Photoelectric Sensors

OMRON

Product Line	M18 Threaded Cylindrical	General Purpose Rectangular		Stainless Steel Housing
	E3FA/E3RA/E3FB/E3RB/E3FC	E3Z	E3Z-F	E3ZM
Selling Tips	• High power visible red LED for easy setup and for blasting through dusty environments • Large sensitivity adjustor for calibration with a standard size screwdriver • Compact short body allows for mounting in tight spaces • Light-ON/Dark-ON selectable by wiring • E3FC designed for extreme environments • Flush mounting option	• The E3Z product line is among the world's most popular photoelectric sensors • The E3Z series has a compact size allowing the sensor to fit in most applications • Built in noise immunity allows the E3Z series to be used in circuit with inverters and other inductive loads • Advanced high power LED allows use in brightly lit manufacturing applications	• Visible spot for easy installation on Red LED models • Multiple mounting options: M18 nose mounting, mounting holes and mounting brackets • IP69K wash down rated • Compact size for mounting in tight spaces	• Rugged, detergent-resistant stainless steel housing for harsh environments • Compact housing size and high power LED for excellent long life performance • ECOLAB tested and certified for applications that require a wash down and scrub down cleaning • Designed for high temperature and high pressure jet water spray cleaning
Applications	• General purpose or long distance sensing • Packaging: Limited distance sensors to detect transparent or shiny film • Food & Beverage: Ecolab and Diversey tested E3FC designed for harsh F&B environments with daily cleaning • Conveyors and distribution facilities • Product Inspection	• General purpose sensing: including long detection distance, noise immunity and transparent film or object detection • Conveyors and distribution facilities • Filling and packaging machines • Product inspection from glass and plastic bottles to color and mark detection	• Materials 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	• Meat, poultry and fish processing • Food packing plants • Packaging applications • General purpose sensing where rugged product can damage equipment
Housing Material	E3FA/E3RA: ABS (Acrylonitrile butadiene styrene) E3FB/E3RB: Nickel-plated brass E3FC: SUS316L stainless steel	PBT (polybutylene terephthalate)	ABS (acrylonitrile butadiene styrene)	SUS316L (Stainless Steel 316)
Through-Beam Sensing Range	20 m	10 m, 15 m, 30 m	20m	15 m
Retro-Reflective Sensing Range	4 m	5 m	4m	4 m
Diffuse-Reflective Sensing Range	1 m	1 m	100mm, 300mm, 500mm, 1m	1 m
Power Supply Voltage	10 - 30 VDC	12 - 24 VDC	10 -3 0 VDC	12 - 24 VDC
Light Source	Red LED (624 nm), Infrared LED	Infrared LED, RED LED	Infrared LED, Red LED	Infrared LED, RED LED
Connection Method	Pre-Wired or M12 Connector	Pre-Wired, Cable Connector style M8 4-pin, M8 3-pin, M12	Pre-wired or M12 connector	Pre-Wired, Cable Connector style M8 4-pin, M8 3-pin, M12
Environment Protection	IP67 and IP69K (E3FC is also IP68)	IP67	IP67, IP69K	IP69
Response Time	Operation or Reset 0.5ms max	Operation or Reset 1ms max	Operate or reset: 0.5ms max	Operation or Reset 1ms max
Popular Part Numbers	• E3FA-TP21 • E3FA-RP21 • E3FA-DP22 • E3FA-LP21 • E3FB-TP21 • E3FB-DP22	• E3Z-T66 • E3Z-T86 • E3Z-R65 • E3Z-R86 • E3Z-D62-M5J • E3Z-D82-M5J	• E3Z-FTN11 • E3Z-F12 • E3Z-FRN11 • E3Z-FRP11	• E3ZM-T66 • E3ZM-T86 • E3ZM-R66 • E3ZM-R86 • E3ZM-D67 • E3ZM-D87
Accessories	Mounting brackets, Mounting Nuts, Cable Connector, Reflectors	Mounting Bracket, Adjustable Arm, Cable Connectors	Mounting Bracket, Cable Connector, Reflector	Mounting Bracket, Cable Connector
Price Level	$	$	$	$$$

