

Photoelectric Sensors

Optex FA is now the second largest supplier of photoelectric sensors in Japan.

Optex provides an extensive selection of sensors to solve most applications.

All sensors are available in Cabled or M8 QD versions and are offered with a choice of NPN or PNP outputs.



Photoelectric Sensor E series

Super side-sense type

**ET-S series
Thru-beam type**
(Sensing distance : 500mm)
· ET-S500NL,3,4 / ND,3,4
· ET-S500PL,3,4 / PD,3,4

**ED-S series
Diffuse Reflective type**
(Sensing distance : 30mm)
· ED-S30NL,3,4 / ND,3,4
· ED-S30PL,3,4 / PD,3,4

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Applications



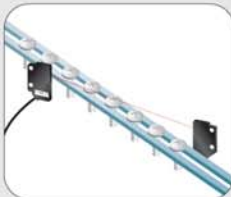
Detecting presence of FOUF



Detection of wafer extending from cassette



Detecting parts presence from parts feeder



Detecting screws at output of feeder

- **Super Side-sense Type projects the beam from the 5mm(0.19 inch) of wide edge of the sensor.**
- **M8 pig-tail connector types are available for all models.**
- **Tough mechanics. 100G Shock Resistance and IP67 Water tightness.**
- **Easily visible indicator LED can be seen even from the back.**

Features

2 type select

M8 pig-Tail connector for easy maintenance.



Super Side-Sense type



M8 Pig-Tail



Flat type - Front Sense

IP67 rating
RoHS compliant



Operating LED visible in the back

It's convenient. Verifying the operation of the sensor is easy.



Front view

Back view

Universal mounting holes.
Flexible mounting for easy installation.



3.5mm thin dimensions (Flat type)

Leading edge of sensing functions are designed in this thin size. Ideal for space saving.
(Side sense type : 5mm)

3.5mm



C

E

J

J2

J3

V

V2

V3

V4

SR-Q

S

Z
BGS-Z

K

FGS-D
BGS-D

BGS-2S

Y

DM-18T

Accessory

**EL-S series
Convergent type**

(Sensing distance : 15mm)
 · EL-S15NL,3,4 / ND,3,4
 · EL-S15PL,3,4 / PD,3,4

Flat type
**ET series
Thru-beam type**

(Sensing distance : 500mm)
 · ET-500NL,3,4 / ND,3,4
 · ET-500PL,3,4 / PD,3,4

**ED series
Diffuse Reflective type**

(Sensing distance : 100mm)
 · ED-100NL,3,4 / ND,3,4
 · ED-100PL,3,4 / PD,3,4

**EL series
Convergent type**

(Sensing distance : 5 - 30mm)
 · EL-30NL,3,4 / ND,3,4
 · EL-30PL,3,4 / PD,3,4

Super Side-Sense type



Unique Side-Sensing Type available in Duffuse,Convergent and Thru-Beam.
 M8 Pigtail models in both 3 and 4 pin types.

**EL-S series
Convergent Type**

15mm (0.6 inch) sensing distance.
 Light-On/Dark-On models available.
 +/-0.05mm (0.002 inch) repeat accuracy.
 2mm (0.07 inch) project spot diameter at 15mm distance.
 0.5 msec. response speed.

**ED-S series
Diffuse Reflective Type**

30mm sensing distance.
 Light-On/Dark-On models available.
 +/-0.05mm (0.002 inch) repeat accuracy.
 30mm sensing distance with 10% Hysteresis.

**ET-S series
Thru-Beam Type**

500mm (19.7 inch) sensing distance.
 Light-On/Dark-On models available.
 +/-0.1mm (0.004 inch) repeat accuracy.
 0.25 msec. response speed.

Flat type - Front Sense



Thin and flat design for space saving. Three different models of Convergent models.

**EL - series
Convergent Type**

3 different sensing distance are available.
 30mm (1.18 inch), 15mm (0.6 inch), and 8mm (0.31 inch) for close installation.
 Compact housing is ideal for space saving.

