

Built-in Amplifier Photoelectric Sensor (Medium Size)

E3S-AD17



Image

Medium Photoelectric Sensor With Built-in Amplifier, Diffuse-reflective, Horizontal, Sensing distance: 700 mm, NPN, M12 connector models

| | |
|--------------------------|----------------------------------|
| Sensing method | Diffuse-reflective |
| Sensing distance | White paper 200 x 200 mm: 700 mm |
| Light source | Infrared LED (850 nm) |
| Connection method | M12 connector models |

Ratings/Performance

As of July 25, 2024

| | |
|----------------------------------------------|--------------------------------------------------------------------------------|
| Shape | Square type |
| Sensing method | Diffuse-reflective |
| Sensing distance | White paper 200 x 200 mm: 700 mm |
| Differential distance | 20% max. of sensing distance |
| Light source | Infrared LED (850 nm) |
| Power supply voltage | 10 to 30 VDC ripple (p-p) 10% included |
| Current consumption | 35 mA max. |
| Control output | NPN open collector 30 VDC max. 100 mA max. Residual voltage: 1 V max. |
| Operation mode | Light-ON/Dark-ON selectable |
| Protective circuit | Output short-circuit protection, Power supply reverse polarity protection |
| Response time | Operate or reset: 0.5 ms max. |
| Sensitivity setting | 2-turn endless adjustment (with indicator) |
| Ambient illuminance | Incandescent lamp: 5,000 lx max. Sunlight: 10,000 lx max. |
| Ambient temperature range (Operating) | -25 to 55 °C (with no freezing or condensation) |
| Ambient temperature range (Storage) | -40 to 70 °C (with no freezing or condensation) |
| Ambient humidity range (Operating) | 35 to 85 % (with no condensation) |
| Ambient humidity range (Storage) | 35 to 95 % (with no condensation) |
| Insulation resistance | 20 MΩ min. (500 VDC megger) |
| Dielectric strength | 1000 VAC 50/60 Hz 1 min |

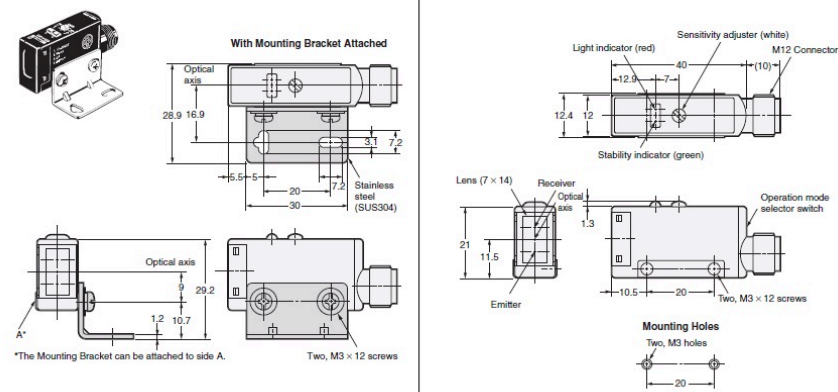
| | |
|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Vibration resistance | Destruction: 10 to 55 Hz, 1.5 mm double amplitude each in X, Y, and Z directions for 2 h |
| Shock resistance | Destruction: 500 m/s ² 3 times each in X, Y and Z directions |
| Degree of protection | IEC: IP67 NEMA 4X (indoors only) |
| Connection method | M12 connector models |
| Indicator | Light indicator (red), Stability indicator (green) |
| Weight | Package: Approx. 50 g |
| Accessories | Instruction manual, Mounting bracket, Sensitivity adjustment driver, Sensitivity adjusting knob, Close-mounting plate (only for Sensors with connector terminals) |
| Material | Case: Polybutylene terephthalate (PBT) Lens: Denatured Polyarylate Mounting Bracket: Stainless steel (SUS304) |

