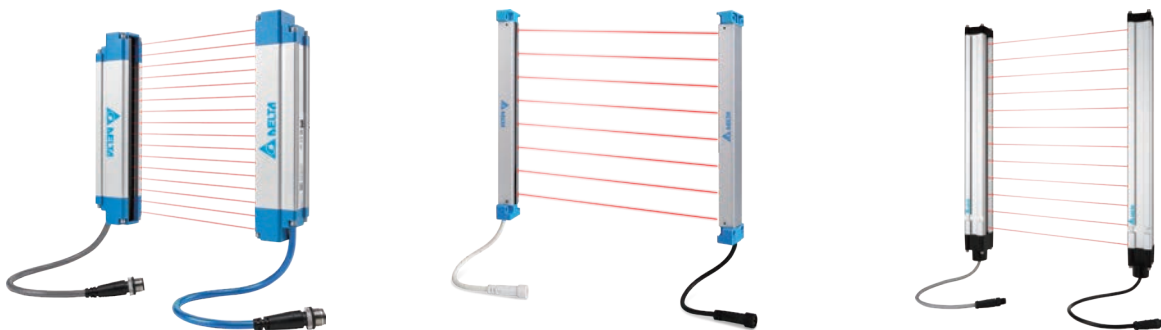




Digitized Automation for a Changing World

Delta Area Sensors AS Series



www.deltaww.com





Delta Area Sensor AS Series

**Precise and Versatile,
The Trustworthy Guardian for Equipment Protection and Sorting Systems**

Area sensors (light curtains) use transmitters and receivers to generate light beams for detecting object presence in a pre-defined area. The area sensors also can be used to measure object height and position and can be integrated with other devices for proactive protection.

Area sensors can detect objects passing through the monitoring area or leaving a designated area/path. By calculating the position and number of blocked beams, area sensors can also generate the outline and position of objects, and transmit the data to the control system (such as a conveyor belt controller) in real time for position correction, path planning, and dispatch control.

Delta's Area Sensor AS series is suitable for various applications, such as checking for dropped objects, preventing incorrect pickups, detecting whether objects pass through the detection zone, object detection on a conveyor belt, anti-intrusion detection, and more. The AS series can be widely applied in industries including food and beverage, packaging, medical, electronics, textiles, rubber and plastics, warehousing, machine tools, and others.



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Area Sensor AS Series

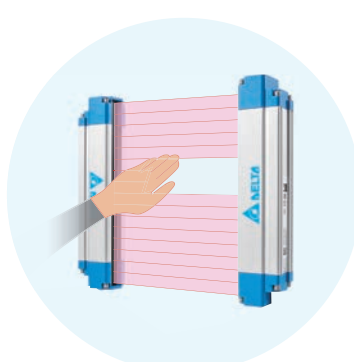
The AS series provides the status of each light beam. Users can select sensors with different beam numbers, beam spacing and functions based on the installation environment and applications, such as the size, distance, length/height of the detected objects. The AS Series can be used for area protection, machine protection, material feeding inspection, or object measurement for advanced applications such as object sorting.

Models	AS-B General Model			AS-E Compact Model	AS-T Outdoor Model
Function	Area Protection (Standard Type)			Area Protection (Standard Type)	Area Protection (Standard Type)
	Object Measurement (Communication Type)			Object Measurement (Communication Type)	-
Detection Capability* (mm)	φ16.5	φ26.5	φ46.5	φ30	φ32.5
Detection Distance (m)	0.1~10	0.1~10	0.1~10	Std. Type: 0.6~4 Comm. Type: 0.6~3.6	0.6~3.6
Detection Height (mm)	160~1,280	160~1,920	160~1,440	140~560	286~1,846
Number of Beams	16~128	8~96	4~36	8~28	12~72
Beam Spacing (mm)	10	20	40	20	26

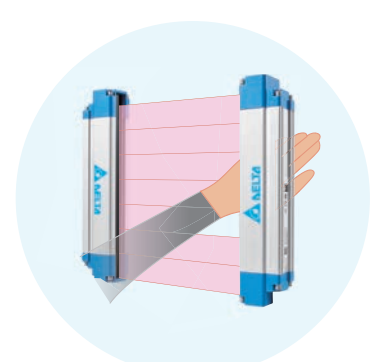
*Detection capabilities include:



Size of object:
φ16.5 mm
(Finger-sized)



