321-7310.

OMRON

Optical Fibre Photoelectric Sensor

E3X-A/F/H/T/VG

Broad Range of Fibre Optic Sensors and Amplifiers

DC powered amplifiers have model variations to cover all applications.

Advanced mutual interference using the latest fuzzy technologies ensures stable operation.

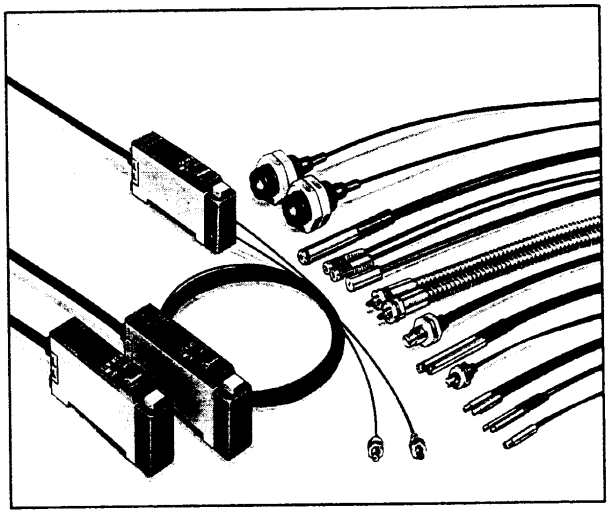
Unique selectable flashing light function provides simple optical alignment of the fibre sensor head.

E3X-T operating parameters can be auto tuned with the teach function and two sets can be stored using the bank function of E3X-T21.

E3X-H with high sensitivity and adjustable hysteresis offers the longest sensing distance (14 m) available.

E3X-F with a response time of 20 micro seconds gives unsurpassed performance.

Using a green LED light source, E3X-VG is ideal for colour mark detection.



The E32 range is the broadest range of standard and special purpose fibre sensors stocked in the UK.

Ordering Information

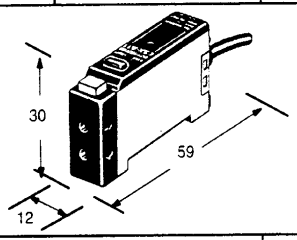
Description	Timer function	Output	Models
Standard type	No	NPN	E3X-A11
		PNP	E3X-A41
	Yes – selectable, off delay 40 ms	NPN	E3X-A21
		PNP	E3X-A51
Short response time type	Yes – selectable, off delay 40 ms	NPN	E3X-F21
		PNP	E3X-F51
Colour mark type (green light source)	Yes	NPN	E3X-VG21
	No		E3X-VG11
Long range type (high sensitivity)	Yes – selectable, off delay 40 ms	NPN	E3X-H11
Auto tuning type	Yes	NPN	E3X-T21
	No		E3X-T11

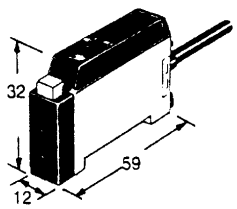
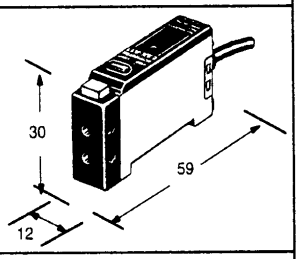
Specifications

■ General

Indicator	Light indicator (red), stability indicator (green)
Sensitivity adjuster	8 turns with indicator (except E3X-T❑❑)
Circuit protection	Reverse polarity, output short-circuit
Insulation resistance	20 MΩ min. (at 500 VDC)
Dielectric strength	1,000 VAC, 50/60 Hz for 1 min
Enclosure rating	IEC IP66 (with protective cover in place) (see note)
Ambient illumination	Incandescent lamp: 3,000 ℓx max. Sunlight: 10,000 ℓx max;
Ambient temperature	Operating: –25° to 55°C (with no icing) Storage: –40° to 70°C
Ambient humidity	35% to 85% (with no condensation)
Material	Case: heat-resistive ABS; cover: polycarbonate
Connection method	Cord-drawing method
Weight (with 2-m cord)	Approx. 100 g

