## 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 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 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |

## OPTION

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

Sensor mounting bracket

- MS-EQ5-01



## 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 mm 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. seting distance) (Note 3) |  | 0.1 to 2.5 m 0.328 to 8.202 ft |  | 0.1 to 1.0 mm 0.328 to 3.281 ft |  | 0.1 to 2.5 mm 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 $\pm 10$ \% or 12 to 240 V DC $\pm 10$ \% Ripple P-P 10 \% or less |  |  |  | 12 to 24 V DC $\pm 10 \%$ Ripple P-P $10 \%$ or less |  |  |  |
| Power / Current consumption |  | AC: 4 VA or less DC: 3 W or less | AC: 5 VA or less DC: 4 W or less | AC: 4 VA or less DC: 3 W or less | AC: 5 VA or less DC: 4 W or less | 45 mA or less |  |  |  |
| Output |  | Relay contact 1a <br> - Switching capacity: 250 V AC 3 A (resistive load) 30 V DC 3 A (resistive load) <br> - Electrical life: 100,000 or more switching operations (switching frequency 1,200 operations/hour) <br> - Mechanical life: 50 million or more switching operations (switching frequency 18,000 operations/hour) |  |  |  | NPN open-collector transistor <br> - Maximum sink current: 100 mA <br> - Applied voltage: 30 V DC or less (between output and 0 V ) <br> - Residual voltage: 1 V or less (at 100 mA sink current) 0.4 V or less (at 16 mA sink current) <br> PNP open-collector transistor <br> - Maximum source current: 100 mA <br> - Applied voltage: 30 V DC or less (between output and +V ) <br> - Residual voltage: 1 V or less (at 100 mA source current) 0.4 V or less (at 16 mA source current) |  |  |  |
| Output operation |  | Switchable either Detection-ON or Detection-OFF |  |  |  |  |  |  |  |
|  |  | - |  |  |  | Incorporated |  |  |  |
| Response time |  | 20 ms or less (For EQ-50 $\square$ T depends on the setting timer period) |  |  |  | 2 ms or less (For EQ-51םT 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 |  | $\square$ | Incorporated with variable <br> (0.1 to 5 sec .) ON-delay / OFF-delay timer | $\qquad$ | Incorporated with variable (0.1 to 5 sec .) ON-delay / OFF-delay timer | $\qquad$ | Incorporated with variable ( 0.1 to 5 sec .) ON-delay / OFF-delay timer | $\qquad$ | Incorporated with variable <br> (0.1 to 5 sec.) ON-delay / OFF-delay timer |
| Automatic interference prevention function |  | Incorporated (Note 4) |  |  |  |  |  |  |  |
|  | Protection | IP67 (IEC) |  |  |  |  |  |  |  |
|  | Ambient temperature | -20 to $+55^{\circ} \mathrm{C}-4$ to $+131{ }^{\circ} \mathrm{F}$ (No dew condensation or icing allowed), Storage: -30 to $+70^{\circ} \mathrm{C}-22$ to $+158{ }^{\circ} \mathrm{F}$ |  |  |  |  |  |  |  |
|  | 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 |  |  |  | $1,000 \mathrm{~V}$ AC for one min. between all supply terminals connected together and enclosure |  |  |  |
|  | Insulation resistance | $100 \mathrm{M} \Omega$, 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 |  |  |  | $20 \mathrm{M} \Omega$, 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 $\mathrm{X}, \mathrm{Y}$ and Z directions for two hours each |  |  |  |  |  |  |  |
|  | Shock resistance | $500 \mathrm{~m} / \mathrm{s}^{2}$ acceleration (50 G approx.) in $\mathrm{X}, \mathrm{Y}$ 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 $\varnothing 9$ to $\varnothing 11 \mathrm{~mm} \varnothing 0.354$ to $\varnothing 0.433$ in |  |  |  |  |  |  |  |
| Cable length |  | Total length up to 100 m 328.084 ft is possible with $0.3 \mathrm{~mm}^{2}$, or more, cabtyre cable. |  |  |  |  |  |  |  |
| Weight |  | Net weight: 100 g approx. |  |  |  | Net weight: 85 g approx. |  |  |  |
| Accessory |  | Adjusting screwdriver: 1 pc. |  |  |  |  |  |  |  |


| $\begin{aligned} & \text { FIBER } \\ & \text { SENSORS } \end{aligned}$ |
| :---: |
| $\begin{aligned} & \text { LASER } \\ & \text { SENSORS } \end{aligned}$ |
| $\begin{aligned} & \text { PHOTO- } \\ & \text { ELECTRIC } \\ & \text { SENSORS } \end{aligned}$ |
| $\begin{aligned} & \text { MICRO } \\ & \text { PHOTO- } \\ & \text { ELECTRIC } \\ & \text { SENSORS } \\ & \hline \end{aligned}$ |
| AREA SENSORS |
| $\begin{aligned} & \text { LIGHT } \\ & \text { CURTANS/ } \\ & \text { SAFETY } \\ & \text { COMPONENTS } \end{aligned}$ |
| $\begin{aligned} & \text { PRESSURE/ } \\ & \text { FLOW } \\ & \text { SENSORS } \end{aligned}$ |
| INDUCTIVE PROXIMITY SENSORS SENSOR |
| $\begin{aligned} & \text { PARTICULAR } \\ & \text { USE } \\ & \text { SENSORS } \end{aligned}$ |
| $\begin{aligned} & \text { SENSOR } \\ & \text { OPTIONS } \end{aligned}$ |
| SIMPLE <br> WRESSAVING UNTS |
| WIRE-SAVING SYSTEMS |
| $\begin{aligned} & \text { MEASURE- } \\ & \text { MENT } \\ & \text { SENSORS } \end{aligned}$ |
| $\begin{aligned} & \text { STATC } \\ & \text { EEECRICITY } \\ & \text { PREVEVTION } \\ & \text { DVVCES } \end{aligned}$ |
| LASER MARKERS |
| PLC |
| HUMAN MACHINE INTERFACES |
| $\begin{aligned} & \text { ENERQY } \\ & \text { CONSUMPTION } \\ & \text { VISAALZTAON } \\ & \text { COMPONENTS } \\ & \hline \end{aligned}$ |
| FA COMPONENTS |
| MACHINE VISION SYSTEMS |
| $\begin{aligned} & \text { UV } \\ & \text { CURING } \\ & \text { SYSTEMS } \end{aligned}$ |



