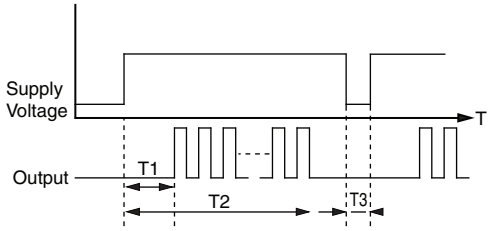
■ Environmental Characteristics

Item	D8M-D82	D8M-R1
Insulation resistance	100 MΩ 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



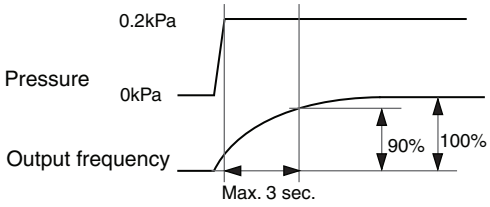
Model	T1	T2	T3
D8M-D82	1.5 ms min.	30 ms max.	45 ms max.

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)

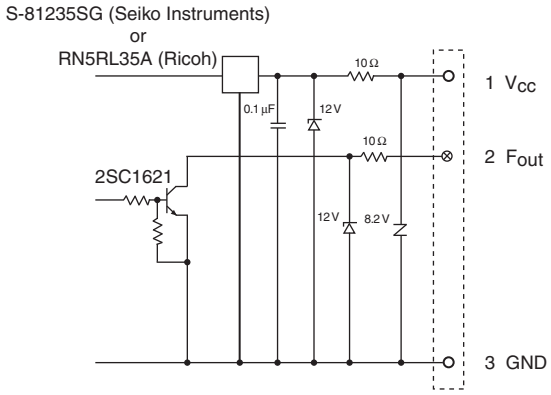


■ Interface Circuit Diagram

D8M-R1

Response time to 90% of 0.2kPa

Max. 3 seconds (excluding time for pressure change)



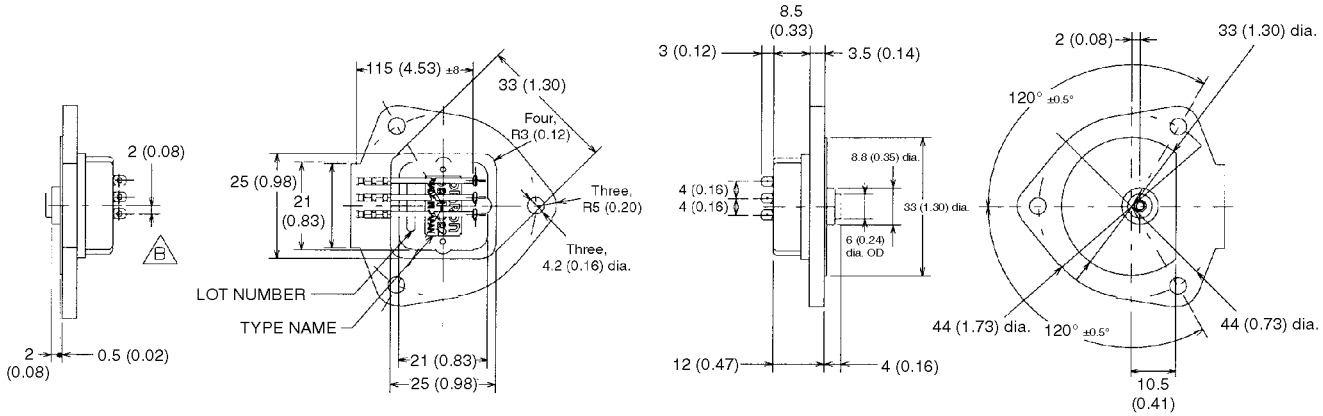
Application Examples

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.

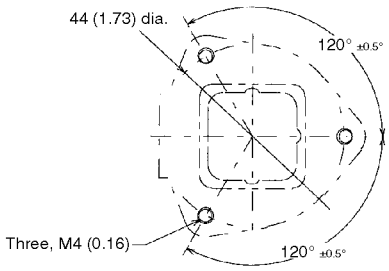
Dimensions

Unit: mm (inch)