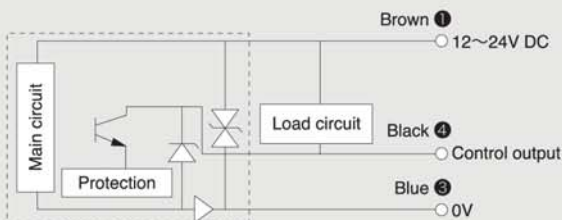
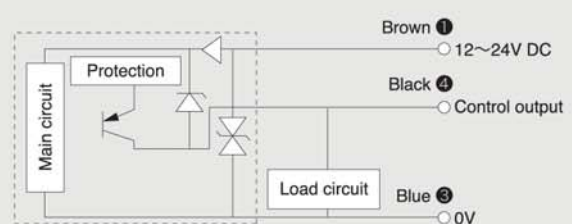
**ED - series
Diffuse Reflective Type**

Standard diffuse reflective type with 100mm (3.94 inch) sensing distance.

**ET - series
Thru-Beam Type**

0.5msec response speed and sharp optical system designed in 12 x 20 x 3.5 mm dimensions.

Circuit diagram

NPN output

PNP output


Specifications

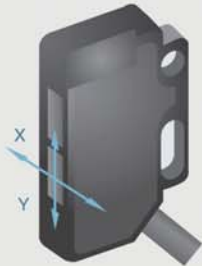
Super Side - Sensing type

Model		Diffuse 30mm	Convergent 15mm	Thru-beam 500mm	
NPN type	Light ON	2m cable	ED-S30NL	EL-S15NL	ET-S500NL
		M8 pigtail - 3pin	ED-S30NL3	EL-S15NL3	ET-S500NL3
		M8 pigtail - 4pin	ED-S30NL4	EL-S15NL4	ET-S500NL4
	Dark ON	2m cable	ED-S30ND	EL-S15ND	ET-S500ND
		M8 pigtail - 3pin	ED-S30ND3	EL-S15ND3	ET-S500ND3
		M8 pigtail - 4pin	ED-S30ND4	EL-S15ND4	ET-S500ND4
PNP type	Light ON	2m cable	ED-S30PL	EL-S15PL	ET-S500PL
		M8 pigtail - 3pin	ED-S30PL3	EL-S15PL3	ET-S500PL3
		M8 pigtail - 4pin	ED-S30PL4	EL-S15PL4	ET-S500PL4
	Dark ON	2m cable	ED-S30PD	EL-S15PD	ET-S500PD
		M8 pigtail - 3pin	ED-S30PD3	EL-S15PD3	ET-S500PD3
		M8 pigtail - 4pin	ED-S30PD4	EL-S15PD4	ET-S500PD4
Supply voltage		DC 12 to 24V ±10% Inc. 10% ripple			
Power consumption		20mA Max		30mA Max	
Sensing distance		30mm		500mm	
Spot size		φ3mm @ 30mm		φ2mm @ 15mm	
Objects		Not restricted		opaque object	
Repeat accuracy		±0.05mm Max		±0.1mm Max	
Response time		0.25msec(ET), 0.5msec(ED,EL)			
Light source		Red LED			
Hysteresis		10%			
Control output		NPN or PNP Open collector, 1.8V -50mA			
Environmental illuminance		Sunlight 10,000 lx Max		Incandescent lamp 3,000 lx Max	
Operating temp / humidity		-25 up to 55 °C / 35 up to 85%			
Storage conditions		-40 up to 70 °C / 35 up to 95%			
Noise resistance		EN60947-5-2:1998 (Immunity) EN60947-5-2:1998 (radiation)			
Vibration resistance		10 to 55Hz, 1.5mm, X-Y-Z each for 2 hours			
Shock resistance		1000m/S ² , X-Y-Z each for 3 times			
Protection category		IP67			
Warm-up time		100ms			
LED Indicator		Green (stable), Orange (output), Red (Power of emitter : ET type)			
Connector and cable		2m cable, φ2.5mm 3 cores (2 cores for emitter) / M8 Pigtail 150 mm			
Circuit protection		Over Current, Reverse Polarity, Short Circuit			
Material		PC			
Conformity		CE			

