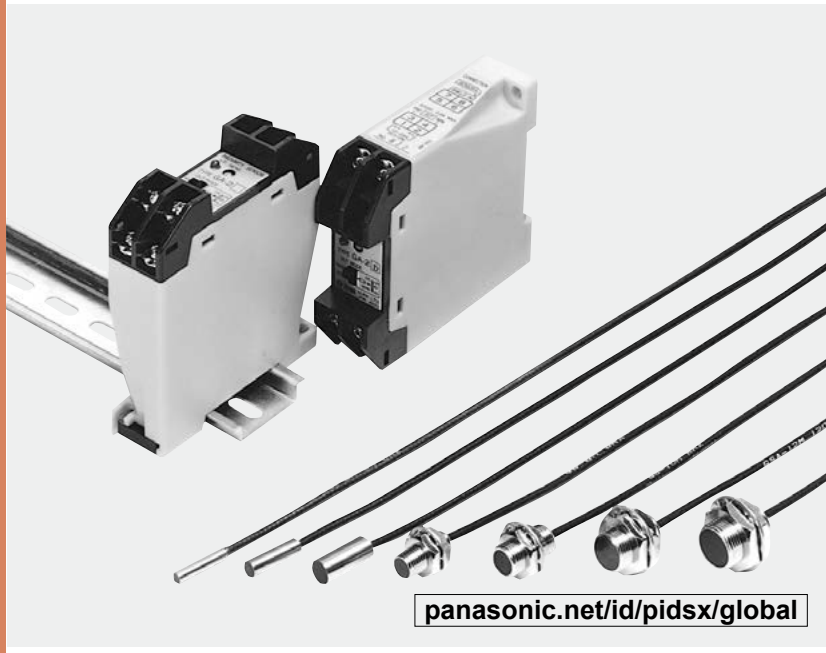





GS SERIES GA SERIES

Related Information ■ General terms and conditions..... F-3 ■ Selection guide P.781~
 ■ Glossary of terms..... P.1576~ ■ General precautions P.1579~



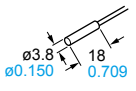
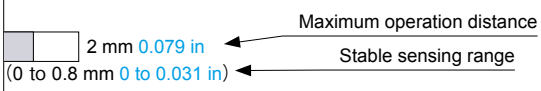
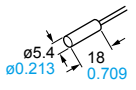
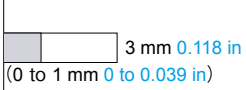
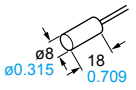
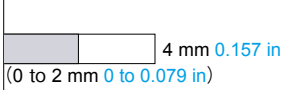
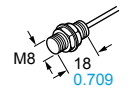
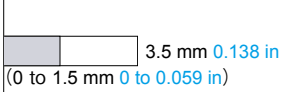


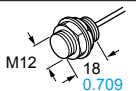
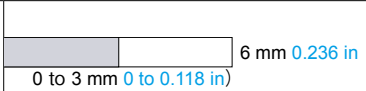
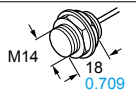
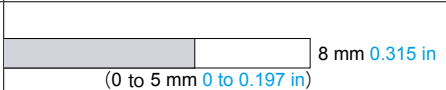
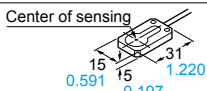
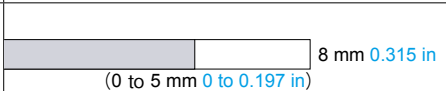
panasonic.net/id/pidsx/global

 PNP output type available
 Metal embedding possible
 With adjuster

Large selection

ORDER GUIDE

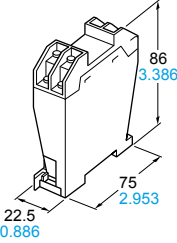
Sensor heads

| Type | Appearance (mm in) | Sensing range (Note) | Model No. |
|--------------------|---|--|---------------|
| Non-threaded type |  |  | GS-3S |
| |  |  | GS-5S |
| |  |  | GS-8S |
| Threaded type |  |  | GS-8M |
| |  |  | GS-10M |
| |  |  | GS-12M |
| |  |  | GS-14M |
| Front sensing type |  |  | GS-14T |

