LASER SENSORS

MICRO HOTOELECTRIC SENSORS AREA SENSORS

SAFETY COMPONENTS

PRESSURE SENSORS INDUCTIVE PROXIMITY SENSORS PARTICULAR USE SENSORS

SENSOR OPTIONS WIRE-SAVING SYSTEMS MEASUREMENT SENSORS

STATIC CONTROL DEVICES

LASER MARKERS

## Adjustable Range Reflective Photoelectric Sensor

Amplifier Built-in

# EQ-30 SERIES

FIBER SENSORS Related Information

Sensor selection guide ......P.11~ / P.229~ General precautions .......P.986~







## Unaffected by color or material, 2 m (6.562 ft) distance adjustable range reflective sensing

### Hardly affected by object color or background

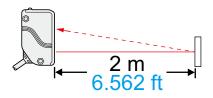
As the EQ-30 series is incorporated with a 2-segment photodiode as the receiving element with a unique circuitry, it detects an object at the same distance regardless of its color or the background beyond the adjusted sensing range.

However, when the background is specular, it may be necessary to change the angle of the sensor.

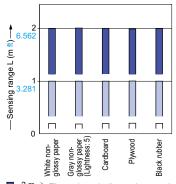
## Long sensing range 2 m 6.562 ft

The EQ-30 series can detect an object 2 m 6.562 ft away.

It is suitable for various applications, such as, sensing objects or positioning objects traveling on a wide assembly line, etc.



## EQ-34: Correlation between material $(200 \times 200 \text{ mm } 7.874 \times 7.874 \text{ in})$ and sensing range (typical)



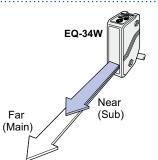
...2 m 6.562 ft resp ...3.281 ft set a 3.28 ...0.2 m 0.0.2 m 0.0.2 m

These bars indicate the sensing range with the respective objects when the distance adjuster is set at the sensing range of 2 m 6.562 ft, 1 m 3.281 ft and 0.2 m 0.656 ft long, each, with white non-glossy paper.

#### Two distances (far and near) can be set

**EQ-34W** 

With EQ-34W, two sensing distances, Far (Main) and Near (Sub), can be set. Hence, one sensor can suffice where, earlier, two were required.



Selection Guide Amplifier Built-in CX-400 EX-10

EX-10 EX-20 EX-30 EX-40

> EQ-30 EQ-500

MQ-W RX-LS200

RX CY

PX-2

RT-610 Power Supply Built-in

VF Amplifier-

separated SU-7 / SH

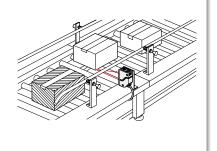
SS-A5 / SH

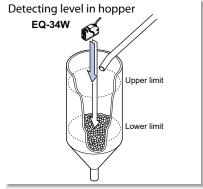
Other Products

SUNX

### APPLICATIONS

Detecting traveling cardboard boxes

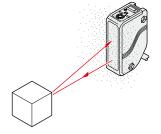




#### ENVIRONMENTAL RESISTANCE

#### Insusceptible to contamination on lens

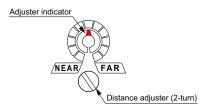
The fixed-focus sensing keeps the detectability better than diffuse reflective type sensors even if the lens is contaminated by dirt, dust, mist, or smoke under an unclean environment.



#### **OPERABILITY**

#### Mechanical 2-turn adjuster with indicator

It features a mechanical 2-turn distance adjuster with an indicator that shows the set distance at a glance.



### Waterproof

It has IP67 protection. It can be used in places splashed with water.

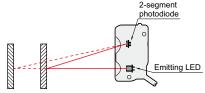


Note: However, take care that if it is exposed to water splashes during operation, it may detect a water drop itself.

#### Principle of adjustable range reflective sensing with 2-segment photodiode

Normal reflective type sensors operate by sensing the variation in the amount of incident beam.

However, the adjustable range reflective sensing type sensor incorporating the 2-segment photodiode operates by sensing the variation in the incident beam angle. Thus, the output is activated according to the distance of the object from the sensor. This system helps the EQ-30 series in being unaffected by object color or a background, enabling stable sensing.



Sensing is based on the difference in the incident beam angle of the dotted line and the solid line in the above figure.

#### **MOUNTING / SIZE**

### Compact

It saves space, since a miniaturized housing of W20  $\times$  H68  $\times$  D40 mm W0.787  $\times$  H2.677  $\times$  D1.575 in has been designed for the adjustable range reflective sensing sensor even though the adjustable sensing range is 2 m 6.562 ft long.