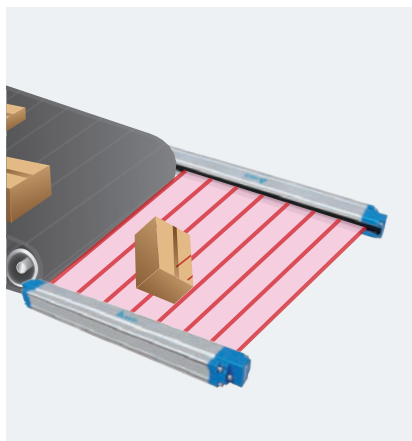
Size of object:
φ26.5 ~ φ32.5 mm
(Hand-sized)



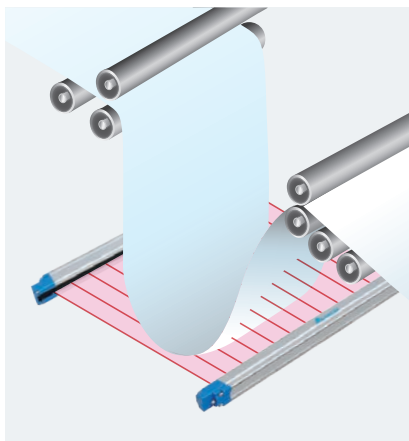
Size of object:
φ46.5 mm
(Arm-sized)

Applications

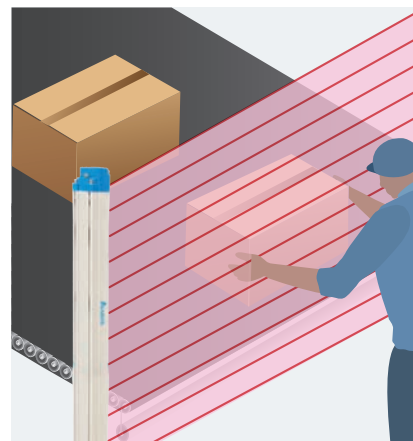
The AS series supports diverse detection applications. The transmitter and the receiver can be flexibly installed based on the environment, equipment deployment, and detection purposes.



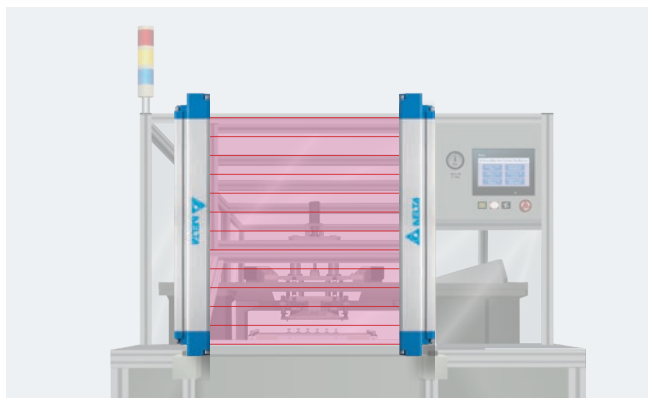
Detects objects that fall off the conveyor or pass through the incorrect path



