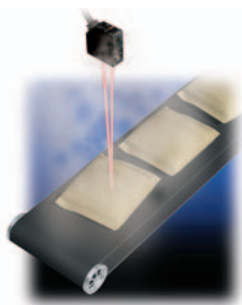


**ENVIRONMENTAL RESISTANCE****Little affected by contamination on lens**

Even if the lens surface gets somewhat dirty from dust particles, there is very little change in the operation field, by usage adjustable range sensor system.

**Waterproof**

IP67 protection permits use in environments where water may splash.



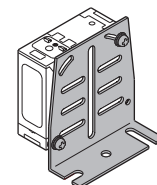
Note: Sensor may detect a water drop itself, if it is exposed to water splashes during operation.

**ORDER GUIDE**

| Type          | Appearance | Sensing range                     | Model No. | Supply voltage                                           | Output                                                                                                         | Timer function                                              |
|---------------|------------|-----------------------------------|-----------|----------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|
| Multi-voltage |            | 0.1 to 2.5 m<br>0.328 to 8.202 ft | EQ-501    | 24 to 240 V AC<br>±10 %<br>or<br>12 to 240 V DC<br>±10 % | Relay contact 1a                                                                                               | —                                                           |
|               |            |                                   | EQ-501T   |                                                          |                                                                                                                | ON-delay / OFF-delay timer<br>(Timer period: 0.1 to 5 sec.) |
|               |            | 0.1 to 1.0 m<br>0.328 to 3.281 ft | EQ-502    |                                                          |                                                                                                                | —                                                           |
|               |            |                                   | EQ-502T   |                                                          |                                                                                                                | ON-delay / OFF-delay timer<br>(Timer period: 0.1 to 5 sec.) |
| DC-voltage    |            | 0.1 to 2.5 m<br>0.328 to 8.202 ft | EQ-511    | 12 to 24 V DC<br>±10 %                                   | NPN<br>open-collector<br>transistor<br><br>PNP<br>open-collector<br>transistor<br>(Equipped with<br>2 outputs) | —                                                           |
|               |            |                                   | EQ-511T   |                                                          |                                                                                                                | ON-delay / OFF-delay timer<br>(Timer period: 0.1 to 5 sec.) |
|               |            | 0.1 to 1.0 m<br>0.328 to 3.281 ft | EQ-512    |                                                          |                                                                                                                | —                                                           |
|               |            |                                   | EQ-512T   |                                                          |                                                                                                                | ON-delay / OFF-delay timer<br>(Timer period: 0.1 to 5 sec.) |

**OPTION**

| Designation             | Model No.        | Description                         |
|-------------------------|------------------|-------------------------------------|
| Sensor mounting bracket | <b>MS-EQ5-01</b> | Foot / back angled mounting bracket |

**Sensor mounting bracket****• MS-EQ5-01**

Two M5 (length 30 mm 1.181 in) screws with washers and two nuts are attached.