#### **VARIETIES**

## Plug-in connector type is available

Plug-in connector type, which can be easily disconnected for replacement is available. In case a problem occurs, anyone can replace the sensor in a minute. (Excluding EQ-34W)



FIBER SENSORS

LASER SENSORS

PHOTOELECTRIC SENSORS

MICRO PHOTOELECTRIC SENSORS

AREA SENSORS

SAFETY COMPONENTS

PRESSURE SENSORS

INDUCTIVE PROXIMITY SENSORS

PARTICULAR USE SENSORS

SENSOR OPTIONS

WIRE-SAVING SYSTEMS

MEASUREMENT SENSORS

STATIC CONTROL DEVICES

LASER MARKERS

Selection Guide

CX-400 EX-10

EX-20 EX-30

EX-40

EQ-30

EQ-500

MQ-W

RX-LS200

RX

CY

PX-2

RT-610

Power Supply Built-in

NX5

VE

Amplifierseparated

SU-7 / SH

SS-A5 / SH

Other Products



LASER SENSORS

AREA SENSORS SAFETY COMPONENTS

PRESSURE SENSORS

INDUCTIVE PROXIMITY SENSORS PARTICULAR SENSORS

SENSOR OPTIONS WIRE-

SYSTEMS MEASURE-MENT SENSORS

STATIC CONTROL DEVICES LASER MARKERS

Selection Guide CX-400

EX-20 EX-30 EX-40

EX-10

EQ-500 MQ-W RX-LS200

RX CY PX-2 RT-610 Power Supply Built-in NX5

۷F Amplifier-SU-7 / SH

SS-A5 / SH Other

### **ORDER GUIDE**

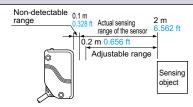
| Туре        | Appearance | Adjustable range (Note) | Model No. | Output                                    |
|-------------|------------|-------------------------|-----------|---|
| NPN output  |            | 0.656 to 6.562 ft       | EQ-34     | NPN open-collector transistor             |
| PNP output  |            |                         | EQ-34-PN  | PNP open-collector transistor             |
| Two outputs |            |                         | EQ-34W    | Two NPN open-collector transistor outputs |

NOTE: Mounting bracket is not supplied with the sensor. Please select from the range of optional sensor mounting brackets (two types).

Note: The adjustable range stands for the maximum sensing range which can be set with the adjuster.

The sensor can detect an object 0.1 m 0.328 ft, or more, away.

However, the detectable range of Near (Sub) type of EQ-34W begins at 0.2 m 0.656 ft.



#### Plug-in connector type (Not available for EQ-34W)

Plug-in connector type (standard: cable type) is also available. (excluding EQ-34W) When ordering this type, suffix "-J" to the model No. Please order the suitable mating cable separately.

Model No.: EQ-34-J, EQ-34-PN-J

#### Mating cable

| Type     | Model No. | Description              |   |  |
|----------|-----------|--------------------------|---|--|
| Carricha | CN-24-C2  | Length: 2 m<br>6.562 ft  | 0.34 mm² 4-core cabtyre cable with connector on one end Cable outer diameter: ø5 mm ø0.197 in |  |
| Straight | CN-24-C5  | Length: 5 m<br>16.404 ft |   |  |
| Eller    | CN-24L-C2 | Length: 2 m<br>6.562 ft  |   |  |
| Elbow    | CN-24L-C5 | Length: 5 m<br>16.404 ft |   |  |

#### 5 m 16.404 ft cable length type

 $5\,m\,16.404\,ft$  cable length type (standard :  $2\,m\,6.562\,ft$ ) is also available for NPN output type and two outputs type.

When ordering this type, suffix "-C5" to the model No.

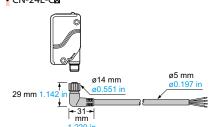
Model No.: EQ-34-C5, EQ-34W-C5

#### CN-24-C





## • CN-24L-C⊠



## **OPTIONS**

| Designation         | Model No. | Description                  |
|---------------------|-----------|------------------------------|
| Sensor              | MS-EQ3-1  | Back angled mounting bracket |
| mounting<br>bracket | MS-EQ3-2  | Foot angled mounting bracket |

Note: The plug-in connector type does not allow use of some sensor mounting brackets because of the protrusion of the connector.

#### Sensor mounting bracket

#### MS-EQ3-1

Two M4 (length 25 mm 0.984 in) screws with washers and two M4 nuts are attached.



#### MS-EQ3-2

Two M4 (length 25 mm 0.984 in) screws with washers and two M4 nuts are attached.