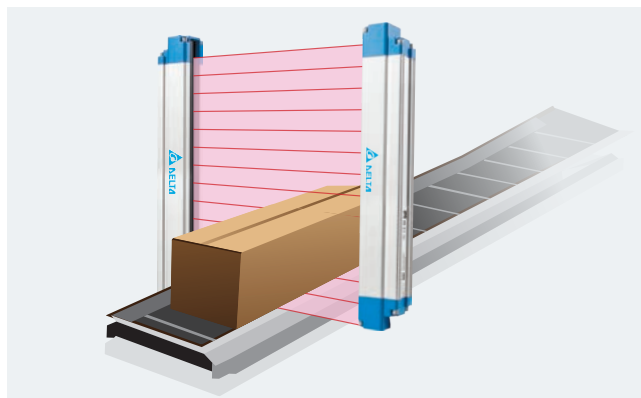
Rolling loop detection



Detects incorrect object pickup



Detects objects falling from a working area



Detects objects during conveyance

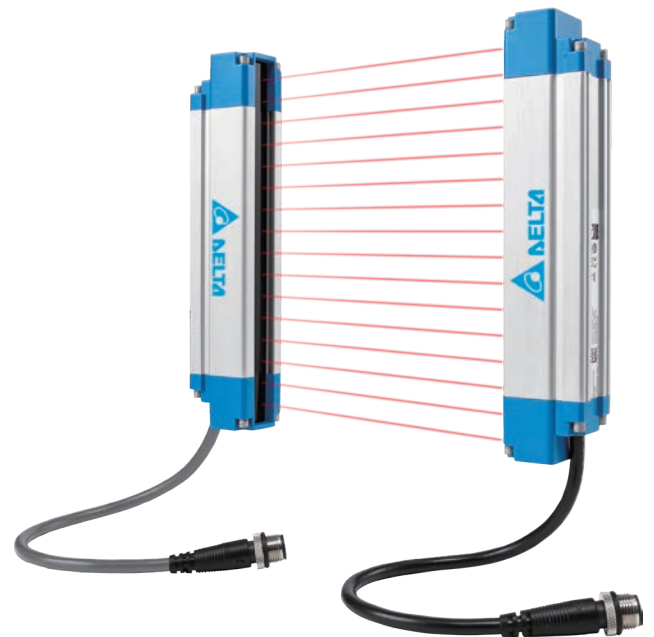


Caution: Do not use this product as a sensing device for personnel protection.

AS-B General Area Sensors

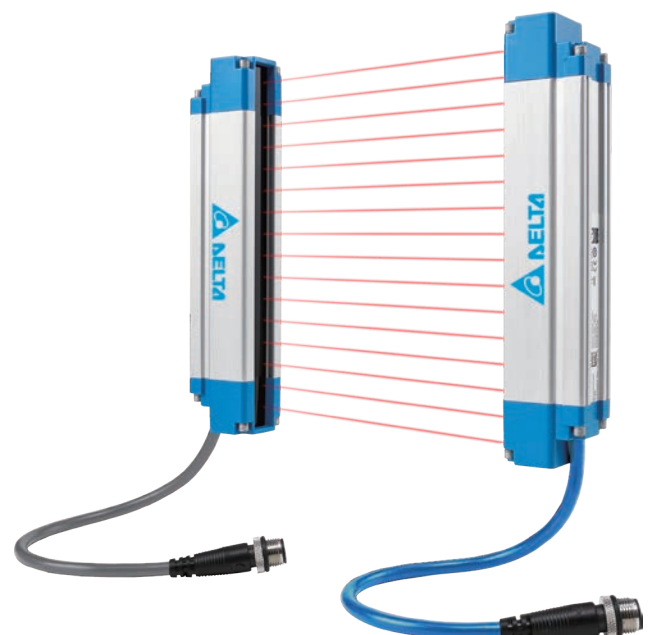
Area Protection (Standard Type)

- **Multiple Detection Capabilities:** detects finger-sized, hand-sized, and arm-sized objects
- **Anti-Interference:** lighting angle $< 5^\circ$, reduces external stray light impact
- **Self-Diagnosis:** simultaneously conducts light beam scanning, voltage and channel diagnosis in each scanning cycle
- **Easy Installation:** alignment indicators for transmitters and receivers alignment, suitable for long-range installation
- **Zero Dead Zone:** full coverage of the light beams; each end of the sensors can be installed close to the surface
- **Robust Housing:** ball-impact tested to avoid damage to the cover



Object Measurement (Communication Type)

- **Full Functionalities:** includes AS-B Standard Type features and supports RS-485 connection
- **Proactive Protection:** supports interlock and restart functions
- **Presence Detection:** supports fixed / floating blanking setting for presence check
- **Spacing Measurement:** measures the size and spacing of up to 5 objects
- **Isochronous Data Upload:** proactively and automatically uploads channel status or combination data to the control system for immediate reaction
- **Energy-Saving Mode:** the ON light can be turned off



