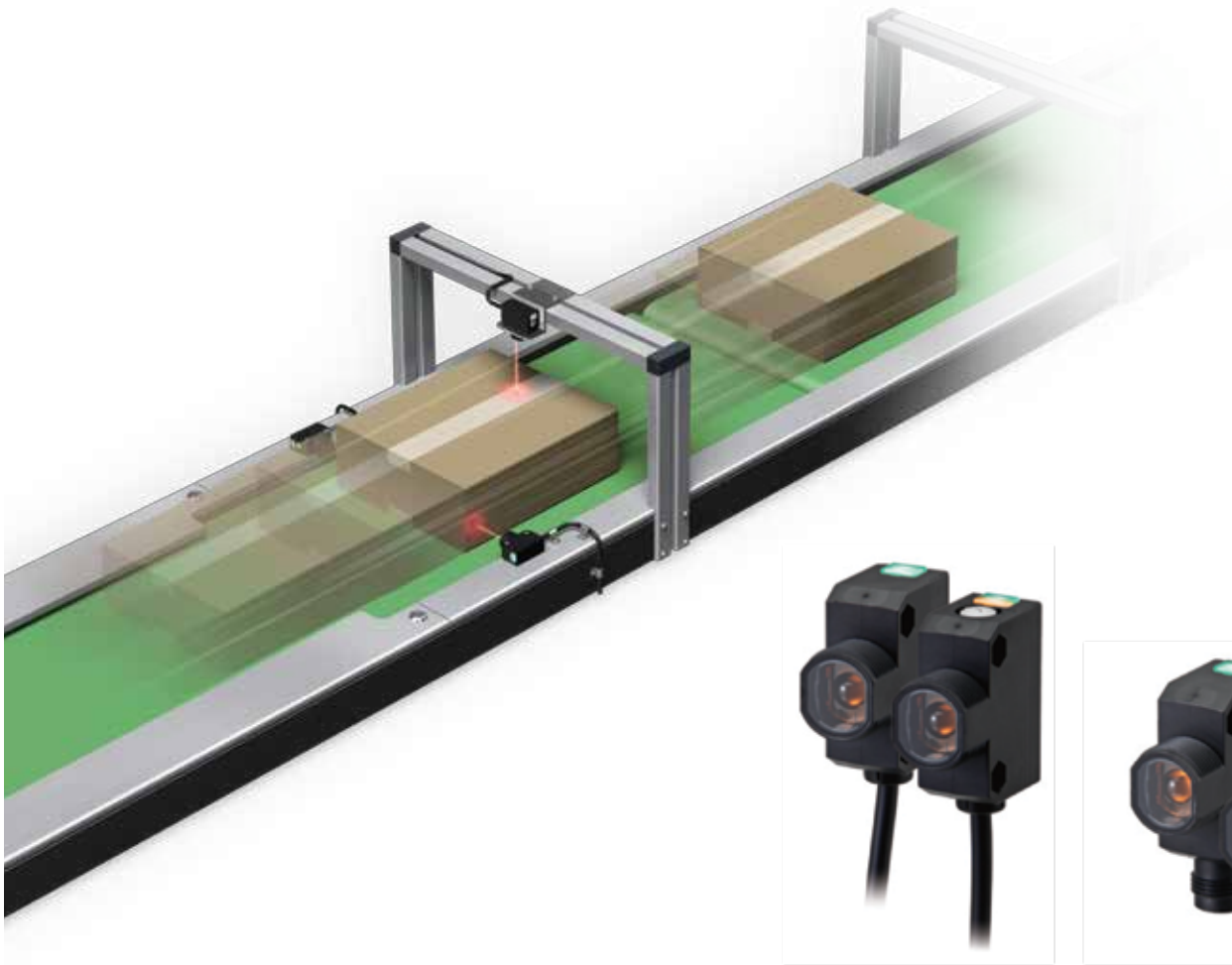


# Compact Photoelectric Sensor with Built-in Amplifier

E3Z-F Series



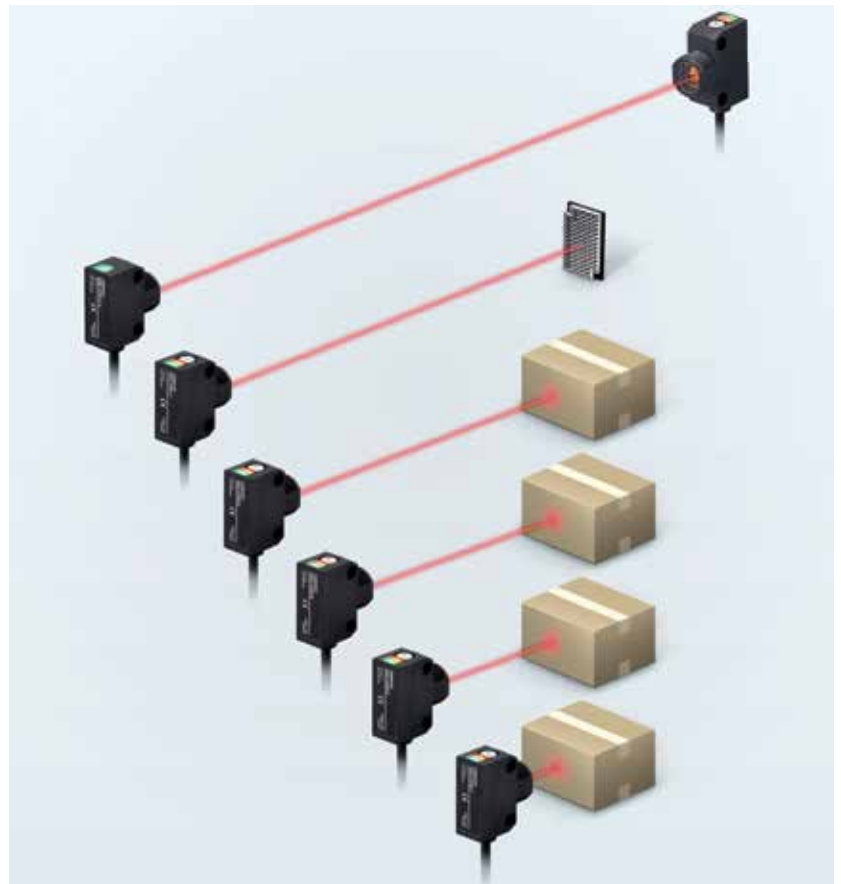
- IP69K rated product designed for extreme wash-down environments and applications
- Visible red LED for quick alignment, shorter installation time and easier troubleshooting