#### **SPECIFICATIONS**

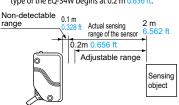
|  | Туре   | NPN output   | PNP output  | Two outputs  |  |
|--|--|--|---|--|--|
| Item   | Model No.  | EQ-34  | EQ-34-PN  | EQ-34W   |  |
| Adju   | Adjustable range (Note 2) 0.2 to 2 m 0.656 to 6.562 ft |  | Far (Main): 0.2 to 2 m 0.656 to 6.562 ft<br>Near (Sub): Refer to diagram in (Note 3)  |  |  |
| Sensing range (with white non-glossy paper at setting distance 2 m 6.562 ft  |  | 0.1 to 2 m 0.328 to 6.562 ft   |   | Far (Main): 0.1 to 2 m 0.328 to 6.562 ft<br>Near (Sub): 0.2 to 2 m 0.656 to 6.562 ft<br>[with Near (Sub) distance for adjuster at max.]  |  |
| Hysteresis   |  | 10 % or le   | 10 % or less of operation distance (With white non-glossy paper)  |  |  |
| Repeatability  |  | Along sensing axis: 10 mm 0.394 in or less, Perpendicular to sensing axis: 1 mm 0.039 in or less (with white non-glossy paper)   |   |  |  |
| Supp   | oly voltage  | 10 to 30 V DC Ripple P-P 10 % or less  |   |  |  |
| Curre  | ent consumption  | 50 mA or less  | 55 mA or less   | 90 mA or less  |  |
| Output   |  | NPN open-collector transistor  • Maximum sink current: 100 mA  • Applied voltage: 30 V DC or less (between output and 0 V)  • Residual voltage: 1 V or less (at 100 mA sink current) 0.4 V or less (at 16 mA sink current) | PNP open-collector transistor  • Maximum source current: 100 mA  • Applied voltage: 30 V DC or less (between output and +V)  • Residual voltage: 1 V or less (at 100 mA source current) 0.4 V or less (at 16 mA source current) | <far (main)="" (sub)="" near="" output="" output,=""> NPN open-collector transistor <ul> <li>Maximum sink current: 100 mA</li> <li>Applied voltage: 30 V DC or less</li> <li>(between output and 0 V)</li> </ul> <li>Residual voltage: 1 V or less <ul> <li>(at 100 mA sink current)</li> <li>0.4 V or less</li> <li>(at 16 mA sink current)</li> </ul> </li> </far> |  |
|  | Utilization category                                   |  | DC-12 or DC-13  |  |  |
|  | Output operation                                       | Switchable either Detection-ON or Detection-OFF  |   |  |  |
| Short-circuit protection   |  | Incorporated   |   |  |  |
| Response time  |  | 2 ms or less   |   |  |  |
| Operation indicator  |  | Red LED (lights up when the output is ON)  |   | Far (Main) output: Red LED  [lights up when the Far (Main) output is ON]  Near (Sub) output: Red LED  [lights up when the Near (Sub) output is ON]   |  |
| Stab   | ility indicator  | Green LED (lights up u   | nder stable light received condition or stable o  | dark condition) (Note 4)   |  |
| Distance adjuster  |  | 2-turn mechanical adjuster with pointer  |   | Far (Main): 2-turn mechanical adjuster<br>with pointer<br>Near (Sub): Variable adjuster  |  |
| Autom  | natic interference prevention function                 | Incorporated (Note 5)  |   |  |  |
|  | Pollution degree                                       |  | 3 (Industrial environment)  |  |  |
| Ge   | Protection   | IF   | P67 (IEC) (Refer to p.984 for details of standard   | 5.)  |  |
| stan   | Ambient temperature                                    | -20 to +55 °C −4 to +131 °F (N   | lo dew condensation or icing allowed), Storag   | e: -25 to +70 °C -13 to +158 °F  |  |
| resi   | Ambient humidity                                       | 35 to 85 % RH, Storage: 35 to 85 % RH  |   |  |  |
| ıtal   | Ambient illuminance                                    | Inca   | andescent light: 3,000 &x at the light-receiving  | face   |  |
| Ambient temperature  -20 to +55 °C -4 to +131 °F (No dew condensation or icing allowed), Storage: -25 to +7  Ambient humidity  35 to 85 % RH, Storage: 35 to 85 % RH  Ambient illuminance  Incandescent light: 3,000 ℓx at the light-receiving face  EMC  EN 60947-5-2  Voltage withstandability  1,000 V AC for one min. between all supply terminals connected together and Insulation resistance  20 MΩ, or more, with 250 V megger between all supply terminals connected together |  |  |   |  |  |
| iron   | Voltage withstandability                               | ·  | gether and enclosure  |  |  |
| Env  | Insulation resistance                                  |  | ted together and enclosure  |  |  |
|  | Vibration resistance                                   | 10 to 55 Hz frequency, 1.5 mm 0.059 in amplitude (10 G max.) in X, Y and Z directions for two hours each  500 m/s² acceleration (50 G approx.) in X, Y and Z directions for three times each                               |   |  |  |
|  |  |  |   |  |  |
| Emitting element  Material   |  | Infrared LED (Peak emission wavelength: 880 nm 0.035 mil, modulated)  Enclosure: Polyalylate and Polyethylene terephthalate, Lens: Polyalylate   |   |  |  |
|  |  | 0.3 mm <sup>2</sup> 3-core (EQ-34W: 4-core) cabtyre cable, 2 m 6.562 ft long   |   |  |  |
| Cable extension  |  | Extension up to total 100 m 328.084 ft is possible with 0.3 mm², or more, cable.   |   |  |  |
| Cable extension Weight   |  | Net weight: 150 g approx., Gross weight: 200 g approx.   |   |  |  |
| Accessory  |  | Adjusting screwdriver: 1 pc.   |   |  |  |
| 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 adjuster. The sensor can detect an object 0.1 m 0.328 ft, or more, away.