Flat type - Front Sensing

Model		Diffuse 100mm	Convergent 8/15/30mm	Thru-beam 500mm			
NPN type	Light ON	2m cable	ED-100NL	EL-30NL	EL-15NL	EL-08NL	ET-500NL
		M8 pigtail - 3pin	ED-100NL3	EL-30NL3	EL-15NL3	EL-08NL3	ET-500NL3
		M8 pigtail - 4pin	ED-100NL4	EL-30NL4	EL-15NL4	EL-08NL4	ET-500NL4
	Dark ON	2m cable	ED-100ND	EL-30ND	EL-15ND	EL-08ND	ET-500ND
		M8 pigtail - 3pin	ED-100ND3	EL-30ND3	EL-15ND3	EL-08ND3	ET-500ND3
		M8 pigtail - 4pin	ED-100ND4	EL-30ND4	EL-15ND4	EL-08ND4	ET-500ND4
PNP type	Light ON	2m cable	ED-100PL	EL-30PL	EL-15PL	EL-08PL	ET-500PL
		M8 pigtail - 3pin	ED-100PL3	EL-30PL3	EL-15PL3	EL-08PL3	ET-500PL3
		M8 pigtail - 4pin	ED-100PL4	EL-30PL4	EL-15PL4	EL-08PL4	ET-500PL4
	Dark ON	2m cable	ED-100PD	EL-30PD	EL-15PD	EL-08PD	ET-500PD
		M8 pigtail - 3pin	ED-100PD3	EL-30PD3	EL-15PD3	EL-08PD3	ET-500PD3
		M8 pigtail - 4pin	ED-100PD4	EL-30PD4	EL-15PD4	EL-08PD4	ET-500PD4
Supply voltage		DC 12 to 24V ±10% Inc. 10% ripple					
Power consumption		20mA Max		30mA Max			
Sensing distance		100mm		5 - 30mm			
Spot size		φ60mm @ 100mm		φ20mm @ 30mm			
Objects		Not restricted		φ10mm @ 15mm			
Response time		0.5msec Max		φ10mm @ 8mm			
Hysteresis		White Paper : 10% (EL-08 and EL-15), 15% (EL-30 and EL-100)		φ140mm @ 500mm			
Control output		NPN or PNP Open collector, 50mA Max / 24V DC		opaque object			
Environmental illuminance		Sun light:10,000 lux Max, Incandescent lamp:3,000 lux Max		-			
Operating temp / humidity		-25 up to 55 °C / 35 up to 85%					
Storage temp / humidity		-40 up to 70 °C / 35 up to 95%					
Noise resistance		EN60947-5-2:1998 (Immunity) EN60947-5-2:1998 (radiation)					
Vibration resistance		10 to 55Hz, 1.5mm, X-Y-Z each for 2 hours					
Shock resistance		1000m/S ² , X-Y-Z each for 3 times					
Protection category		IP67					
Warm-up time		15msec					
LED Indicator		Green (stable), Orange (output), Red (Power of emitter : ET type)					
Operating mode		Light ON / Dark ON selectable					
Connector and cable		2m cable, φ2.5mm 3 conductors (2 conductors for emitter) / M8 Pigtail 150 mm					
Circuit protection		Over Current, Reverse Polarity, Short Circuit					
Material		PC					
Conformity		CE					

Reference (typical)

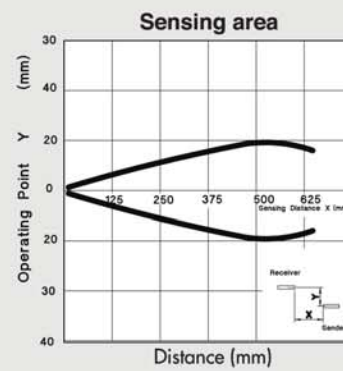
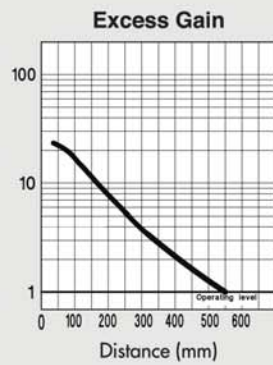