- Mirror Surface Rejection (MSR) allows for stable detection of shiny, mirror-like objects

The E3Z Series of Photoelectric Sensors features high reliability and durability. One of the best selling photoelectric sensor series in the world today, the E3Z series is used in a wide variety of applications.

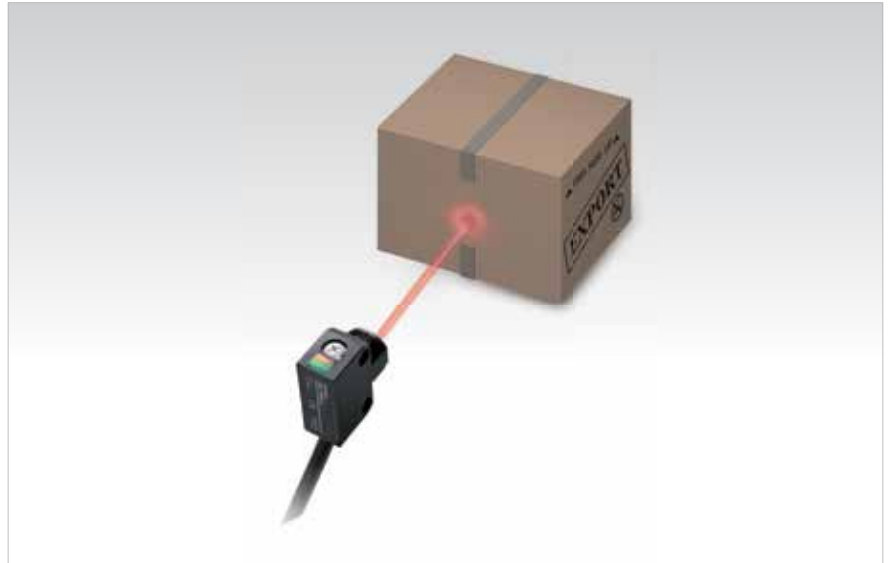
A More Complete Lineup to Handle More Applications