However, the detectable area of the Near (Sub)

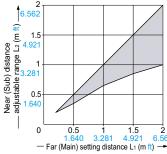
However, the detectable area of the Near (Sub) type of the EQ-34W begins at 0.2 m  $0.656\,\mathrm{ft}$ .



4) Refer to "PRECAUTIONS FOR PROPER USE" (p.303) for details of the stability indicator.

3) The Near (Sub) distance adjustable range, L2, changes with the setting of the Far (Main) distance, L1, as shown in the table below.

#### EQ-34W Near (Sub) distance adjustable range



| EQ-34W                            |   |  |  |
|-----------------------------------|---|--|--|
| Far (Main) setting<br>distance L1 | Near (Sub) distance adjustable range L2 |  |  |
| 2 m 6.562 ft                      | 1 to 2 m 3.281 to 6.562 ft              |  |  |
| 1.5 m 4.921 ft                    | 0.85 to 1.5 m 2.789 to 4.921 ft         |  |  |
| 1 m 3.281 ft                      | 0.65 to 1 m 2.133 to 3.281 ft           |  |  |
| 0.5 m 1.640 ft                    | 0.35 to 0.5 m 1.148 to 1.640 ft         |  |  |
| 0.2 m 0.656 ft                    | 0.2 m 0.656 ft                          |  |  |
|                                   | ·                                       |  |  |

5) Detection may become unstable depending on the setting conditions or the sensing objects. After setting up this product, make sure to check operations using actual sensing objects.

LECTRIC ENSORS

FIBER SENSORS

LASER SENSORS

AREA SENSORS

SAFETY COMPONENTS

PRESSURE SENSORS

INDUCTIVE PROXIMITY SENSORS PARTICULAR USE

SENSORS
SENSOR
OPTIONS

WIRE-SAVING SYSTEMS

MEASURE-MENT SENSORS

STATIC CONTROL DEVICES

LASER MARKERS

Selection Guide Amplifier Built-in

CX-400 EX-10

EX-20

EX-40

EQ-30 EQ-500

MQ-W RX-LS200

RX

CY PX-2

RT-610

Power Supply Built-in

VF
Amplifier-

separated SU-7 / SH

SS-A5 / SH

Products

LASER SENSORS

ELECTRIC SENSORS MICRO PHOTO-ELECTRIC SENSORS

AREA SENSORS SAFETY COMPONENTS

PRESSURE SENSORS INDUCTIVE PROXIMITY SENSORS PARTICULAR

SENSORS SENSOR OPTIONS

WIRE-SAVING SYSTEMS MEASURE-MENT SENSORS

STATIC CONTROL DEVICES LASER MARKERS

Selection Guide Amplifier Built-in

EX-10 EX-20 EX-30

EX-40

EQ-30 EQ-500 MQ-W RX-LS200 RX

PX-2
RT-610
Power Supply
Built-in

NX5

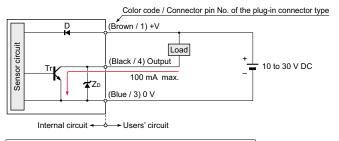
Amplifierseparated

SS-A5 / SH
Other

### I/O CIRCUIT AND WIRING DIAGRAMS

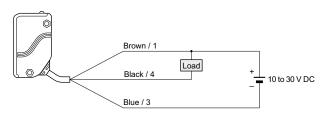
## I/O circuit diagram

EQ-34



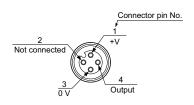
Symbols ... D : Reverse supply polarity protection diode ZD: Surge absorption zener diode Tr : NPN output transistor