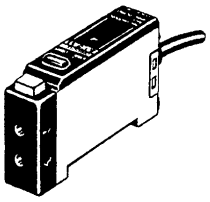
Characteristics

Item		General-purpose		Shorter response time	For mark sensing	
Model	NPN	E3X-A11	E3X-A21	E3X-F21	E3X-VG11	E3X-VG21
	PNP	E3X-A41	E3X-A51	E3X-F51	–	–
Appearance						
Light source		Red (660 nm)			Green (565 nm)	
Power supply voltage		10 to 30 VDC ripple (p-p) 10% max.		12 to 24 VDC ±10% ripple 10% max.	10 to 30 VDC ripple 10% max.	
Current consumption		35 mA max.		40 mA max.		
Response time		200 µs max.		ON: 20 µs max. OFF: 30 µs max.	200 µs max.	
Control output		100 mA, 30 VDC max., open collector				
Timer function		–	OFF-delay timer (0.01 to 0.1 s; adjustable), switch selectable		–	OFF-delay timer (0.01 to 0.1 s; adjustable) switch selectable
Self-diagnosis alarm output		–	50 mA, 30 VDC max. Residual voltage: 1 VDC max.		–	50 mA, 30 VDC max. Residual voltage: 1 VDC max.
External diagnosis input	Input voltage	–	Light-OFF: NPN: 1.5 V max; short current: 0.2 mA max. PNP: ±1.5 V max.; short current: 0.2 mA max. Light-ON: NPN: Open; Light-OFF: 3.5 V min. (max. input: 5 V) PNP: Open; ±3.5 VDC max. (max. input: 5 V)		–	Light-OFF: 1.5 V max.; short current: 0.2 mA max. Light-ON: Open; Light-OFF: 3.5 V min. (max. input 5 V)
	Response delay		400 µs	200 µs		400 µs

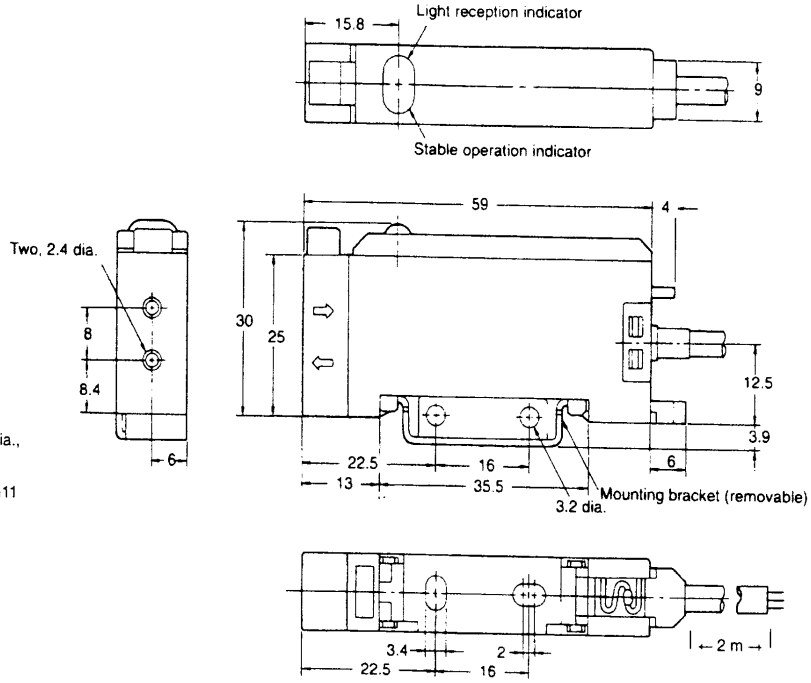
Item	Auto-tuning		High-sensitivity
Model	E3X-T11	E3X-T21	E3X-H11
Appearance			
Light source	Red LED (660 nm)		
Power supply voltage	12 to 24 VDC ±10%, ripple (p-p) 10% max.		10 to 30 VDC ±10%, ripple (p-p) 10% max.
Current consumption	50 mA max.		35 mA max.
Response time	500 µs max.		1 m sec max.
Control output	100 mA max. at 30 VDC, NPN open collector		
Timer function	–	OFF-delay timer (fixed to 40 ms), switch selectable	
Self-diagnosis alarm output	–	50 mA, at 30 VDC, open collector	–
Variable hysteresis function	–		0% to 20%
Tuning monitor function	Indicator (red/green LED) and buzzer		–
Remote tuning function/ remote bank function	–	Light-OFF: ON: short-circuit the blue and pink wires. (Short-circuit the blue and purple wires for remote bank selection.) OFF: Open and the blue and pink wires	–
Output method	Light-ON and Dark-ON selector		