FIBER SENSORS

LASER SENSORS

PHOTO-ELECTRIC SENSORS

MICRO PHOTO-ELECTRIC SENSORS

AREA SENSORS

LIGHT CURTAINS / SAFETY COMPONENTS

PRESSURE / FLOW SENSORS

INDUCTIVE PROXIMITY SENSORS

PARTICULAR USE SENSORS

SENSOR OPTIONS

SIMPLE WIRE-SAVING UNITS

WIRE-SAVING SYSTEMS

MEASURE-MENT SENSORS

STATIC ELECTRICITY PREVENTION DEVICES

LASER MARKERS

PLC

HUMAN MACHINE INTERFACES

ENERGY CONSUMPTION VISUALIZATION COMPONENTS

FA COMPONENTS

MACHINE VISION SYSTEMS

UV CURING SYSTEMS

Selection Guide

Amplifier Built-in

Power Supply Built-in

Amplifier-separated

CX-400

CY-100

EX-10

EX-20

EX-30

EX-40

CX-440

EQ-30

EQ-500

MQ-W

RX-LS200

RX

RT-610

**SPECIFICATIONS**

| Type                                              |                          | Multi-voltage                                                                                                                                                                                                                                                                                                                                                               |                                                                       |                                     |                                                                       | DC-voltage                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                       |                                |                                                                       |                          |  |                                                 |  |
|---------------------------------------------------|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|-------------------------------------|-----------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|--------------------------------|-----------------------------------------------------------------------|--------------------------|--|-------------------------------------------------|--|
|                                                   |                          | With timer                                                                                                                                                                                                                                                                                                                                                                  |                                                                       | With timer                          |                                                                       | With timer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                       | With timer                     |                                                                       |                          |  |                                                 |  |
| Item                                              | Model No.                | EQ-501                                                                                                                                                                                                                                                                                                                                                                      | EQ-501T                                                               | EQ-502                              | EQ-502T                                                               | EQ-511                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | EQ-511T                                                               | EQ-512                         | EQ-512T                                                               |                          |  |                                                 |  |
| Adjustable range (Note 2,3)                       |                          | 0.2 to 2.5 m 0.656 to 8.202 ft                                                                                                                                                                                                                                                                                                                                              |                                                                       | 0.2 to 1.0 m 0.656 to 3.281 ft      |                                                                       | 0.2 to 2.5 m 0.656 to 8.202 ft                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                       | 0.2 to 1.0 m 0.656 to 3.281 ft |                                                                       |                          |  |                                                 |  |
| Sensing range (at max. setting distance) (Note 3) |                          | 0.1 to 2.5 m 0.328 to 8.202 ft                                                                                                                                                                                                                                                                                                                                              |                                                                       | 0.1 to 1.0 m 0.328 to 3.281 ft      |                                                                       | 0.1 to 2.5 m 0.328 to 8.202 ft                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                       | 0.1 to 1.0 m 0.328 to 3.281 ft |                                                                       |                          |  |                                                 |  |
| Hysteresis (Note 3)                               |                          | 10 % or less of operation distance                                                                                                                                                                                                                                                                                                                                          |                                                                       |                                     |                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                       |                                |                                                                       |                          |  |                                                 |  |
| Supply voltage                                    |                          | 24 to 240 V AC ±10 % or 12 to 240 V DC ±10 %<br>Ripple P-P 10 % or less                                                                                                                                                                                                                                                                                                     |                                                                       |                                     |                                                                       | 12 to 24 V DC ±10 % Ripple P-P 10 % or less                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                       |                                |                                                                       |                          |  |                                                 |  |
| Power / Current consumption                       |                          | AC: 4 VA or less<br>DC: 3 W or less                                                                                                                                                                                                                                                                                                                                         | AC: 5 VA or less<br>DC: 4 W or less                                   | AC: 4 VA or less<br>DC: 3 W or less | AC: 5 VA or less<br>DC: 4 W or less                                   | 45 mA or less                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                       |                                |                                                                       |                          |  |                                                 |  |
| Output                                            |                          | Relay contact 1a <ul style="list-style-type: none"><li>Switching capacity: 250 V AC 3 A (resistive load)<br/>30 V DC 3 A (resistive load)</li><li>Electrical life: 100,000 or more switching operations (switching frequency 1,200 operations/hour)</li><li>Mechanical life: 50 million or more switching operations (switching frequency 18,000 operations/hour)</li></ul> |                                                                       |                                     |                                                                       | NPN open-collector transistor <ul style="list-style-type: none"><li>Maximum sink current: 100 mA</li><li>Applied voltage: 30 V DC or less (between output and 0 V)</li><li>Residual voltage: 1 V or less (at 100 mA sink current)<br/>0.4 V or less (at 16 mA sink current)</li></ul> PNP open-collector transistor <ul style="list-style-type: none"><li>Maximum source current: 100 mA</li><li>Applied voltage: 30 V DC or less (between output and +V)</li><li>Residual voltage: 1 V or less (at 100 mA source current)<br/>0.4 V or less (at 16 mA source current)</li></ul> |                                                                       |                                |                                                                       |                          |  |                                                 |  |
|                                                   |                          |                                                                                                                                                                                                                                                                                                                                                                             |                                                                       |                                     |                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                       |                                |                                                                       | Output operation         |  | Switchable either Detection-ON or Detection-OFF |  |