#### Wiring diagram



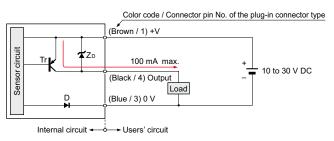
NPN output type

#### Connector pin position (Plug-in connector type)



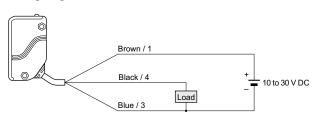
EQ-34-PN PNP output type

#### I/O circuit diagram

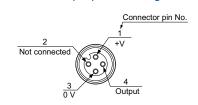


Symbols ... D : Reverse supply polarity protection diode ZD: Surge absorption zener diode Tr : PNP output transistor

#### Wiring diagram

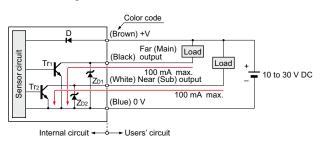


## Connector pin position (Plug-in connector type)



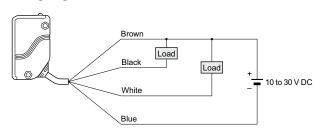
EQ-34W Two outputs typ

#### I/O circuit diagram



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

#### Wiring diagram

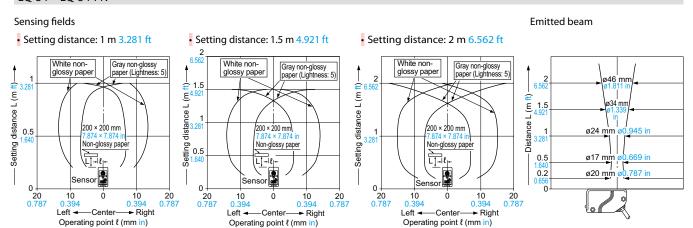




LASER SENSORS

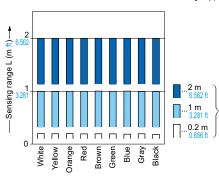
## SENSING CHARACTERISTICS (TYPICAL)

## EQ-34 EQ-34-PN



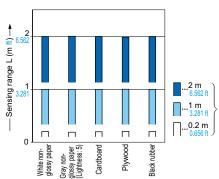
Correlation between color (200  $\times$  200 mm 7.874  $\times$  7.874 in non-glossy paper) and sensing range

Correlation between material ( $200 \times 200 \text{ mm} 7.874 \times 7.874 \text{ in}$ ) and sensing range



These bars indicate the sensing range with the respective colors when the distance adjuster is set at the sensing range of 2 m 6.562 ft, 1 m 3.281 ft and 0.2 m 0.656 ft long, each, with white color.

The sensing distance varies depending also on material.

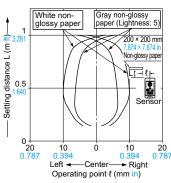


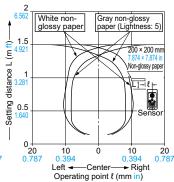
These bars indicate the sensing range with respective objects when the distance adjuster is set at the sensing range of 2 m 6.562 ft, 1 m 3.281 ft and 0.2 m 0.656 ft long, each, with white non-glossy paper.

#### EQ-34W

#### Sensing fields

• Far (Main) [Far (Main) setting distance: 1 m 3.281 ft]

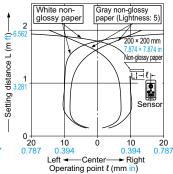




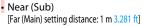
[Far (Main) setting distance: 1.5 m 4.921 ft]

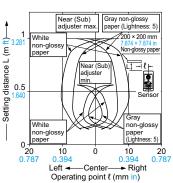
Far (Main)

• Far (Main) [Far (Main) setting distance: 2 m 6.562 ft]

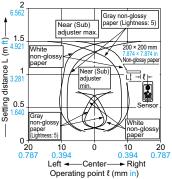


**Emitted beam** 

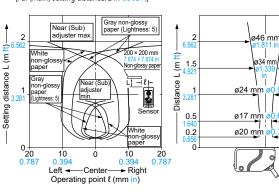








• Near (Sub) [Far (Main) setting distance: 2 m 6.562 ft]



