W2GJ

Touch Sensor

Reliable operation achieved with only a light touch. Models equipped with anti-static FG terminals are also available.

- Suitable for embedding in equipment
- Enables touch sensor configurations to be created that suit your application. Touch electrodes and touch sensor electrodes can be fastened just using screws.
- Body-to-electrode static electricity transfers can easily be prevented using FG terminal models. (W2GJ-L6)
- Supports 5 to 15 VDC, with open-collector output.

⚠ Refer to *Safety Precautions* on page 5.

Features

No design required No need to perform sensitivity adjustments or design circuits! Minimizes development man-hours.

Stable operation Achieves stable operation using a touch electrode that changes capacitance depending on the level of touch.

Connects easily Touch electrodes and touch sensors can be fastened just using screws.
No PCBs, facilitating touch sensor configurations.

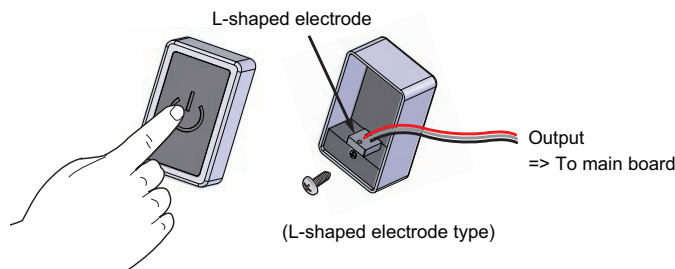[Line-Up]
I-shaped electrode type
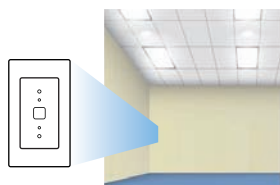
L-shaped electrode type

[Mounting example]
Touch electrode (conductive material)

L-shaped electrode

Output
=> To main board

(L-shaped electrode type)

W2GJ

Application Examples

Lights	Elevators	Vending Machines	Faucets	

Contact detection for smart doors, shutters, vacuum cleaners, etc.

Model Number Legend

W2GJ-☐ ☐
    (1) (2)

(1) Electrode shape
F: I-shaped
L: L-shaped

(2) Detected capacitance, FG terminal
5: 35 pF, Without
6: 35 pF, With

Specifications

Electrode shape	Appearance	FG terminal	Model
I-shaped		Without	**W2GJ-F5**
L-shaped		With	**W2GJ-L6**

Ratings and Specifications

|	
Detected capacitance	35 ± 7 pF [1]
Power supply voltage	5 VDC (-10%) to 15 VDC (+10%)
Output	Open collector (max. output current: 10 mA)
Residual output voltage	0.4 V max.
Operation mode	When detecting capacitance (human touch detected): Output transistor ON When not detecting capacitance (no human touch detected): Output transistor OFF
Current consumption	10 mA max.
Voltage influence	With rated supply voltage within a range of ±10% and a rate of change for detected capacitance within ±10% when powered using the rated supply voltage
Temperature influence	Within an ambient temperature range when operating and a rate of change for detected capacitance within ±10% at +23°C
Ambient temperature	When in use: -10 to 60°C (no icing or condensation) When in storage: -20 to 70°C (no icing or condensation)
Ambient humidity	25 to 85%RH

∗1. "Detected capacitance" refers to the detected capacitance value when capacitance is applied between the electrode and the ground terminal of the touch sensor circuit.