Specifications

Models	AS-BF	AS-BH	AS-BA
Beam Spacing (mm)	10	20	40
Number of Beams	16 ~ 128	8 ~ 96	4 ~ 36
Detection Height (mm)	160 ~ 1,280	160 ~ 1,920	160 ~ 1,440
Detection Distance (m)	0.1 ~ 10	0.1 ~ 10	0.1 ~ 10
Detection Capability (mm)	φ16.5	φ26.5	φ46.5
Response Time (ms)	5.2 ~ 30.8	3.4 ~ 23.4	2.6 ~ 9.8
Light Source	Infrared (850nm)		
Input Voltage	24V _{DC} ± 10 %		
Indicator	Blue LED: The terminals in the end are aligned Green LED: All beams are aligned Red LED: Any beam is misaligned or blocked Orange LED: Diagnostic anomaly detected		
Protection	Reverse voltage, output overcurrent, power supply surge, output surge		
Dimensions (mm)	34 × 28 × (detection height + 8.6)		
Ambient Temperature	-10 ~ 55 °C, no freezing		
Ambient Humidity	30 ~ 85%, no condensation		
Storage Temperature	-25 ~ 60 °C		
Enclosure Rating	IP67		
Ambient Light Resistance	20,000 lux or less		
Vibration Resistance	10 ~ 55 Hz, 1.5 mm, 3 axes for 2 hours		
Shock Resistance	Max. 100 m / s ² , 3 times for 3 axes / 6 directions each		
Insulation Resistance	> 20 MΩ (500 V _{DC})		
Withstanding Voltage	1,000 V _{AC} , 50/60Hz, 1 min		
Materials	Case: aluminum alloy / Cover Lens: PMMA / Upper and Lower Case: zinc extrusion		
Cable	M12 connector and 200mm PVC cable		
Certification	CE		

AS-E Compact Area Sensor

Area Protection (Standard Type)

- **Compact Design:** 25 x 15mm with $\phi 30$ mm (hand-sized) detection capability
- **Allows Adjacent Installation:** with special designs, the light beams do not interfere with each other
- **Self-Diagnosis:** simultaneously conducts light beam scanning, voltage and channel diagnosis in each scanning cycle
- **High Compatibility:** PIN supports both NPN or PNP output to meet different market needs
- **Easy Wiring:** only contains 4 pins compared to the 6-9 pins of AS-B models
- **Flexible Installation:** supports front installation no additional brackets required



Object Measurement (Communication Type)

- **Ultra Slim:** 15 × 17 mm, only half the size of the AS-B model
- **Full Functionalities:** includes AS-E Standard Type features and supports RS-485 connection
- **Flexibility:** active upload function can be controlled via input PIN
- **Isochronous Data Upload:** proactively and automatically uploads channel status, combination data or channel energy value to the control system for immediate reaction
- **Easy-to-Align:** alignment indicators at the bottom show alignment status for quick installation
- **Low Energy Alert:** indicates smudge, misalignment, or replacement needed
- **Flexible Installation:** supports front/side installation without additional brackets, and includes a bracket for rear installation



Specifications

Models	AS-EH	
Beam Spacing (mm)	20	
Number of Beams	8 ~ 28	
Detection Height (mm)	Standard type: 140 ~ 540 / Communication type: 560	
Detection Distance (m)	Standard type: 0.6 ~ 4 / Communication type: 0.6 ~ 3.6	
Detection Capability (mm)	Opaque objects > $\phi 30$ mm	
Response Time (ms)	< 30 ms (ON to OFF < 17 ms)	
Light Source	Infrared (850 nm)	
Input Voltage	24V _{DC} \pm 10%	
Indicator	Standard type: <ul style="list-style-type: none"> • Green LED: All beams are aligned • Red LED: Any beam is misaligned or blocked • Red LED lights, Green LED flashes: Diagnostic anomaly detected 	Communication type: <ul style="list-style-type: none"> • Blue LED: The terminals in the end are aligned • Green LED: All beams are aligned • Red LED: Any beam is misaligned or blocked • Red LED lights, Green LED flashes: Diagnostic anomaly detected
Protection	Reverse voltage, output overcurrent, power supply surge, output surge	
Dimensions (mm)	Standard type: 25 × 15 × (detection height + 56) Communication type: 17 × 15 × (detection height + 40)	
Ambient Temperature	-10 ~ 55 °C, no freezing	
Ambient Humidity	35 ~ 85%, no condensation	
Storage Temperature	-20 ~ 60 °C	
Enclosure Rating	IP40	
Ambient Light Resistance	10,000 lux or less	
Vibration Resistance	10 ~ 55 Hz, 1.5 mm, 3 axes for 2 hours	
Shock Resistance	Max. 100 m / s ² , 3 times for 3 axes / 6 directions each	
Insulation Resistance	> 20 M Ω (500V _{DC})	
Withstanding Voltage	1,000 V _{AC} , 50/60 Hz, 1 min	
Materials	Case: aluminum alloy / Cover Lens: PMMA / Upper and Lower Case: PC + ABS	
Cable	150 mm PVC cable with a connector	
Certification	CE	