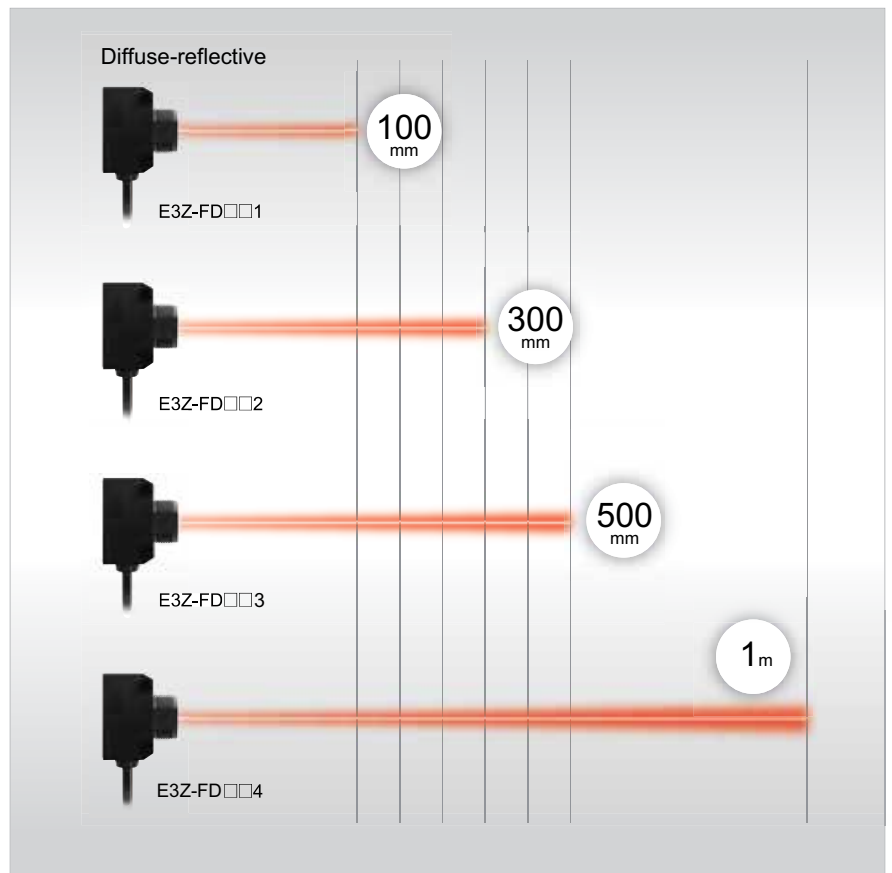
Rectangular Body with M18 Barrel Nose Flexible Mounting Makes the Perfect Choice for New Designs and Retrofits



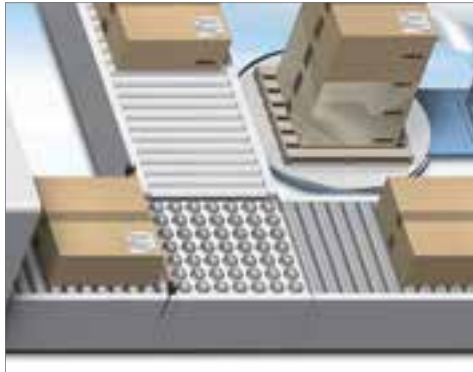
Visible spot for easy installation



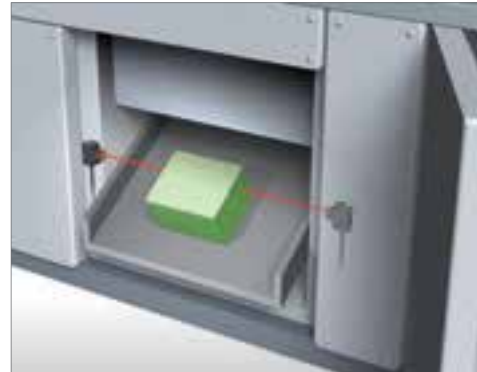
Many different sensing distances are available; so you can select the best model for your application