Output Circuit Diagram
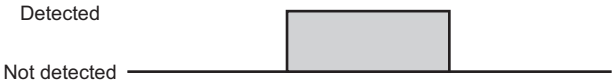
FG terminal not provided
(W2GJ-F5)
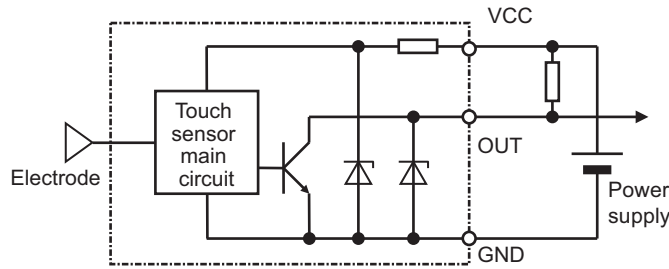
FG terminal provided
(W2GJ-L6)
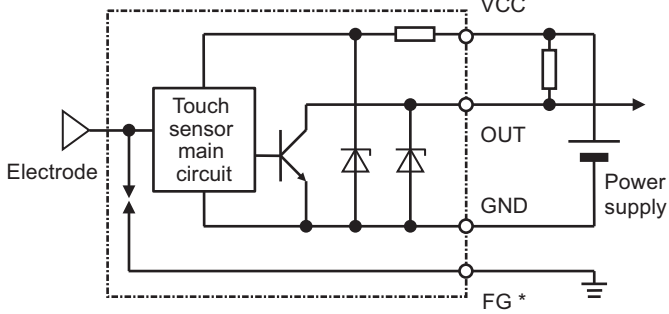
✻ We recommend connecting the FG terminal to a stable potential on the device's frame ground.
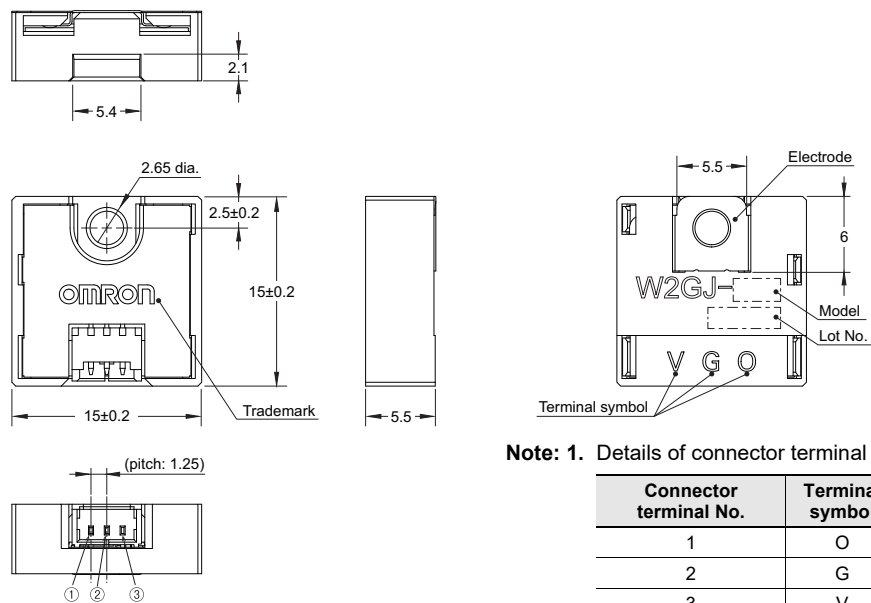
Operation Chart

Capacitance detection

Detected

Not detected

Output transistor

ON

OFF

W2GJ

Dimensions

(Unit: mm)

W2GJ-F5

2.1

5.4

2.65 dia.

2.5±0.2

15±0.2

omRon

15±0.2

Trademark

5.5

(pitch: 1.25)

① ② ③

5.5

Electrode

6

W2GJ-

Model

Lot No.

V G O

Terminal symbol

Note: 1. Details of connector terminal symbols are shown below.

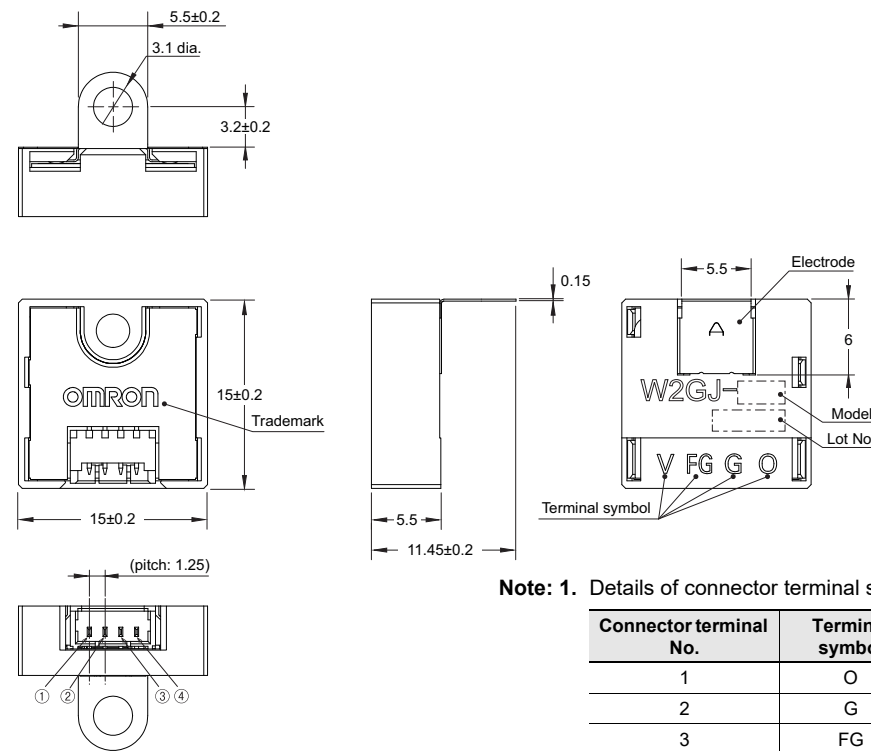| Connector terminal No.	Terminal symbol	Name
1	O	Output (OUT)
2	G	Ground (GND)
3	V	Power supply (VCC)