Selection Guide

CX-400 EX-10

EX-20 EX-30

EX-40

EQ-500 MQ-W

RX-LS200

CY PX-2

RT-610

Power Supply Built-in NX5

Amplifierseparated SU-7 / SH

SS-A5 / SH Other



AREA SENSORS SAFETY COMPONENTS

PRESSURE SENSORS

INDUCTIVE PROXIMITY SENSORS PARTICULAR USE SENSORS

SENSOR OPTIONS

WIRE-SAVING SYSTEMS MEASURE-MENT

MEASURE-MENT SENSORS STATIC CONTROL

CONTROL DEVICES LASER MARKERS

LASER SENSORS

PHOTO-ELECTRIC SENSORS MICRO PHOTO-ELECTRIC SENSORS

AREA SENSORS SAFETY COMPONENTS

PRESSURE SENSORS INDUCTIVE PROXIMITY SENSORS PARTICULAR USE SENSORS

SENSOR OPTIONS WIRE-SAVING SYSTEMS

MEASURE-MENT SENSORS STATIC CONTROL DEVICES

> LASER MARKERS

Selection Guide Amplifier

EX-10 EX-20

EX-30

EQ-30 EQ-500

MQ-W RX-LS200

PX-2 RT-610

Power Supply Built-in

Amplifierseparated

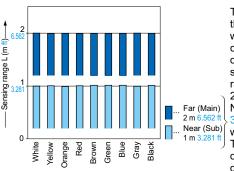
SU-7 / SH SS-A5 / SH

Other Products

## SENSING CHARACTERISTICS (TYPICAL)

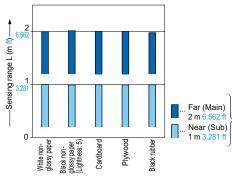
#### EQ-34W

Correlation between color ( $200 \times 200 \text{ mm } 7.874 \times 7.874 \text{ in non-glossy paper}$ ) and sensing range



These bars indicate the sensing range with respective colors when the distance adjuster is set at the sensing range of Far (Main) 2 m 6.562 ft and Near (Sub) 1 m 3.281 ft long, each, with white color. The sensing distance varies depending also on material.

Correlation between material ( $200 \times 200 \text{ mm } 7.874 \times 7.874 \text{ in}$ ) and sensing range



These bars indicate the sensing range with re- spective objects when the distance adjuster is set at the sensing range of Far (Main) 2 m 6.562 ft and Near (Sub) 1 m 3.281 ft long, each, with white non-glossy paper.

#### Refer to p.986~ for general precautions.

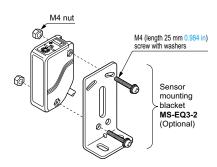
## PRECAUTIONS FOR PROPER USE

 Never use this product as a sensing device for personnel protection.

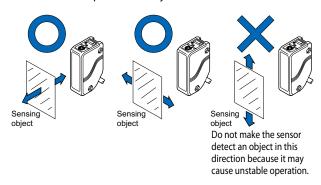
 In case of using sensing devices for personnel protection, use products which meet laws and standards, such as OSHA, ANSI or IEC etc., for personnel protection applicable in each region or country.

## Mounting

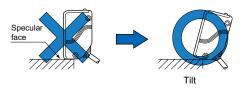
 The tightening torque should be 0.8 N·m or less.



 Care must be taken regarding the sensor mounting direction with respect to the object's direction of movement.



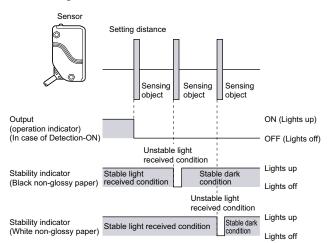
- When detecting a specular object (aluminum or copper foil) or an object having a glossy surface or coating, please take care that there are cases when the object may not be detected due to a small change in angle, wrinkles on the object surface, etc.
- When a specular body is present below the sensor, use the sensor by tilting it slightly upwards to avoid wrong operation.



- If a specular body is present in the background, wrong operation may be caused due to a small change in the angle of the background body. In that case, install the sensor at an inclination and confirm the operation with the actual sensing object.
- Take care that some objects may produce a dead zone right (less than 0.1 m) in front of the sensor.

## Stability indicator

Since the EQ-30 series uses a 2-segment photodiode as its receiving element, and sensing is done based on the difference in the incident beam angle of the reflected beam from the sensing object, the output and the operation indicator operate according to the object distance. Further, the stability indicator shows the margin of the incident light intensity and not that of the object distance. Hence, the distance at which it lights up/off depends on the object reflectivity and is not at all related to the output operation. Do not use the sensor when the stability indicator is off (unstable light received condition), since the sensing will be unstable.



#### Others

- Do not use during the initial transient time (50 ms) after the power supply is switched on.
- When connecting the mating cable to the plug-in connector type, the tightening torque should be 0.4 N·m or less.



#### PRECAUTIONS FOR PROPER USE

Refer to p.986~ for general precautions.