Repeat Accuracy

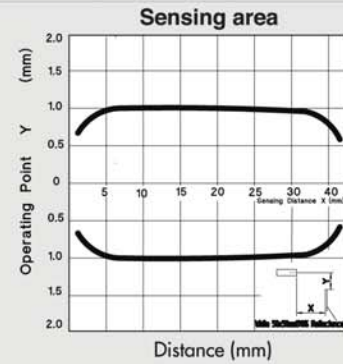
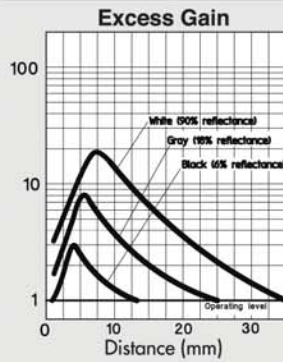
ET-S500		EL-S30		ET-S15	
X	Y	X	Y	X	Y
0.1	0.1	0.05	0.05	0.05	0.05

(Unit : mm)

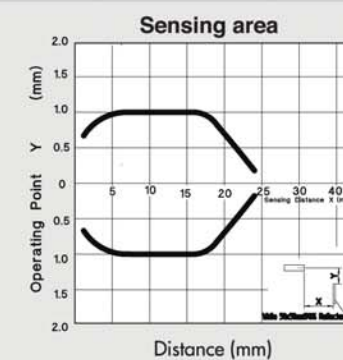
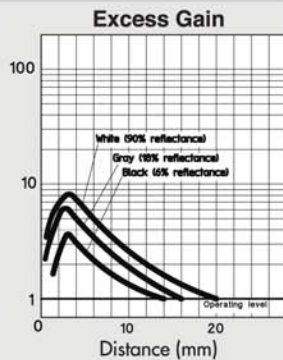
ET-S500



ED-S30

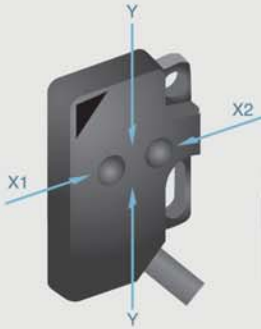


EL-S15



- C
- E
- J
- J2
- J3
- V
- V2
- V3
- V4
- SR-Q
- S
- Z
- BGS-Z
- K
- FGS-D
- BGS-D
- BGS-2S
- Y
- DM-18T
- Accessory

Reference (typical)



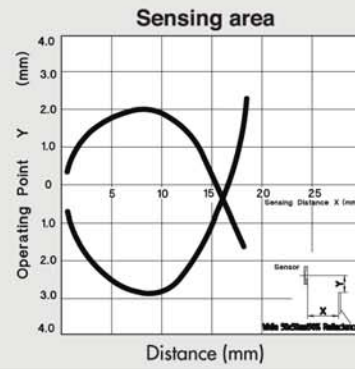
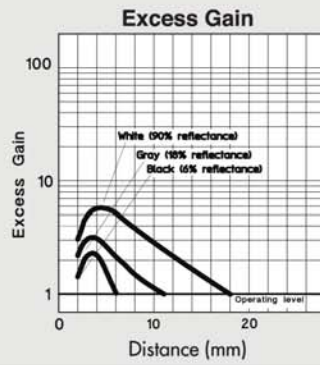
Repeat Accuracy

EL-30			EL-15			EL-08		
X1	X2	Y	X1	X2	Y	X1	X2	Y
0.8	0.8	0.8	0.3	0.3	0.3	0.1	0.1	0.1

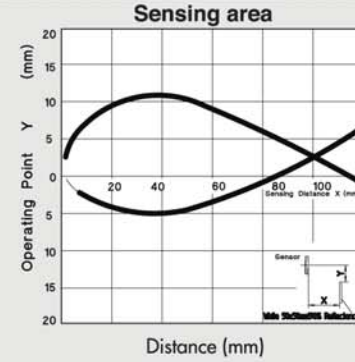
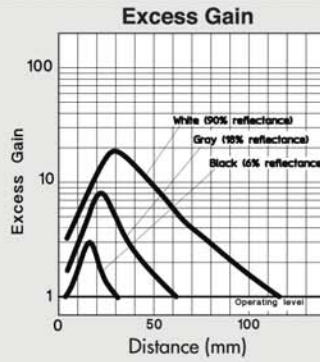
(Unit : mm)

- C
- E
- J
- J2
- J3
- V
- V2
- V3
- V4
- SR-Q
- S
- Z
- BGS-Z
- K
- FGS-D
- BGS-D
- BGS-2S
- Y
- DM-18T
- Accessory

EL-15



ED-100



ET-500