Note: 2. Compatible housings for connector include 51021-03□□ series models from Molex.

Note: 3. The Lot No. is 4-digit number located at the position indicated in the figure.

Note: 4. Tolerance class IT16 applies to dimensions in this datasheet unless otherwise specified.

CAD Data

W2GJ-L6

5.5±0.2

3.1 dia.

3.2±0.2

15±0.2

omRon

Trademark

15±0.2

(pitch: 1.25)

① ② ③ ④

0.15

5.5

11.45±0.2

5.5

Electrode

6

W2GJ-

Model

Lot No.

V FG G O

Terminal symbol

Note: 1. Details of connector terminal symbols are shown below.

Connector terminal No.	Terminal symbol	Name
1	O	Output (OUT)
2	G	Ground (GND)
3	FG	Frame ground (FG)
4	V	Power supply (VCC)

Note: 2. Compatible housings for connector include 51021-04□□ series models from Molex.

Note: 3. The Lot No. is 4-digit number located at the position indicated in the figure.

Note: 4. Tolerance class IT16 applies to dimensions in this datasheet unless otherwise specified.

CAD Data

OMRON

Safety Precautions

Please read the matters of agreement when ordering

⚠ WARNING

These products cannot be used in safety devices for presses or other safety devices used to protect human life. This product is designed for use in applications for sensing workpieces and workers that will not affect levels of safety.

⚠ CAUTION

This product is not designed or rated for ensuring safety of persons either directly or indirectly. Do not use it for such purposes.

How to Use

1. How to use
   By securing the electrode of this product while it is contacted with a touch electrode (conductive material made from metal or with a metallic plating), a touch sensor configuration can be created with specifications that suit your application. The electrode has a hole that enables it to be fastened with a screw.
2. FG terminals
   Due to the nature of touch sensors, static electricity from the human body is capable of entering the touch sensor via the electrode. When an anti-static measure is required, select a model (W2GJ-L6) with an FG terminal, which acts as a discharge circuit for static electricity. To effectively use the FG terminal as an anti-static measure, we recommend connecting it to a stable potential on, for example, the device's frame ground using a thick, short wire.

I-shaped electrode (W2GJ-F5)
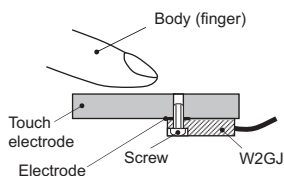
L-shaped electrode (W2GJ-L6)
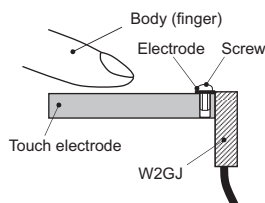
Precautions for Correct Use

1. Use a touch electrode made of conductive material such as metal or metal-plated material.
2. Make sure to insulate touch electrode and electrode of this product from external grounds.
3. The amount of static electricity applied will differ depending on the size of the touch electrode or the condition of the metal around it. Use this product after confirming that the sensor operates if a human touches the touch electrode while it and the electrode of this product are in contact and secured.
4. Avoid use in locations subject to direct contact with liquids such as water. Failure to do so will result in malfunction.

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