AS-T Outdoor Area Sensor

Area Protection (Standard Type)

- **Detection Capability:** detects hand-sized objects ($\phi 32.5\text{mm}$)
- **Allows Adjacent Installation:** with special designs, the light beams do not interfere with each other
- **Self-Diagnosis:** simultaneously conducts light beam scanning, voltage and channel diagnosis in each scanning cycle
- **Easy Installation:** the sensor bottom (non-wiring side) can be installed close to the surface for flexible installation
- **Robust Housing:** ball-impact tested to avoid damage to the cover
- **High Compatibility:** PIN supports both NPN or PNP output to meet different market needs
- **Easy Wiring:** only contains 4 pins compared to the 6-9 pins of AS-B models



Specifications

Models	AS-TH
Beam Spacing (mm)	26
Number of Beams	12 ~ 72
Detection Height (mm)	286 ~ 1,846
Detection Distance (m)	0.6 ~ 3.6
Detection Capability (mm)	Opaque objects > $\phi 32.5$ mm
Response Time (ms)	ON to OFF < 45 ms; OFF to ON < 90 ms
Light Source	Infrared (850 nm)
Input Voltage	24V _{DC} \pm 10%
Protection	Reverse voltage, output overcurrent, power supply surge, output surge
Dimensions (mm)	34 × 33 × (detection height + 62)
Ambient Temperature	-10 ~ 55 °C, no freezing
Ambient Humidity	35 ~ 85%, no condensation
Storage Temperature	-20 ~ 60 °C
Enclosure Rating	IP67
Ambient Light Resistance	10,000 lux or less
Vibration Resistance	10 ~ 55 Hz, 1.5 mm, 3 axes for 2 hours
Shock Resistance	Max. 100 m / s ² , 3 times for 3 axes / 6 directions each
Insulation Resistance	> 20 M Ω (500V _{DC})
Withstanding Voltage	1,000 V _{AC} , 50/60 Hz, 1 min
Materials	Case: aluminum alloy / Cover Lens: PC / Upper and Lower Case: aluminum alloy
Cable	250 mm PVC cable with an A-Type M8 connector
Certification	CE

Success Story 1

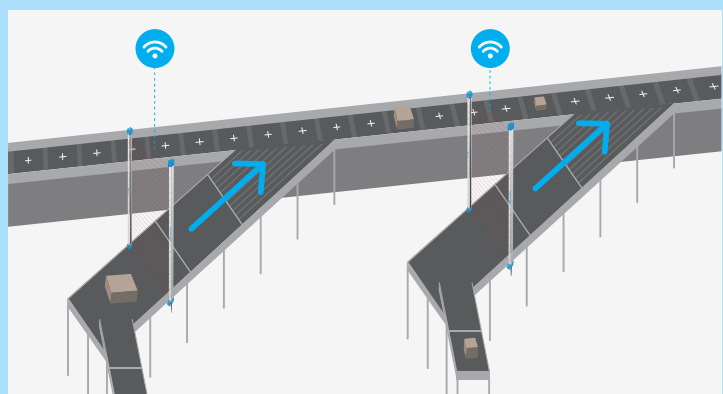
Accurate Positioning – The Key to Efficient Parcel Sorting and Dispatch



Large-scale e-commerce companies in China strive to enhance the efficiency of their cross belt sorter systems to speed up mass cargo dispatch. When parcels are fed onto the sorter system, it needs to calculate their center position instantly, and accurately deliver parcels to the center of the sorting tray to prevent them from dropping during high-speed transportation.

Delta's **Area Sensor AS-B/E Series** Communication Type are installed on the infeed conveyor to measure parcel size/shape on the belt by calculating blocked light beams, uploading the data to the control system, and generating the cross-section area and center position of parcels.

After obtaining the parcel data, the sorter system adjusts the belt speed to ensure parcels are delivered to the center of the sorting tray without dropping, achieving efficient sorting and dispatch of goods.



This cost-effective solution requires only one set of Delta Area Sensors to match constant-speed conveyor belts and upload data for generating the parcel cross-section area and center position.

Success Story 2

Real-Time Sensing – The Solution to Enhancing Sheet Metal Spraying Efficiency



In the traditional sheet metal painting process, the paint spraying area is preset and fixed. If the preset area is larger than the sheet metal, the paint can easily go to waste. If the preset area is smaller than the sheet metal, it will cause incomplete painting, affecting productivity and costs.