# Common Applications



**Material handling:** Detect Passing Cardboard Boxes



**Molding machines:** Detect Falling Molded Objects



**Automated Warehouses:** Detect Out-of-Place Items



**Machine Tools:** Detect Passing Object



**Packaging Machines:** Detect Passing Products



**Spinning Machines:** Detect Discharging Cloth



**Automotive:** Detect Vehicles

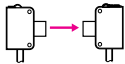


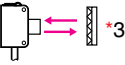



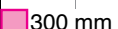



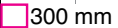
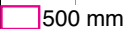



**Escalators:** Detect Person

# Ordering Information

**Sensors \*1** [Refer to *Dimensions on pages 6-7.*]

 Red light    Infrared light

Sensing method	Appearance	Connecting method	Sensing distance	Model	
				NPN output	PNP output
Through-beam (Emitter + Receiver)		Pre-wired (2 m)	 20 m	<b>E3Z-FTN11 2M *2</b>	<b>E3Z-FTP11 2M *2</b>
		Connector (M12)		<b>E3Z-FTN21 *2</b>	<b>E3Z-FTP21 *2</b>
		Pre-wired (2 m)	 20 m	<b>E3Z-FTN12 2M *2</b>	<b>E3Z-FTP12 2M *2</b>
		Connector (M12)		<b>E3Z-FTN22 *2</b>	<b>E3Z-FTP22 *2</b>
Retro-reflective with MSR function	 *3	Pre-wired (2 m)	 4 m *4 (100 mm)	<b>E3Z-FRN11 2M</b>	<b>E3Z-FRP11 2M</b>
		Connector (M12)		<b>E3Z-FRN21</b>	<b>E3Z-FRP21</b>
Diffuse-reflective		Pre-wired (2 m)	 100 mm	<b>E3Z-FDN11 2M</b>	<b>E3Z-FDP11 2M</b>
		Connector (M12)		<b>E3Z-FDN21</b>	<b>E3Z-FDP21</b>
		Pre-wired (2 m)	 300 mm	<b>E3Z-FDN12 2M</b>	<b>E3Z-FDP12 2M</b>
		Connector (M12)		<b>E3Z-FDN22</b>	<b>E3Z-FDP22</b>
		Pre-wired (2 m)	 500 mm	<b>E3Z-FDN13 2M</b>	<b>E3Z-FDP13 2M</b>
		Connector (M12)		<b>E3Z-FDN23</b>	<b>E3Z-FDP23</b>
		Pre-wired (2 m)	 1 m	<b>E3Z-FDN14 2M</b>	<b>E3Z-FDP14 2M</b>
		Connector (M12)		<b>E3Z-FDN24</b>	<b>E3Z-FDP24</b>
		Pre-wired (2 m)	 100 mm	<b>E3Z-FDN15 2M</b>	<b>E3Z-FDP15 2M</b>
		Connector (M12)		<b>E3Z-FDN25</b>	<b>E3Z-FDP25</b>
		Pre-wired (2 m)	 300 mm	<b>E3Z-FDN16 2M</b>	<b>E3Z-FDP16 2M</b>
		Connector (M12)		<b>E3Z-FDN26</b>	<b>E3Z-FDP26</b>
		Pre-wired (2 m)	 500 mm	<b>E3Z-FDN17 2M</b>	<b>E3Z-FDP17 2M</b>
		Connector (M12)		<b>E3Z-FDN27</b>	<b>E3Z-FDP27</b>
		Pre-wired (2 m)	 1 m	<b>E3Z-FDN18 2M</b>	<b>E3Z-FDP18 2M</b>
		Connector (M12)		<b>E3Z-FDN28</b>	<b>E3Z-FDP28</b>

\*1. Sensors are shipped with tightening nut for nose mount.

