

Model HTS-30Z Touch Sensor

PATENTED



HTS-30Z



HTS-30Z-1

Model List	Operation Sensitivity	Operation Configuration
HTS-30Z	30 pF	Normally open
HTS-30Z-4	40 pF	
HTS-30Z-5	50 pF	
HTS-30Z-6	60 pF	
HTS-30Z-1	30 pF	Normally closed
HTS-30Z-14	40 pF	
HTS-30Z-15	50 pF	
HTS-30Z-16	60 pF	

Application

- Touch switch for door knobs
- Elevator switch
- Touch switch for automatic doors
- Touch switch for security purpose
- Input switch for electric devices
- Seat sensor
- Input sensor of amusement equipment
- Safety device for finger pinch avoidance from machine moving parts or door mechanisms

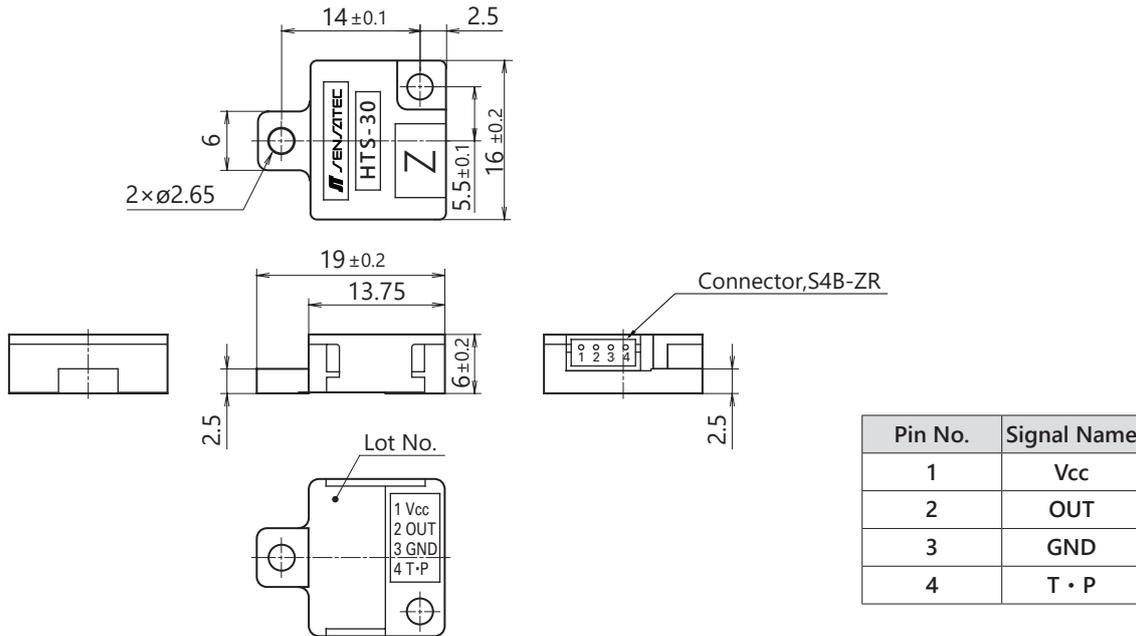
Features

- The touch electrode can be set freely. Small type and equipped with a connector for easy installation and free positioning even in small places.
- Does not operate by mistake when touched by an object with small electrostatic capacity such as plastic objects or bags.
- Fixed sensitivity to avoid the need for troublesome settings.
- Can withstand human static electricity without any external connection.
- Does not use any contact point to prevent poor contact problems and leads to the long life.