|                                                   |                          |                                                                                                                                                                                                                                                                                                                                                                             |                                                                       |                                     |                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                       |                                |                                                                       | Short-circuit protection |  | Incorporated                                    |  |
| Response time                                     |                          | 20 ms or less (For EQ-50□T depends on the setting timer period)                                                                                                                                                                                                                                                                                                             |                                                                       |                                     |                                                                       | 2 ms or less (For EQ-51□T depends on the setting timer period)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                       |                                |                                                                       |                          |  |                                                 |  |
| Operation indicator                               |                          | Orange LED (lights up when the output is ON)                                                                                                                                                                                                                                                                                                                                |                                                                       |                                     |                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                       |                                |                                                                       |                          |  |                                                 |  |
| Stability indicator                               |                          | Green LED (lights up under stable operating condition)                                                                                                                                                                                                                                                                                                                      |                                                                       |                                     |                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                       |                                |                                                                       |                          |  |                                                 |  |
| Distance adjuster                                 |                          | 2-turn mechanical adjuster with indicator                                                                                                                                                                                                                                                                                                                                   |                                                                       |                                     |                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                       |                                |                                                                       |                          |  |                                                 |  |
| Sensing mode                                      |                          | —————                                                                                                                                                                                                                                                                                                                                                                       |                                                                       |                                     |                                                                       | Switchable either BGS or FGS function                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                       |                                |                                                                       |                          |  |                                                 |  |
| Timer function                                    |                          | —————                                                                                                                                                                                                                                                                                                                                                                       | Incorporated with variable (0.1 to 5 sec.) ON-delay / OFF-delay timer | —————                               | Incorporated with variable (0.1 to 5 sec.) ON-delay / OFF-delay timer | —————                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Incorporated with variable (0.1 to 5 sec.) ON-delay / OFF-delay timer | —————                          | Incorporated with variable (0.1 to 5 sec.) ON-delay / OFF-delay timer |                          |  |                                                 |  |
| Automatic interference prevention function        |                          | Incorporated (Note 4)                                                                                                                                                                                                                                                                                                                                                       |                                                                       |                                     |                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                       |                                |                                                                       |                          |  |                                                 |  |
| Environmental resistance                          | Protection               | IP67 (IEC)                                                                                                                                                                                                                                                                                                                                                                  |                                                                       |                                     |                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                       |                                |                                                                       |                          |  |                                                 |  |
|                                                   | Ambient temperature      | -20 to +55 °C -4 to +131 °F (No dew condensation or icing allowed), Storage: -30 to +70 °C -22 to +158 °F                                                                                                                                                                                                                                                                   |                                                                       |                                     |                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                       |                                |                                                                       |                          |  |                                                 |  |
|                                                   | Ambient humidity         | 35 to 85 % RH, Storage: 35 to 85 % RH                                                                                                                                                                                                                                                                                                                                       |                                                                       |                                     |                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                       |                                |                                                                       |                          |  |                                                 |  |
|                                                   | Ambient illuminance      | Incandescent light: 3,000 lx at the light-receiving face                                                                                                                                                                                                                                                                                                                    |                                                                       |                                     |                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                       |                                |                                                                       |                          |  |                                                 |  |