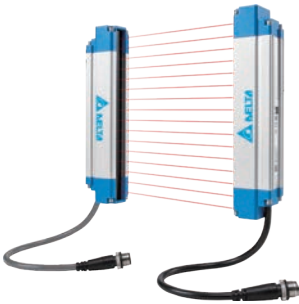


An European sheet metal manufacturer uses Delta's **Area Sensor AS-B Series** Communication Type to detect the sheet metal position on the conveyor belt. Operators do not have to constantly pay attention to adjusting the sheet metal to match the spraying area, which reduces costs, labor and time, and enhances operating efficiency.

The **AS-B Series** also can calculate the position, area, and width of sheet metal with the built-in algorithms based on the blocked light beams, and proactively upload the data to the controller to adjust the spraying area with the conveyor belt speed for optimal spraying operations.



- Easy installation without complex configurations
- Accurate real-time detection with built-in algorithms
- Enhances efficiency while saving materials costs

Ordering Information

Select Sensor Functions

Type / Model	Area Protection (Standard Type)		
	AS-B General	AS-E Compact	AS-T Outdoor
Detection Capability	Finger, hand, arm-sized	Hand-sized	Hand-sized
Anti-Interference	Lighting angle < 5°	Unique design	Unique design
Self-Diagnosis	●	●	●
Alignment Indicators	●		
Zero Dead Zone	●		● (Single side)
Drop Ball Tested	●		●
NPN/PNP	●	● (via I/O wiring)	● (via I/O wiring)
RS-485			
Data Upload			
Other Functions / Designs	IP67 protection	Bracket-free installation	IP67 protection
Product Image			

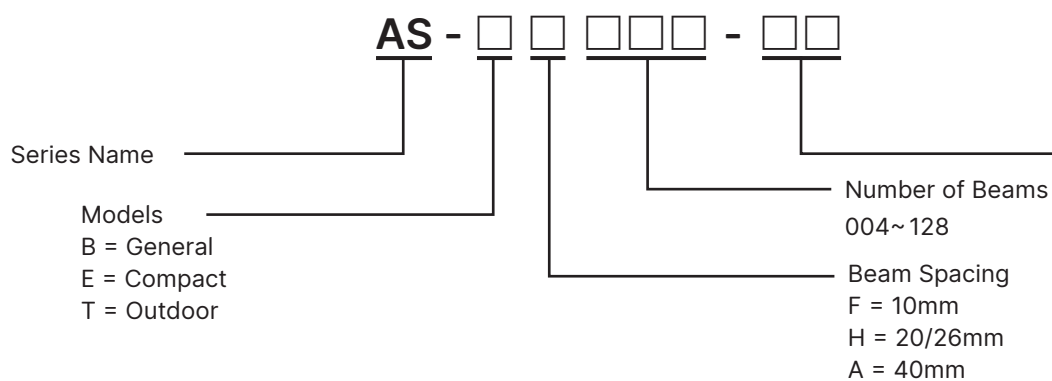


Object Measurement (Communication Type)	
AS-B General	AS-E Compact
Finger, hand, arm-sized	Hand-sized
Lighting angle < 5°	Unique design
●	●
●	●
●	
●	
● (via command setting)	● (via command setting)
●	●
●	●
<ul style="list-style-type: none"> Interlock and restart functions Supports fixed / floating blanking Indicator energy-saving mode Automatic object spacing measurement 	<ul style="list-style-type: none"> Supports front/side installation without additional brackets Alignment indicators for quick installation Low Energy Alert to indicate smudge, misalignment, or replacement needed
	

Select Detection Height

Detection Height	AS-B Standard Type / AS-B Communication Type		
	Beam Spacing 10mm	Beam Spacing 20mm	Beam Spacing 40mm
160mm	AS-BF016	AS-BH008	AS-BA004
240mm	AS-BF024	AS-BH012	AS-BA006
320mm	AS-BF032	AS-BH016	AS-BA008
400mm	AS-BF040	AS-BH020	AS-BA010
480mm	AS-BF048	AS-BH024	AS-BA012
560mm	AS-BF056	AS-BH028	AS-BA014
640mm	AS-BF064	AS-BH032	AS-BA016
720mm	AS-BF072	AS-BH036	AS-BA018
800mm	AS-BF080	AS-BH040	AS-BA020
880mm	AS-BF088	AS-BH044	AS-BA022
960mm	AS-BF096	AS-BH048	AS-BA024
1,040mm	AS-BF104	AS-BH052	AS-BA026
1,120mm	AS-BF112	AS-BH056	AS-BA028
1,200mm	AS-BF120	AS-BH060	AS-BA030
1,280mm	AS-BF128	AS-BH064	AS-BA032
1,360mm		AS-BH068	AS-BA034
1,440mm		AS-BH072	AS-BA036
1,520mm		AS-BH076	
1,600mm		AS-BH080	
1,680mm		AS-BH084	
1,760mm		AS-BH088	
1,840mm		AS-BH092	
1,920mm		AS-BH096	
Product Height	Detection Height + 8.6 mm		