Note: The maximum operation distance stands for the maximum distance for which the sensor can detect the standard sensing object. The stable sensing range stands for the sensing range for which the sensor can stably detect the standard sensing object even if there is an ambient temperature drift and/or supply voltage fluctuation.

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- LASER SENSORS
- PHOTOELECTRIC SENSORS
- MICRO PHOTOELECTRIC SENSORS
- AREA SENSORS
- SAFETY LIGHT CURTAINS / SAFETY COMPONENTS
- PRESSURE / FLOW SENSORS
- INDUCTIVE PROXIMITY SENSORS**
- PARTICULAR USE SENSORS
- SENSOR OPTIONS
- SIMPLE WIRE-SAVING UNITS
- WIRE-SAVING SYSTEMS
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- STATIC CONTROL DEVICES
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- PLC
- HUMAN MACHINE INTERFACES
- ENERGY MANAGEMENT SOLUTIONS
- FA COMPONENTS
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- Amplifier-separated
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- GS/GA**

ORDER GUIDE**Amplifiers**

| Appearance (mm in) | Model No. | Supply voltage | Output |
|---|--------------|----------------|----------------------------------|
|  | GA-2 | 90-260 V AC | AC non-contact (Photo-thyristor) |
| | GA-2R | | Relay contact 1a |
| | GA-2D | 10 to 28 V DC | NPN, PNP (2 outputs) |

• Be sure to use the sensor head with the amplifier as a set.

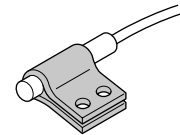
OPTIONS

| Designation | Model No. | Description |
|------------------------------|---------------|-----------------------------------|
| Sensor head mounting bracket | MS-SS3 | Mounting bracket for GS-3S |
| | MS-SS5 | Mounting bracket for GS-5S |
| | MS-SS8 | Mounting bracket for GS-8S |

Sensor head mounting bracket

- **MS-SS**□

The sensor head can be easily fixed.