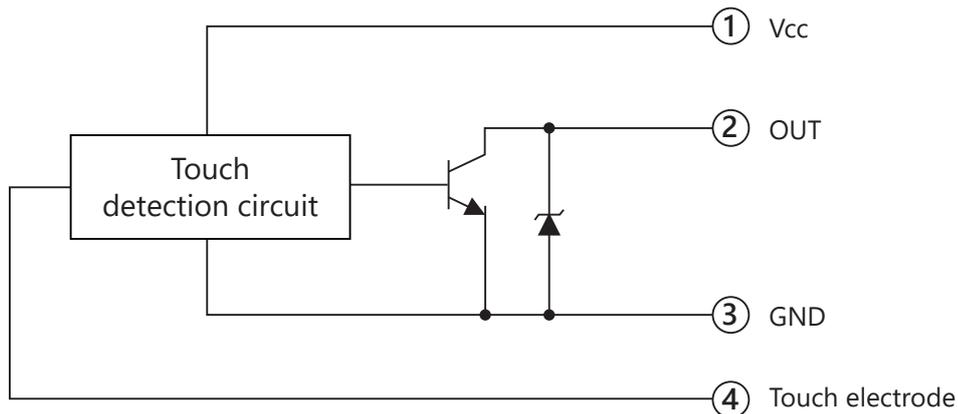
Rating/Performance

Model	HTS-30Z	HTS-30Z-4	HTS-30Z-5	HTS-30Z-6	HTS-30Z-1	HTS-30Z-14	HTS-30Z-15	HTS-30Z-16
Operation Sensitivity	30 pF ± 6pF	40 pF ± 8 pF	50 pF ± 9 pF	60 pF ± 12 pF	30 pF ± 6pF	40 pF ± 8 pF	50 pF ± 9 pF	60 pF ± 12 pF
Power Voltage	5 V to 12 V DC (Operating voltage range: 4.5 V to 14.4 V DC)							
Power Consumption	At 5 V DC : 4 mA DC or less, At 12 V DC : 15 mA DC or less							
Output	NPN transistor open collector 14 V DC, 50 mA DC or less							
Output Residual Voltage	1 V DC or less (Load current 50 mA DC)							
Operation Status	Normally open (On output with detection target)				Normally closed (Off output with detection target)			
Temperature Range	-20 to 60 °C (-25 to 65 °C during storage) (Without dew condensation or freezing)							
Humidity Range	35 to 85 % RH (25 to 85 % RH during storage)							
Anti-static Electricity	± 20 kV between the contact terminal and GND (500 pF, 0 Ω)							
Breakdown Voltage	500 V AC, 50/60 Hz for 1 min (Between live parts and the case)							
Insulation Resistance	20 MΩ or more, at 500 V DC megger (Between live parts and the case)							
Vibration Resistance	Durability : 10 to 55 Hz, Double amplitude: 1.5 mm in X-, Y-, and Z-direction, each 2 hours (Device not powered)							
Shock Resistance	Durability : 500 m/s ² (Approx. 50 G) in X-, Y-, and Z-direction, each 3 times (Device not powered)							
Ingress Protection	IP50							
Case Material	PBT reinforced with glass-fiber (Gray)				PBT reinforced with glass-fiber (Black)			
Connector	Connector : S4B-ZR-SM2 (4-pin) (from J.S.T. Mfg. Co., Ltd.) [Connections] Housing: ZHR-4, Contact: SZH-002T-P0.5 (from J.S.T. Mfg. Co., Ltd.)							
Weight	Approx. 2 g							
Options (Sold Separately)	Connector harness : SZH-4-300							

Dimensions



Output Circuit



*Because there is no reverse connection protection diode built-in, pay careful attention to the polarity of the power supply.

Precautions During Use

- The touch (detection) electrode of the touch sensor is connected to the detection circuit. Therefore, it is necessary to ensure sufficient withstand voltage and insulation between the touch sensor power supply and the AC power supply to ensure safety.
- All conductors including the wire connected to the terminal No.4 of this sensor detect capacitance, so make them as short as possible, Separate from the wiring of the terminals No.1 to No.3 of this sensor so as not to pick up stray capacitance. Also, for the same reason, route the wiring for terminal No.4 as far as possible from all other conductors that are insulated from the wiring for this terminal. When passing through a restricted opening, where separation is difficult, use a spiral tube with a thickness of 1.5 mm or more of a material with a low relative dielectric constant of 3 or less and connect it to the wiring of the terminal No.4.
- If the sensor is used near a broadcasting station with high output, or if there is strong common-mode noise in the DC power supply because it is also used for a large inverter-fed device, install a capacitor of 0.1 μF or more to the 0 V line to remove the noise to the FG terminal.
- A high-frequency oscillation circuit is used in the touch sensor. Therefore, if several sensors get close or if the same person touches the touch electrodes of several touch sensors at the same time, the detection operation may malfunction due to reciprocal interference. It is recommended to consult with our company since the interference depends on the position and wiring of the touch sensors and the sensor electrodes.
- When using the normally open output type, be sure to use the sensor with the wiring capacity of the output line under 1,000 pF. Otherwise, the charge of the output line may exceed the maximum output current at output drive, resulting in output malfunction. When a longer output wiring is needed for larger output wiring capacity over 1,000 pF, either add a 100 Ω resistor in series besides the output terminal of the sensor side, or use the normally close output type.
- For normally open output type sensors, the output line wiring length should be 5 m or less in order to eliminate the influence of the output drive current capability of the IC used in this sensor and the anti-static performance due to wiring inductance.
- The tightening torque for the case should be 0.3 N·m or less.
- For other precautions, refer to "General Precautions" for touch sensors.