|                                                   | Voltage withstandability | 2,000 V AC for one min. among supply terminals, non-supply metal parts and relay contact output terminals, 1,000 V AC for one min. between relay contacts                                                                                                                                                                                                                   |                                                                       |                                     |                                                                       | 1,000 V AC for one min. between all supply terminals connected together and enclosure                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                       |                                |                                                                       |                          |  |                                                 |  |
|                                                   | Insulation resistance    | 100 MΩ, or more, with 500 V DC megger among supply terminals, non-supply metal parts and relay contact output terminals as well as between relay contacts                                                                                                                                                                                                                   |                                                                       |                                     |                                                                       | 20 MΩ, or more, with 250 V DC megger between all supply terminals connected together and enclosure                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                       |                                |                                                                       |                          |  |                                                 |  |
|                                                   | Vibration resistance     | 10 to 55 Hz frequency, 1.5 mm 0.059 in amplitude in X, Y and Z directions for two hours each                                                                                                                                                                                                                                                                                |                                                                       |                                     |                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                       |                                |                                                                       |                          |  |                                                 |  |
|                                                   | Shock resistance         | 500 m/s <sup>2</sup> acceleration (50 G approx.) in X, Y and Z directions for three times each                                                                                                                                                                                                                                                                              |                                                                       |                                     |                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                       |                                |                                                                       |                          |  |                                                 |  |
| Emitting element                                  |                          | Infrared LED (Peak emission wavelength: 855 nm 0.034 mil, modulated)                                                                                                                                                                                                                                                                                                        |                                                                       |                                     |                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                       |                                |                                                                       |                          |  |                                                 |  |
| Receiving element                                 |                          | 2-segment photodiode                                                                                                                                                                                                                                                                                                                                                        |                                                                       |                                     |                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                       |                                |                                                                       |                          |  |                                                 |  |
| Material                                          |                          | Enclosure: ABS, Front cover: Polycarbonate, Display cover: Polycarbonate                                                                                                                                                                                                                                                                                                    |                                                                       |                                     |                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                       |                                |                                                                       |                          |  |                                                 |  |
| Connection method                                 |                          | Screw-on terminal connection                                                                                                                                                                                                                                                                                                                                                |                                                                       |                                     |                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                       |                                |                                                                       |                          |  |                                                 |  |
| Cable                                             |                          | Suitable for round cable ø9 to ø11 mm ø0.354 to ø0.433 in                                                                                                                                                                                                                                                                                                                   |                                                                       |                                     |                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                       |                                |                                                                       |                          |  |                                                 |  |
| Cable length                                      |                          | Total length up to 100 m 328.084 ft is possible with 0.3 mm <sup>2</sup> , or more, cabtyre cable.                                                                                                                                                                                                                                                                          |                                                                       |                                     |                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                       |                                |                                                                       |                          |  |                                                 |  |
| Weight                                            |                          | Net weight: 100 g approx.                                                                                                                                                                                                                                                                                                                                                   |                                                                       |                                     |                                                                       | Net weight: 85 g approx.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                       |                                |                                                                       |                          |  |                                                 |  |
| Accessory                                         |                          | Adjusting screwdriver: 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 adjustable range stands for the maximum sensing range which can be set with the distance adjuster. The sensor can also detect an object 0.1 m 0.328 ft, or more, away.  
 3) The adjustable range, sensing range and hysteresis are specified for white non-glossy paper (200 × 200 mm 7.874 × 7.874 in) as the object.  
 4) Note that the detection may be unstable depending on the mounting conditions or the sensing object. In the state that this product is mounted, be sure to check the operation with the actual sensing object. Refer to "Automatic interference function (p.368)" of "PRECAUTIONS FOR PROPER USE" for details.

FIBER SENSORS

LASER SENSORS

PHOTO-ELECTRIC SENSORS

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LIGHT CURTAINS / SAFETY COMPONENTS

PRESSURE / FLOW SENSORS

INDUCTIVE PROXIMITY SENSORS

PARTICULAR USE SENSORS

SENSOR OPTIONS

SIMPLE WIRE-SAVING UNITS

WIRE-SAVING SYSTEMS

MEASURE-MENT SENSORS

STATIC ELECTRICITY PREVENTION DEVICES

LASER MARKERS

PLC

HUMAN MACHINE INTERFACES

ENERGY CONSUMPTION VISUALIZATION COMPONENTS

FA COMPONENTS

MACHINE VISION SYSTEMS

UV CURING SYSTEMS

Selection Guide

Amplifier Built-in

Power Supply Built-in

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CX-400

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