**SPECIFICATIONS****Sensor heads**

| Item | Type | Non-threaded type | | | Threaded type | | | | Front sensing type |
|----------------------------------|----------------------|--|----------------------------------|-----------------------------------|---|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|
| | Model No. | GS-3S | GS-5S | GS-8S | GS-8M | GS-10M | GS-12M | GS-14M | GS-14T |
| Applicable amplifiers | | GA-2, GA-2R, GA-2D | | | | | | | |
| Max. operation distance (Note 2) | | 2 mm 0.079 in | 3 mm 0.118 in | 4 mm 0.157 in | 3.5 mm 0.138 in | 4 mm 0.157 in | 6 mm 0.236 in | 8 mm 0.315 in | 8 mm 0.315 in |
| Stable sensing range (Note 2) | | 0 to 0.8 mm 0 to 0.031 in | 0 to 1mm 0 to 0.039 in | 0 to 2 mm 0 to 0.079 in | 0 to 1.5 mm 0 to 0.059 in | 0 to 2 mm 0 to 0.079 in | 0 to 3 mm 0 to 0.118 in | 0 to 5 mm 0 to 0.197 in | 0 to 5 mm 0 to 0.197 in |
| Standard sensing object | | Iron sheet 18 × 18 × t 1 mm 0.709 × 0.709 × t 0.039 in | | | | | | | |
| Hysteresis | | 50 μm 1.969 mil or less | | | | | 60 μm 2.362 mil or less | 70 μm 2.756 mil or less | |
| Repeatability (Note 3) | | 2 μm 0.079 mil or less | 2.5 μm 0.098 mil or less | 5 μm 0.197 mil or less | 3 μm 0.118 mil or less | 5 μm 0.197 mil or less | | | |
| Environmental resistance | Protection | IP67 (IEC) | | | | | | | |
| | Ambient temperature | -10 to +60 °C 14 to +140 °F , Storage: -10 to +60 °C 14 to +140 °F | | | | | | | |
| | Ambient humidity | 35 to 95 % RH, Storage: 35 to 95 % RH | | | | | | | |
| | Vibration resistance | 10 to 55 Hz frequency, 1.5 mm 0.059 in double amplitude in X, Y and Z directions for two hours each | | | | | | | |
| | Shock resistance | 500 m/s ² acceleration (50 G approx.) in X, Y and Z directions three times each | | | | | | | |
| Material | | Enclosure: Stainless steel [threaded type sensor head: Brass (Nickel plated)], Resin part: PVC | | | | | | | |
| Cable | | Oil-resistant high frequency coaxial cable, 3 m 9.843 ft long (intrinsic impedance: 50Ω) (Note 4) | | | | | | | |
| Cable extension | | Extension up to total 8 m 26.247 ft is possible with an equivalent cable (Note 4) | | | | | | | |
| Net weight (Note 5) | | 35 g approx. | 36 g approx. | 37 g approx. | 44 g approx. | 45 g approx. | 50 g approx. | 53 g approx. | 46 g approx. |
| Accessories | | ————— | | | Nut: 2 pcs., Toothed lock washer: 1 pc. | | | | ————— |

Notes: 1) Where measurement conditions have not been specified precisely, the conditions used were an ambient temperature of +23 °C **+73.4 °F**.

2) The maximum operation distance stands for the maximum distance for which the sensor can detect the standard sensing object.

The stable sensing range stands for the sensing range for which the sensor can stably detect the standard sensing object even if there is an ambient temperature drift and/or supply voltage fluctuation.

3) The repeatability is given for the stable sensing range. (along sensing axis, perpendicular to sensing axis)

4) If the cable of the sensor head is cut or extended, the sensing range and the hysteresis change.

5) The weight of the threaded type includes the weight of two nuts and one toothed lock washer.

FIBER SENSORS

LASER SENSORS

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MACHINE VISION SYSTEMS

UV CURING SYSTEMS

Selection Guide

Amplifier Built-in

Amplifier-separated

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GS/GA

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PLC
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UV CURING SYSTEMS
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SPECIFICATIONS

The CAD data can be downloaded from our website.