Dimensions

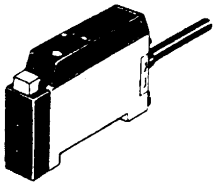
E3X-H11
E3X-A□□
E3X-F□□
E3X-VG□□



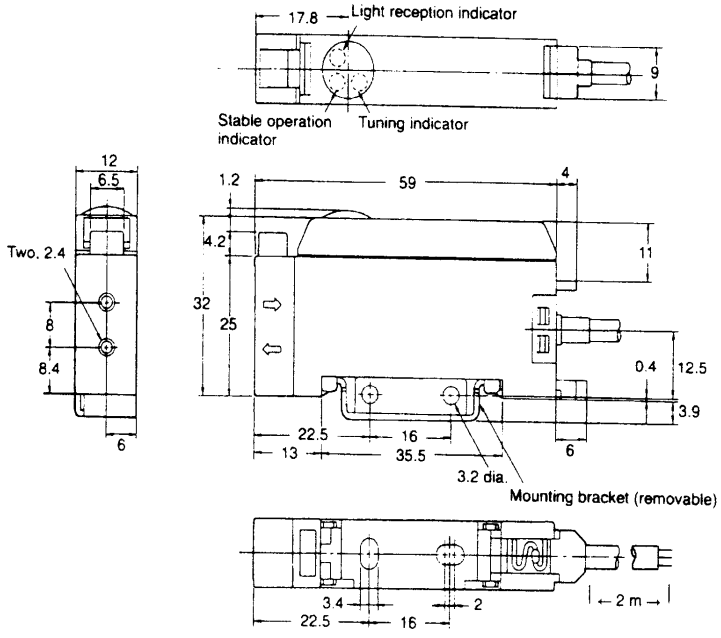
Cord: 2-m polyvinyl chloride-covered cord (4-mm dia., 5 cores*)
Weight: approx. 100 g
*The cords for the E3X-A11, E3X-A41 and E3X-VG11 models have 3 cores.



E3X-T11
E3X-T21

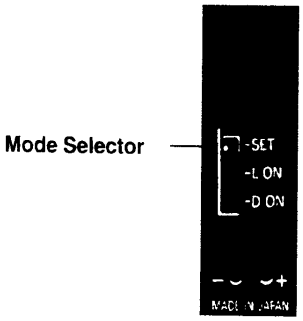


Cord: 2-m polyvinyl chloride-covered cord (4-mm dia., 3 cores*)
Weight: approx. 100 g
*The cords for the E3X-T21 model has 6 cores.