#### Distance adjustment

#### EQ-34W

<Adjusters>

Far (Main) distance Far (Main) adjuster indicator adjuster (2-turn) Shows how much the The sensing range increases as it is turned clockwise. distance adjuster is rotated Near (Sub) distance adjuster The sensing range increase as it is turned clockwise. Operation mode switch L: Detection-ON D: Detection-OFF Near (Sub) output (Turn the switch fully.) operation indicator (Red) Lights up when the Near Far (Main) output (Sub) output is ON. operation indicator (Red) Stability indicator (Green) Lights up when the Far Lights up under stable (Main) output is ON. light received condition or stable dark condition.

Adjusting procedure (when the direction of movement of the sensing objects is right or left to the sensor)

#### Far (Main)

|      | ,  |                                |
|------|--|--------------------------------|
| Step | Description  | Distance adjuster              |
| 1)   | Turn the Far (Main) distance adjuster fully counterclockwise to the minimum sensing range position of 0.2 m 0.656 ft approx.   | NEAR GO ST FAR MAIN Turn fully |
| 2    | Place an object at the far place at the required distance from the sensor, turn the Far (Main) distance adjuster gradually clockwise, and find out point (A) where the sensor changes to the light received condition.   | NEAR (0 3) FAR                 |
| 3    | Remove the object, turn the Far (Main) distance adjuster further clockwise, and find out point (B) where the sensor changes to the light received condition again with only the background.  When the sensor does not go to the light received condition even if the adjuster is fully turned clockwise, point (B)s this extreme point in the range. | NEAR GO FINE<br>MAIN B         |
| 4    | The optimum position to stably detect objects for the Far (Main) setting is the center point between (A) and (B)   | Optimum position B             |

\*When a sensing object is approaching / moving away from the sensor, follow only steps and @spectively. Since the sensing point may change depending on the sensing object, be sure to check the operation with the actual sensing object.

#### Near (Sub)

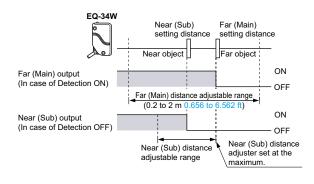
| Step | Description   | Distance adjuster        |
|------|---|--------------------------|
| (5)  | Turn the Near (Sub) distance adjuster fully counterclockwise to the minimum sensing range position.   | SUB<br>SUB<br>Turn fully |
| 6    | Place an object at the near position, at the required distance from the sensor, turn the Near (Sub) distance adjuster gradually clockwise, and find out point ©where the sensor changes to the light received condition.  | SUB ©                    |
| ①    | Remove the object from the near position, and place the object for Far (Main) sensing at the sensing position. Turn the Near (Sub) distance adjuster further clockwise, and find out point where the sensor changes to the light received condition again with only the background.  When the sensor does not go to the light received condition even if the adjuster is fully turned clockwise, point ③s this extreme point. | SUB ©                    |
| 8    | The optimum position to stably detect objects for the Near (Sub) setting is the center point between ©and ①   | SUB © Optimum position © |

\*When a sensing object is approaching / moving away from the sensor, follow only steps and respectively. Since the sensing point may change depending on the sensing object, be sure to check the operation with the actual sensing object.

Notes: 1) Turn the distance adjuster gradually and lightly with the attached screwdriver.

If the distance adjuster is over turned or pressed heavily, it may be damaged.

2) The Far (Main) distance adjustment should be done before the Near (Sub) distance adjustment. Take care that the Near (Sub) setting distance changes with change in the Far (Main) setting distance.



FIBER SENSORS

LASER SENSORS

AREA SENSORS

SAFETY COMPONENTS

PRESSURE SENSORS

INDUCTIVE PROXIMITY SENSORS PARTICULAR USE SENSORS

SENSOR OPTIONS

WIRE-SAVING SYSTEMS MEASURE-MENT SENSORS

STATIC CONTROL DEVICES

LASER MARKERS

Selection Guide CX-400 EX-10 EX-20

EX-30 EX-40

EQ-500 MQ-W

RX-LS200

CY

PX-2

RT-610 Power Supply Built-in

NX5

۷F Amplifier-

SU-7 / SH SS-A5/SH



AREA SENSORS

SAFETY COMPONENTS

PRESSURE SENSORS

INDUCTIVE PROXIMITY SENSORS PARTICULAR USE SENSORS OPTIONS

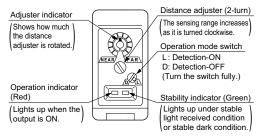
WIRE-SAVING SYSTEMS MEASURE MENT SENSORS
STATIC CONTROL DEVICES MARKERS

PRECAUTIONS FOR PROPER USE

Refer to p.986~ for general precautions.

