

Model **GEC-1** Security Compact Shock Sensor (Low Current Consumption Type)

PATENTED



Model List	Detection Sensitivity	Operation Status	Model List	Detection Sensitivity	Operation Status
GEC-1	1 G	Normally open	GEC-11	1 G	Normally closed
GEC-1H	1.5 G		GEC-1H1	1.5 G	
GEC-2	2 G		GEC-21	2 G	
GEC-3	3 G		GEC-31	3 G	
GEC-5	5 G		GEC-51	5 G	
GEC-7	7 G		GEC-71	7 G	
GEC-10	10 G		GEC-101	10 G	
GEC-15	15 G		GEC-151	15 G	
GEC-20	20 G		GEC-201	20 G	

Application

- IoT
- Impact monitoring of road equipment and materials
- Shock switches
- Impact monitoring of cargo and baggage
- Shock monitoring of machines
- Security monitoring of buildings and equipment

Features

- Current consumption is only 13 μ A, so battery-powered long-term use is practical.
- Detects shocks due to impacts/collisions. Avoids possible malfunctions caused by machine-generated high-frequency oscillations by lowering the sensitivity to high frequency waves.
- Low susceptibility to digital circuit power line noise.
- Can also detect momentary impacts. Even in that case, it outputs a pulse of 200 ms.

Rating / Performance

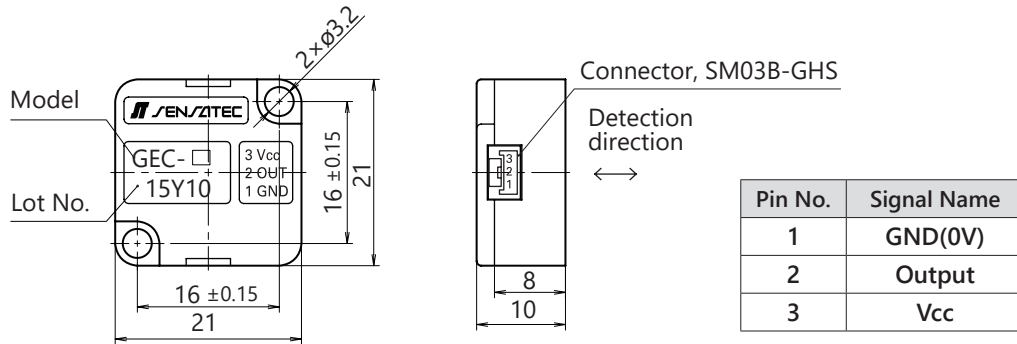
Model		GEC-*	GEC-*
Power Supply Voltage		2.7 V to 6.0 V DC	
Current Consumption		13 μ A DC typ.	
Output		Nch MOSFET Open drain	
		30 V DC, 50 mA DC or less (Output is available 600 ms from power ON)	
Output Residual Voltage		1 V DC or less (Load current 50 mA DC)	
Operation Status		Normally open (Output ON when shock is detected)	Normally closed (Output OFF when shock is detected)
Output Hold Time	Momentary Shock Input	200 ms \pm 30 % ON	200 ms \pm 30 % OFF
	At Continuous Shock Input	Continuous ON	Continuous OFF
Detection Frequency		10 Hz to 1 kHz	
Response Time		4 μ s or less	
Circuit Protection		Back-flow protection diode and output surge absorption diode	
Temperature Range		-10 to 60 °C (-15 to 65 °C storage temperature range)(Without dew condensation or icing)	
Humidity Range		85 % RH or less (85 % RH or less storage humidity range)(Without dew condensation)	
Dielectric Strength		500 V AC for 1 min (Between live parts and the mounting part)	
Insulation Resistance		20 M Ω or more at 500 V DC megger (Between live parts and the mounting part)	
Vibration Resistance		10 to 55 Hz, 1.5mm double amplitude in X, Y, and Z directions for 2 hours each (at power off)	
Shock Resistance		1000 m/s ² (Approx. 100 G) in X, Y, and Z direction 3 times each (at power off)	
Protection		IP50	
Case Material		ABS resin with glass	
Connector		Connector : SM03B-GHS(3-pin)(from J.S.T. Mfg. Co., Ltd.) [Connections]Housing : GHR-03V-S, Contact : SSSL-002T-P0.2(from J.S.T. Mfg. Co., Ltd.)	
Weight		Approx. 4 g	
Options (Sold separately)		Connector harness: CNH-GHR03S28-300	