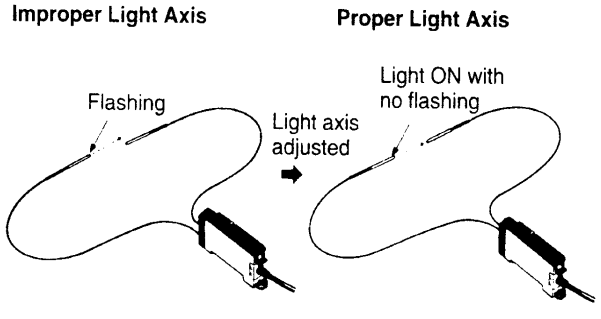


■ Setting the Optical Alignment using the Flashing Light Function

1. Set the mode selector SET.

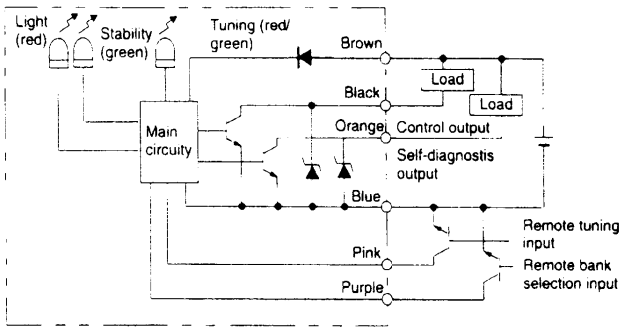
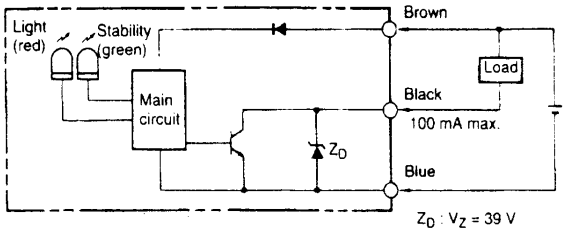
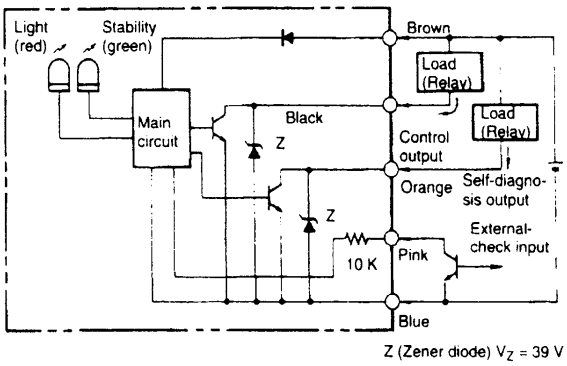
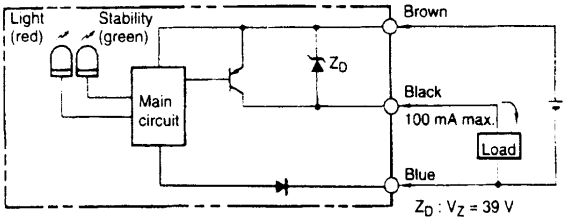
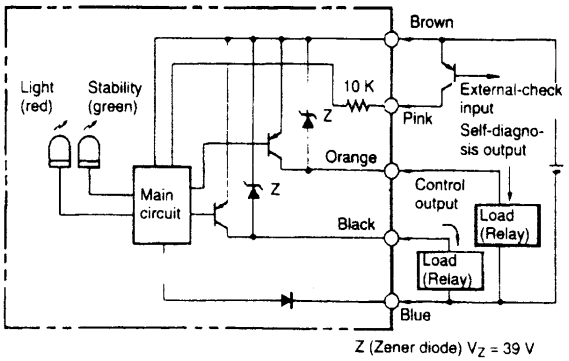


2. Adjust the light axis by moving the fibre with the light flashing.



3. Set the mode selector to L-ON or D-ON after the light axis is adjusted.

Connections

Type	Model	Mode switch	Output transistor	Output circuit
NPN	E3X-T21	Light-ON	ON when light is received	
		Dark-ON	ON when light is not received	
	E3X-T11 E3X-H11 E3X-A11 E3X-VG11	Light-ON	ON when light is received	
		Dark-ON	ON when light is not received	
	E3X-A21 E3X-VG21 E3X-F21	Light-ON	ON when light is received	
		Dark-ON	ON when light is not received	
PNP	E3X-A41	Light-ON	ON when light is received	
		Dark-ON	ON when light is not received	
	E3X-A51 E3X-F51	Light-ON	ON when light is received	
		Dark-ON	ON when light is not received	