LASER SENSORS EQ-34, EQ-34-PN

<Adjusters>



Adjusting procedure (when the direction of movement of the sensing objects is right or left to the sensor)

| Step | Description  | Distance adjuster |
|------|--|-------------------|
| ①    | Turn the distance adjuster fully counterclockwise to the minimum sensing range position of 0.2 m 0.656 ft approx.  | NEAR FAR          |
| 2    | Place an object at the required distance from the sensor, turn the distance adjuster gradually clockwise, and find out point (A) where the sensor changes to the light received condition.   | NEAR FAR          |
| 3    | Remove the object, turn the distance adjuster further counterclockwise, and find out point ® where the sensor changes to the light received condition again with only the background.  When the sensor does not go to the light received condition even if the adjuster is fully turned clockwise, point ®s this extreme point in the range. | A PAR B           |
| 4    | The optimum position to stably detect objects is the center point between (and (a))  | Optimum position  |

\*When a sensing object is approaching / moving away from the sensor, follow only steps @nd @spectively.

Since the sensing point may change depending on the sensing object, be sure to check the operation with the actual sensing object.

Note: Turn the distance adjuster gradually and lightly with the attached screwdriver.

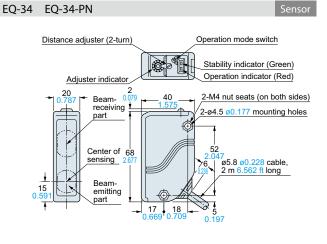
If the distance adjuster is over turned or pressed heavily, it may be damaged.

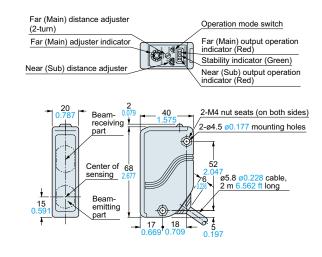
DIMENSIONS (Unit: mm in)

The CAD data in the dimensions can be downloaded from the SUNX website: http://www.sunx.com

EQ-34W

DIMENSIONS (OTHE THIT II





Amplifier Built-in CX-400 EX-10 EX-20 EX-30

Selection Guide

**EX-40** EQ-30

EQ-500

MQ-W RX-LS200 RX

PX-2 RT-610

Power Supply Built-in

VF Amplifierseparated

SU-7 / SH SS-A5 / SH

Other

Products

SUNX

## DIMENSIONS (Unit: mm in)

Distance adjuster (2-turn)

Adjuster indicator

Beam-

Center of sensing

M12 connector

Stability indicator (Green) Operation indicator (Red)

2-M4 nut seats (on both sides) 2-ø4.5 ø0.177 mounting holes

52

9.5 0.374

EQ-34-J EQ-34-PN-J

The CAD data in the dimensions can be downloaded from the SUNX website: http://www.sunx.com

FIBER SENSORS

LASER SENSORS

AREA SENSORS

SAFETY COMPONENTS

PRESSURE SENSORS

INDUCTIVE PROXIMITY SENSORS PARTICULAR

USE SENSORS

SENSOR OPTIONS

WIRE-SAVING SYSTEMS

MEASURE-MENT SENSORS

STATIC CONTROL DEVICES

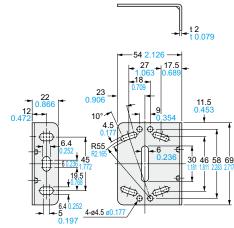
LASER MARKERS

Sensor mounting bracket (Optional)

MS-EQ3-1

Assembly dimensions

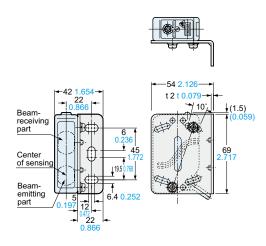
Mounting drawing with EQ-34



17 18 0 669 0.709

Material: Cold rolled carbon steel (SPCC)

Two M4 (length 25 mm  $0.984 \, in$ ) screws with washers and two M4 nuts are attached.

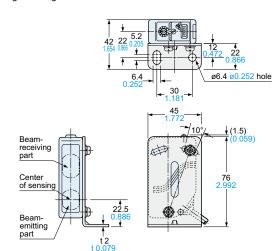


MS-EQ3-2

Sensor mounting bracket (Optional)



Mounting drawing with EQ-34



ø6.4 ø0.252 hole 30

Material: Cold rolled carbon steel (SPCC)

Two M4 (length 25 mm  $0.984\ \text{in}$ ) screws with washers and two M4 nuts are attached.

SUNX

Selection Guide CX-400

> EX-10 EX-20

EX-30 EX-40

EQ-500

MQ-W RX-LS200

RX CY

PX-2

RT-610

Power Supply Built-in

NX5

۷F Amplifier-

SU-7 / SH

SS-A5/SH