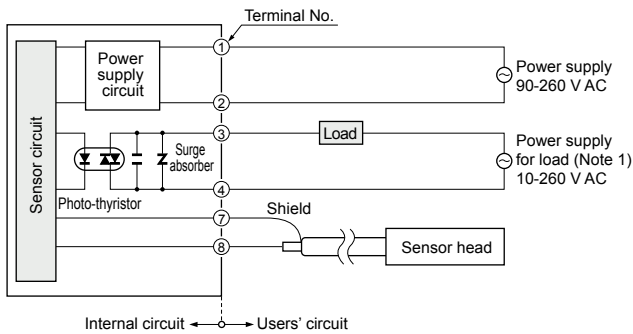
Amplifiers

| Item | Type | AC supply type | | DC supply type |
|-----------------------------|--|--|--------------|---|
| | Model No. | GA-2 | GA-2R | GA-2D |
| Supply voltage | | 90-260 V AC | | 10 to 28 V DC |
| Power / current consumption | | 2.5 VA approx. | 9 VA approx. | 20 mA approx. |
| Output | AC non-contact (Photo-thyristor) • Switching capacity: 260 V AC 2 to 100 mA | Relay contact 1a • Switching capacity: 250 V AC 2 A (resistive load) • Rated load life: 500,000 or more switching operations | | NPN open-collector transistor • Maximum sink current: 200 mA • Applied voltage: 30 V DC or less (between output and 0 V) • Residual voltage: 1.5 V or less (at 200 mA sink current) 0.4 V or less (at 16 mA sink current) • Short-circuit protection PNP open-collector transistor • Maximum source current: 200 mA • Residual voltage: 1.5 V or less (at 200 mA source current) • Short-circuit protection |
| Output operation | Selectable either Normally open or Normally closed | | | |
| Response time | 10 ms or less | | 1 ms or less | |
| Operation indicator | Red LED (lights up when the output is ON) | | | |
| Sensitivity adjuster | 15-turn potentiometer | | | |
| Ambient temperature | -10 to +60 °C -14 to +140 °F (No dew condensation or icing allowed), Storage: -10 to +60 °C -14 to +140 °F | | | |
| Ambient humidity | 35 to 85 % RH, Storage: 35 to 85 % RH | | | |
| Material | Cover: ABS, Terminal part: PBT | | | |
| Net weight | 130 g approx. | 150 g approx. | 75 g approx. | |
| Accessory | Adjusting screwdriver: 1 pc. | | | |

Note: Where measurement conditions have not been specified precisely, the conditions used were an ambient temperature of +23 °C +73.4 °F.

I/O CIRCUIT DIAGRAMS

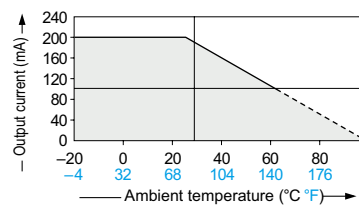
GA-2



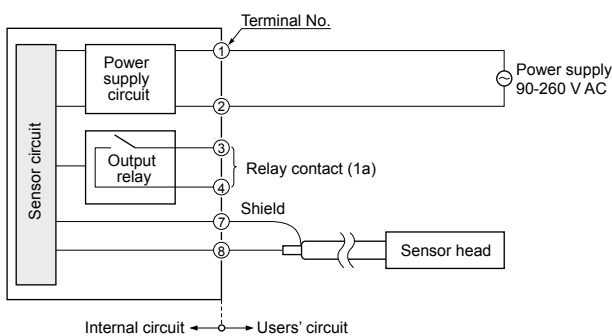
Note: The sensor is damaged if connected with no load.

Table of output current and temperature characteristic

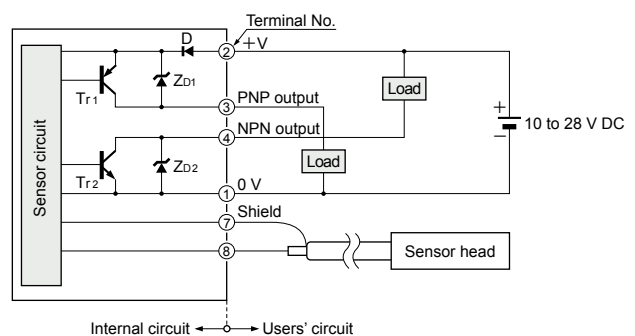
The output current to be used should be less than the values shown on the table below depending on the maximum ambient temperature.



GA-2R



GA-2D

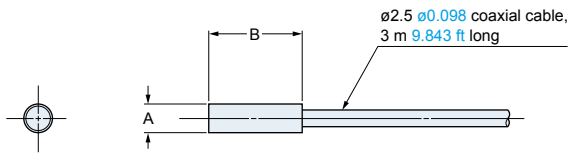


Symbols ... D: Reverse supply polarity protection diode
ZD1, ZD2: Surge absorption zener diode
Tr1: PNP output transistor
Tr2: NPN output transistor

DIMENSIONS (Unit: mm in)

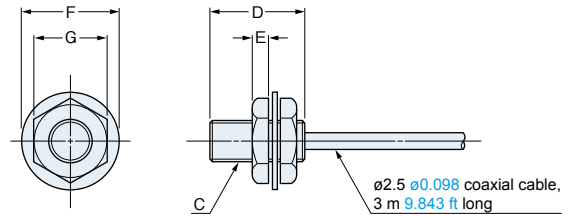
The CAD data can be downloaded from our website.