\*2. Through-beam Sensors are normally sold in sets that include both the Emitter and Receiver. An order for the Emitter or Receiver alone cannot be accepted.

\*3. The Reflector is sold separately. Select the Reflector model most suited to the application.


\*4. Values in parentheses indicate the minimum required distance between the Sensor and Reflector.

# E3Z-F

## Accessories (Sold Separately)

**Reflector** (Required for Retro-reflective Sensors) A Reflector is not provided with the Sensor. It must be ordered separately.


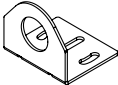
[Refer to *Dimensions on page 7.*]

Appearance	Sensing distance*		Model	Quantity	Remarks
	Rated value	Reference value			
	4 m (100 mm)	---	<b>E39-R1S</b>	1	for E3Z-FR□

\* Values in parentheses indicates the minimum required distance between the Sensor and Reflector.

**Mounting Brackets** A Mounting Bracket is not provided with the Sensor. It must be ordered separately as required.



[Refer to *Dimensions on page 7.*]

Applicable Sensors	Mounting method	Appearance	Model	Quantity
All models	M3 screw mounting		<b>E39-L189</b>	1
	M18 nut side mounting		<b>E39-L183</b>	1

Note: When using Through-beam models, order one bracket for the Receiver and one for the Emitter.

### Sensor I/O Connectors (Sockets on One Cable End)

(Required for models Connectors) A Connector is not provided with the Sensor. It must be ordered separately.

Applicable Sensors	Size	Cable	Appearance	Cable type	Model
Connector (M12)	M12	Standard	Straight 	2 m	4 conductors <b>XS2F-M12PVC4S2M</b>
				5 m <b>XS2F-M12PVC4S5M</b>	
			L-shaped 	2 m <b>XS2F-M12PVC4A2M</b>	
				5 m <b>XS2F-M12PVC4A5M</b>	

Note: When using Through-beam models, order one sensor I/O connector for the Receiver and one for the Emitter.

## Dimensions

(Unit: mm)

Tolerance class IT16 applies to dimensions in this data sheet unless otherwise specified.