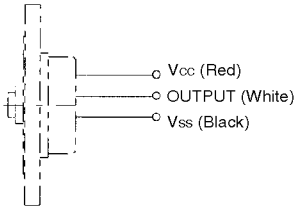
■ D8M-D82



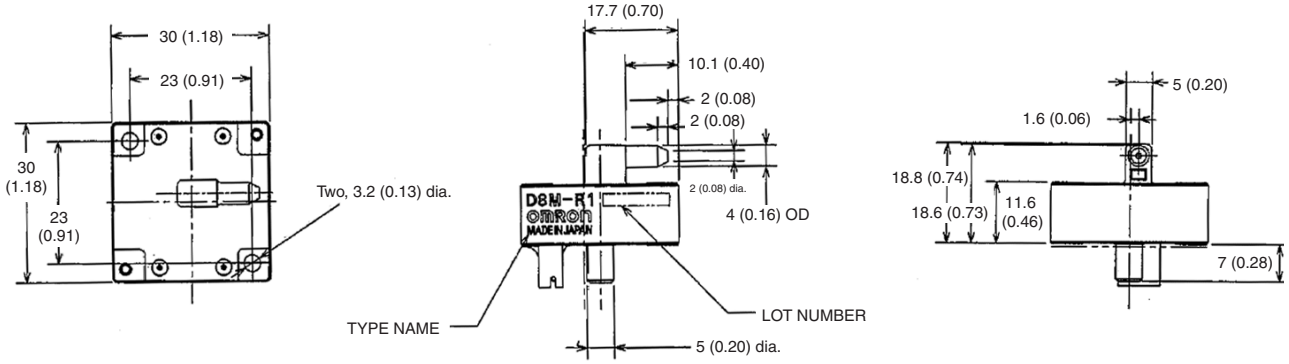
Mounting Hole

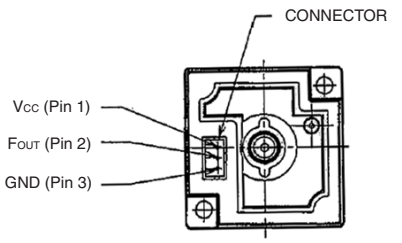


Lead Arrangement (Left Side View)



■ D8M-R1





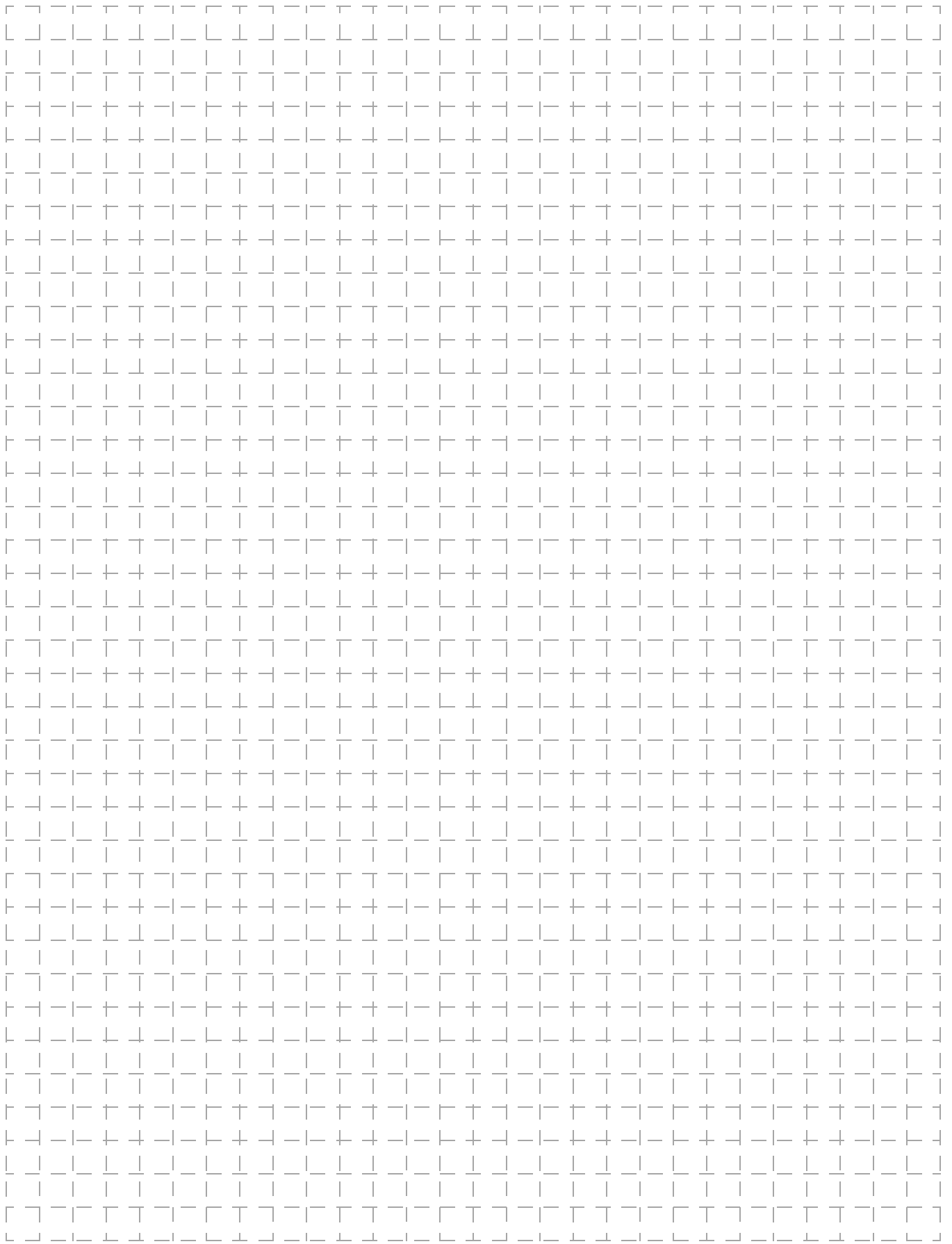
Precautions

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.

MEMO



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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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