Detection Sensitivity

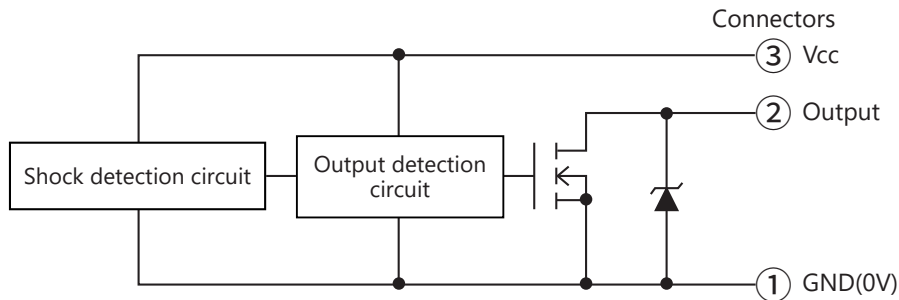
Model	GEC-1	GEC-1H	GEC-2	GEC-3	GEC-5	GEC-7	GEC-10	GEC-15	GEC-20
	GEC-11	GEC-1H1	GEC-21	GEC-31	GEC-51	GEC-71	GEC-101	GEC-151	GEC-201
30Hz	1 G \pm 25 %	1.5 G \pm 20 %	2 G \pm 20 %	3 G \pm 20 %	5 G \pm 20 %	7 G \pm 20 %	10 G \pm 20 %	15 G \pm 20 %	20 G \pm 20 %
100Hz (Reference)	2.3 G \pm 30 %	3.0 G \pm 25 %	4.7 G \pm 25 %	6.9 G \pm 25 %	11.7 G \pm 25 %	16.2 G \pm 25 %	21.4 G \pm 25 % (90 Hz)	23.0 G \pm 25 % (60 Hz)	27.1 G \pm 25 % (50 Hz)

*Other detection sensitivities and output holding times than stated above are also available. Contact us.

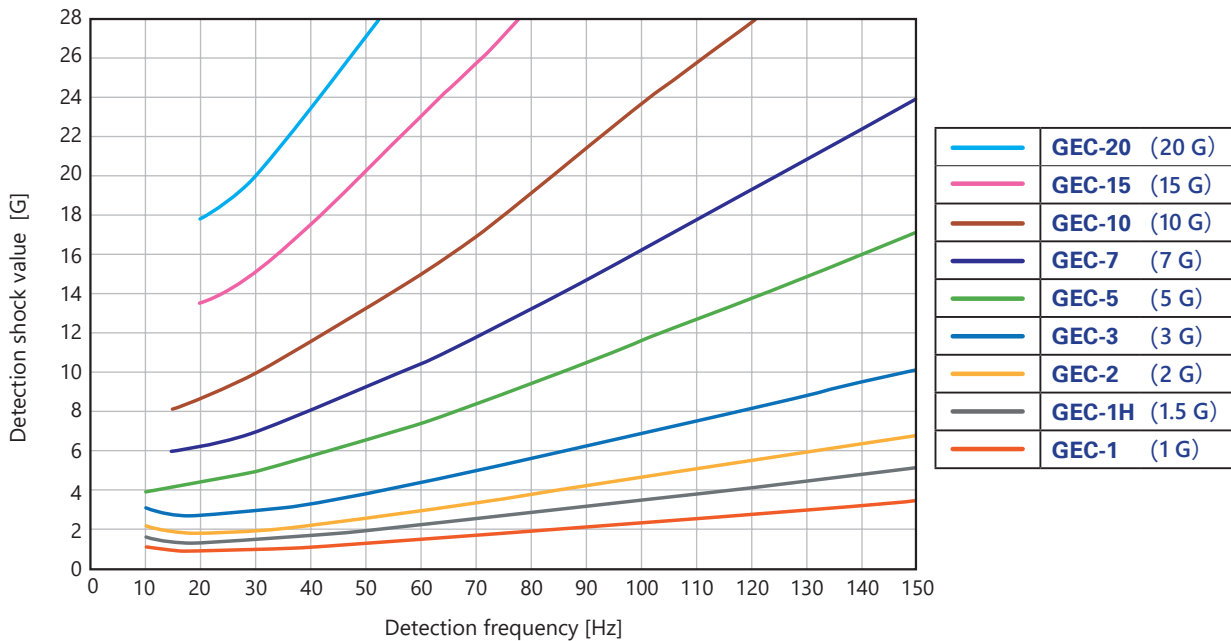
Outline Dimensions



Output Circuit



Reference Frequency Characteristics (Typical Example)



Precautions During Use

1. The case fastening should be at a torque of 0.32 N·m or less.
2. Avoid subjecting the sensor wire harness to mechanical stress while connecting to the connector or allowing vibration to transfer from the impact, otherwise disconnection or malfunction may result. Support the harness lead-out so that it is not subjected to excessive stress or vibration.
3. Thermal shock applied to the sensor during an abrupt temperature change can change the detection sensitivity. Ensure proper handling of the sensor.
4. It takes approximately 600 ms (at maximum) from Power ON until the output turns OFF (for the normally open type) or until the output turns ON (for the normally closed type).
5. Noise of 100 dB or more can affect sensitivity; confirm the operation with the noise before use.
6. Sources of strong electromagnetic noise can affect detection sensitivity. Check before using the sensor.
7. For other precautions, refer to "General Precautions" for shock sensors.

* For other detailed specifications, refer to the specification sheet of the corresponding model.