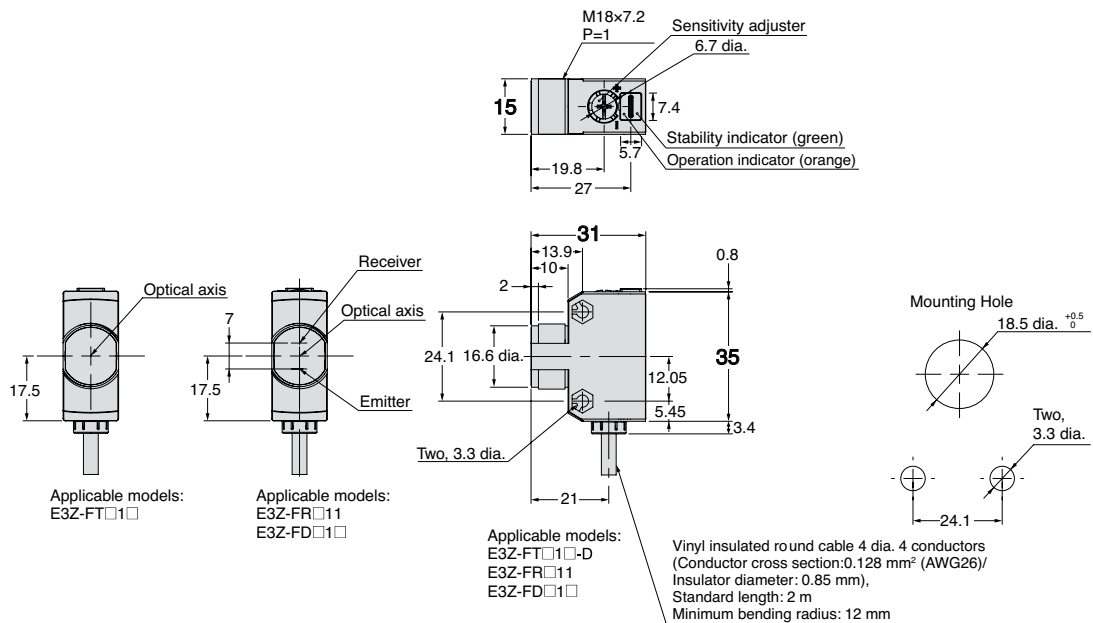
### Sensors

#### Pre-wired

**E3Z-FT□1□**

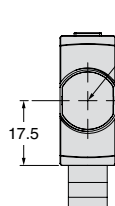
**E3Z-FR□11**

**E3Z-FD□1□**

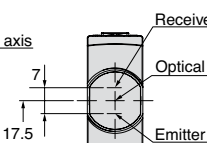


## Connector (M12)

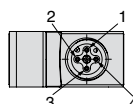
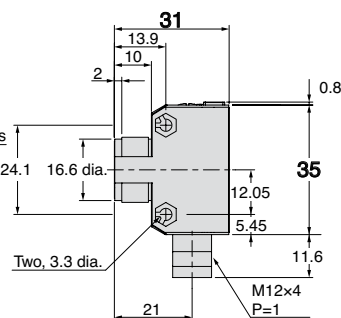
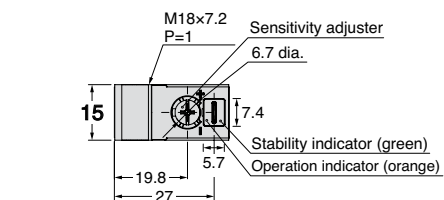
E3Z-FT□□  
E3Z-FR□□21  
E3Z-FD□□2□



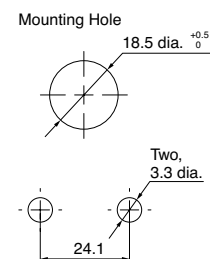
Applicable models:  
E3Z-FT□□



Applicable models:  
E3Z-FR□□21  
E3Z-FD□□2□

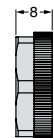
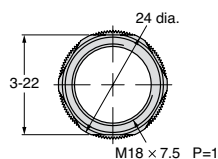


Applicable models:  
E3Z-FT□□-D  
E3Z-FR□□21  
E3Z-FD□□2□



Terminal No.	Specifications
1	+V
2	L/on • D/on selectable
3	0V
4	Output

## Tightening Nuts

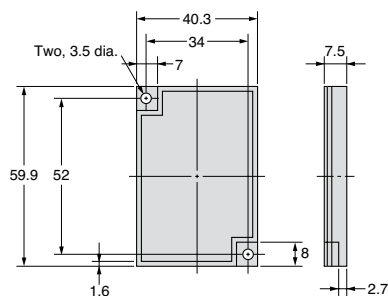


Material: ABS

## Accessories (Sold Separately)

### Reflector

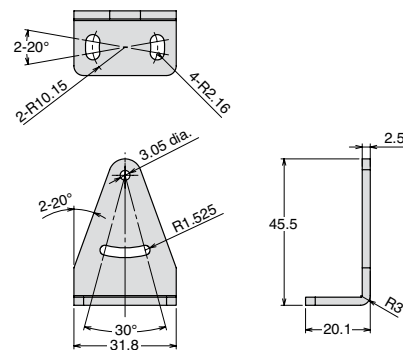
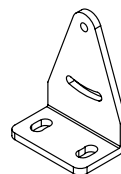
E39-R1S



Material: <Reflective surface> Acrylic  
<Rear surface> ABS

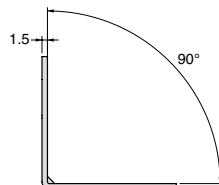
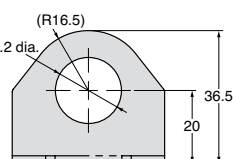
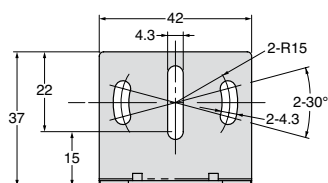
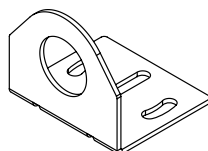
### Mounting Brackets

E39-L189



## Mounting Brackets

E39-L183





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