As of July 25, 2024

Dimensions

As of July 25, 2024

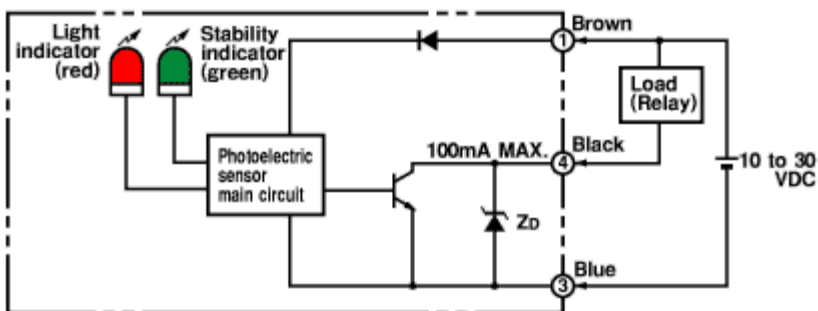
E3S-AD16/17/18/36/37/38



As of July 25, 2024

Output circuit diagram

As of July 25, 2024



M12 Connector Pin Arrangement

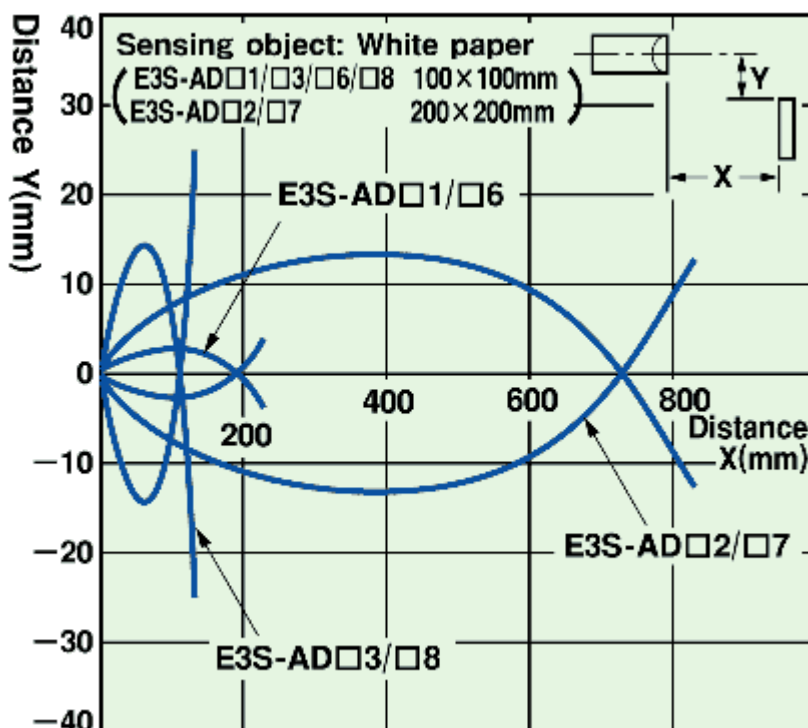


Note. Pin ② is not used.

Timing chart

| Operation mode | Timing chart | Mode switch |
|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|
| Light ON | <p>Incident light </p> <p>No incident light </p> <p>Light indicator (red) ON </p> <p>OFF </p> <p>Output transistor ON </p> <p>OFF </p> <p>Load (Relay) Operate </p> <p>Reset </p> <p>(Between brown(1) and black(4))</p> | L side (LIGHT ON) |
| Dark ON | <p>Incident light </p> <p>No incident light </p> <p>Light indicator (red) ON </p> <p>OFF </p> <p>Output transistor ON </p> <p>OFF </p> <p>Load (Relay) Operate </p> <p>Reset </p> <p>(Between brown(1) and black(4))</p> | D side (DARK ON) |

Operating range

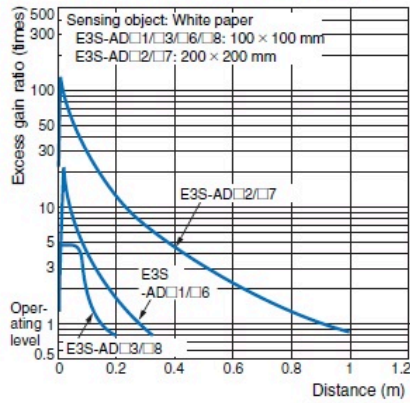


Setting distance

Excess gain ratio vs. setting distance

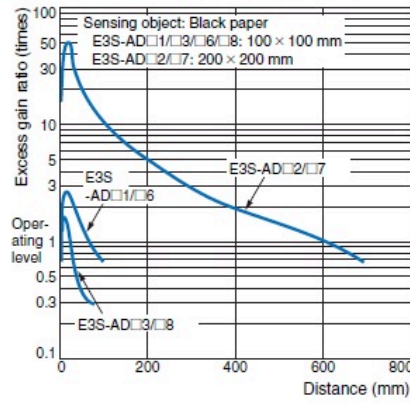
Diffuse-reflective Sensor

E3S-AD□1/AD□2/AD□3/AD□6/AD□7/
AD□8 (Detection of White Paper)



Diffuse-reflective Sensor

E3S-AD□1/AD□2/AD□3/AD□6/AD□7/
AD□8 (Detection of Black Paper)



Sensing object size vs. setting distance