E33I-E-05

Product Line	Oil Resistant		Transparent Object Detection	Transparent Object Detection
	E3ZM-C	**E3S-DB**	**E3ZM-B**	**E3Z-B**
Selling Tips	• Oil and coolant resistant stainless steel housing for use in mechanically demanding environments • High visibility orange LED in through-beam model for easy alignment • Sensors unaffected by dirty lens	• Double slits prevent incorrect operation • P-opaquing function improves detection • Smart teaching for optimum settings • IP69K protection recommended for food and beverage industry; third party certification from Ecolab in Europe • Variable connector and cable directions and 360 degree indicators for greater usability	• General transparent material detection • Models provide highest detection of PET bottles • Stainless steel housing for detergent resistant wash down applications • Easy installation with "quick-teach" function for delicate sensitivity adjustment	• Utilizes OMRON'S unique optical system ("Inner View") to detect various shapes of PET bottles and transparent objects • Detects a wide range of bottles from single bottles to sets of stocked bottles • Easy adjustment for detailed setup by potentiometer
Applications	• Machining and tool making • Automotive assembly lines • Cleaning parts with chemicals • Applying grease to manufactured parts	• Plastic bottle conveying • Conveying and packaging PET plastic bottles • Food and beverage packaging • Transparent film processing • Processing machinery exposed to regular cleaning with detergent or disinfectant	• Plastic Bottle conveying • Food and beverage packaging • Transparent film processing	• Plastic bottle conveying • Conveying and packaging PET plastic bottle • Food and beverage packaging
Housing Material	SUS316L (Stainless Steel 316)	PBT/ABS (Polybutylene terephthalate/acrylonitrile butadiene styrene)	SUS316L (Stainless Steel 316)	PBT (polybutylene terephthalate)
Through-Beam Sensing Range	15 m, 20 m	---	–	–
Retro-Reflective Sensing Range	4 m	0.5m, 3.5m	500 mm	500 mm, 2 m
Diffuse-Reflective Sensing Range	1 m	---	–	–
Power Supply Voltage	12 - 24 VDC	10 -3 0 VDC	12 - 24 VDC	12 - 24 VDC
Light Source	Infrared, Orange LED, Red LED	Red LED	Red LED	Red LED
Connection Method	Pre-Wired, Cable Connector style M8 4-pin, M12	Pre-wired, M12 connector, M12 Smartclick connector	Pre-Wired, Connector Cord set style M8 4-pin	Pre-Wired, Cable Connector style M8 4-pin
Environment Protection	IP67 and IP69	IP67, IP69K	IP69	IP67, IP69
Response Time	Operation or Reset 2ms max	Operate or reset: 0.5ms max	Operation or Reset 1ms max	Shorter than 2.5ms
Popular Part Numbers	• E3ZM-CT66 • E3ZM-CT86 • E3ZM-CR66 • E3ZM-CR86 • E3ZM-CD67 • E3ZM-CD87	• E3S-DBN11 • E3S-DBP11 • E3S-DBN12 • E3S-DBP12	• E3ZM-B66-C • E3ZM-B86-C	• E3Z-B86 • E3Z-B66 • E3Z-B67 • E3Z-B87
Accessories	Mounting Bracket, Adjustable Arm, Cable Connector	Mounting Bracket, Cable Connector, Reflector	Mounting Bracket, Adjustable Arm, Cable Connector	Mounting Bracket, Adjustable Arm, Cable Connector
Price Level	$$$	$$$	$$$	$$

Product Line		Laser Sensor	Miniature Sensor	Fork Shaped Housing
	E3NC	E3Z-LASER	E3T	E3Z-G
Selling Tips	• High detection stability independent from color or surface • Lens attachments for line beam applications • Adjustable focus and smart tune functions • Sensor heads with up to 1.2m sensing distance • High speed network connectivity to EtherCAT fieldbus • Comprehensive range of sensing heads with variable spot and advanced CMOS sensing	• Compact plastic housing fits in most applications • Class 2 LASER (FDA) • Visible LASER light for easy installation, accurate positioning, small object detection and long range precision • Precise background suppression and low black/white error for accurate detection	• Small size with precision pinpoint LED where space is crucial • 3.5 mm thick flat model with reliable background suppression and small black/white error • Unique optical alignment technology ensuring minimal deviation of sensing angle • High ambient light immunity for bright factory floor applications	• Fork shaped through-beam sensors have a 25 mm sensing distance • Slotted head eliminates the need for optical • axis adjustment • One or two axes models
Applications	• Detecting the height of shrink packaging film, two sheets of transparent film and holes made in metal parts • Thread presence and glass substrate mark detection • Workpiece presence detection through narrow gaps • Detecting the presence of needle caps and exterior wall material • Presence detection of powders or liquids • Detection of faulty cap assembly and cut position on rubber hose	• Jam prevention conveying at high speeds • Precise positioning of product • Detection of damage or warn equipment like drill bits or saw blades • Textile mills and sheet good sensing (Start, end of roll and mark detection along the way)	• Sorting machines • Applications where machine size is an issue • Sensing through small slits or holes • Electronic component sensing	• Slotted edge control • Mark sensing • Ideal for slowdown, then stop applications like garment hangers
Housing Material	PBT (polybutylene terephthalate)	PBT (polybutylene terephthalate)	PBT (polybutylene terephthalate) E3T-C: Stainless Steel 303	PBT (polybutylene terephthalate)
Through-Beam Sensing Range	---	60 m	1 m	25 mm
Retro-Reflective Sensing Range	0.5m, 2m, 3.5m, 6m, 8m (Coaxial)	15 m	200 mm	–
Diffuse-Reflective Sensing Range	150mm, 200mm, 250mm, 600mm, 750mm, 1m, 1.2m	–	30 mm	–
Power Supply Voltage	10 -3 0 VDC	12 - 24 VDC	12 - 24 VDC	12 - 24 VDC
Light Source	Red Laser FDA Class I	Red LED FDA Class II	Red LED	Infrared LED
Connection Method	Pre-wired, Wire-saving connector, M8 connector, Connector for sensor communications unit	Pre-Wired, Cable Connector style M8 4-pin, M8 3-pin, M12	Pre-Wired	Pre-Wired
Environment Protection	IP67 (Coaxial), IP65 (Diffuse- and Limited-reflective)	IP67	IP67	IP67
Response Time	Operate or reset: GIGA=16ms, Std=1ms, HS=250 µs, SHS=80µs	Operation or Reset 1ms max	Operation or Reset 1ms max	Operation or Reset 1ms max
Popular Part Numbers	• E3NC-LH03 • E3NC-LH02 • E3NC-LH01 • E3NC-SH250H • E3NC-SH250	• E3Z-LT66 • E3Z-LT86 • E3Z-LR66 • E3Z-LR86 • E3Z-LL66 • E3Z-LL86	• E3T-ST11 • E3T-ST12 • E3T-FT11 • E3T-FT13 • E3TSL11 • E3T-SL21 • E3T-SR21	• E3Z-G61 • E3Z-G81 • E3Z-G61M3J • E3Z-G81M3J
Accessories	Reflector, Lens attachment, Mounting bracket, Wire-saving connectors, Cable connector, Communication unit, DIN track, End plate	Mounting Bracket, Adjustable Arm, Cable connector	Mounting Brackets	–
Price Level	$$$	$$$	$$	$$