GS-3S GS-5S GS-8S Sensor head



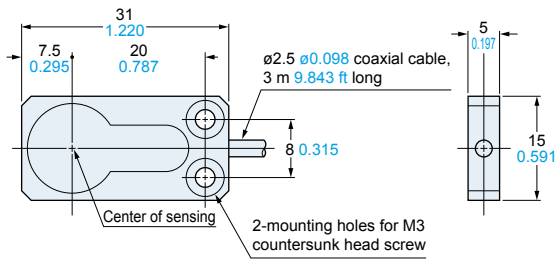
| Model No. | Symbols | A | B |
|--------------|---------|-------------|----------|
| GS-3S | | ø3.8 ø0.150 | 18 0.709 |
| GS-5S | | ø5.4 ø0.213 | |
| GS-8S | | ø8 ø0.315 | |

GS-8M GS-10M GS-12M GS-14M Sensor head

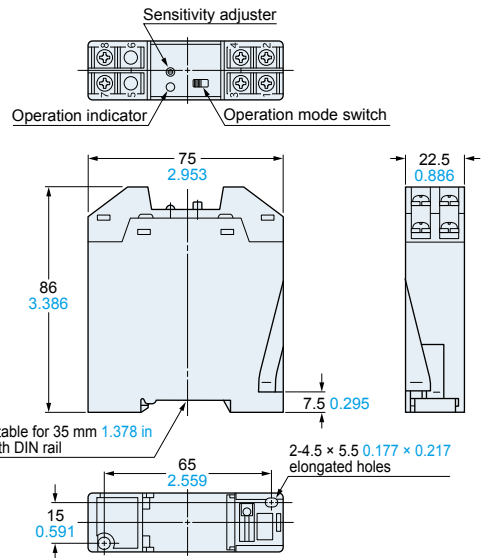


| Model No. | Symbols | C | D | E | F | G |
|---------------|---------|---------------|----------|-----------|------------|----------|
| GS-8M | | M8 × 1 0.039 | 18 0.709 | 3 0.118 | ø15 ø0.591 | 12 0.472 |
| GS-10M | | M10 × 1 0.039 | | | ø18 ø0.709 | 14 0.551 |
| GS-12M | | M12 × 1 0.039 | 18 0.709 | 3.5 0.138 | ø21 ø0.827 | 17 0.669 |
| GS-14M | | M14 × 1 0.039 | | | ø23 ø0.906 | 19 0.748 |

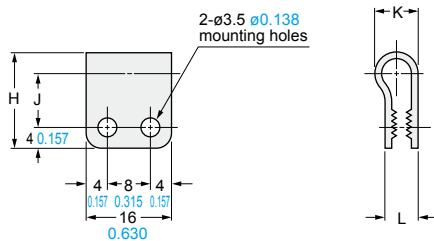
GS-14T Sensor head



GA-2 GA-2R GA-2D Amplifier



MS-SS3 MS-SS5 MS-SS8 Sensor head mounting bracket for non-threaded type (Optional)



Material: Nylon 66

| Model No. | MS-SS3 | MS-SS5 | MS-SS8 |
|----------------------------------|--------------|--------------|--------------|
| Symbols | | | |
| H | 16 0.630 | 18 0.709 | 20 0.787 |
| J | 9 0.354 | 10 0.394 | 11 0.433 |
| K | 6.3 0.248 | 8.3 0.327 | 10.3 0.406 |
| L | 4.9 0.193 | 6.1 0.240 | 6.5 0.256 |
| Applicable sensor head model No. | GS-3S | GS-5S | GS-8S |

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