Confirm Model Name





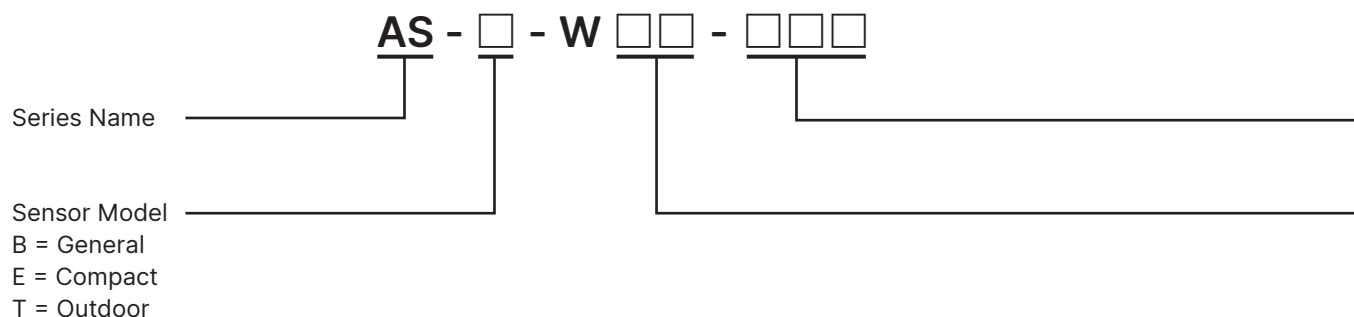
AS-E Standard Type	AS-E Communication Type	AS-T Standard Type	Detection Height
Beam Spacing 20mm	Beam Spacing 20mm	Beam Spacing 26mm	
AS-EH008			140mm
AS-EH012			220mm
		AS-TH012	286mm
AS-EH016			300mm
AS-EH020			380mm
AS-EH024			460mm
AS-EH028			540mm
	AS-EH028		560mm
		AS-TH024	598mm
		AS-TH036	910mm
		AS-TH048	1,222mm
		AS-TH060	1,534mm
		AS-TH072	1,846mm
Detection Height + 56 mm	Detection Height + 40 mm	Detection Height + 62 mm	Product Height

1. Please refer to the previous page to select necessary functions
2. The transmitter and receiver modules have to be purchased separately

Type / Model	Area Protection (Standard Type)			Object Measurement (Communication Type)	
	AS-B General	AS-E Compact	AS-T Outdoor	AS-B General	AS-E Compact
Transmitter	TX	TX	TX	TX	TC
Receiver	RX	NX	NX	CX	NC

Select Accessories

Ordering Information for Cables

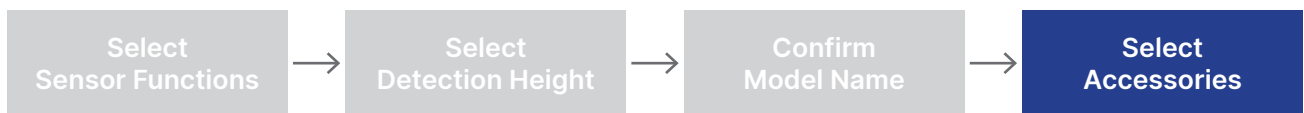


Cable (Please select cables based on sensor modules)

Type		Area Protection (Standard Type)				
Model		AS-B General		AS-E Compact		
Sensor Module		Transmitter (TX)	Receiver (RX)	Transmitter (TX)	Receiver (NX)	Transmit
Cable Length	2.5m	AS-B-WT025	AS-B-WR025	-	-	-
	3m / 3.5m	AS-B-WT035	AS-B-WR035	AS-E-WT030	AS-E-WR030	AS-T-W
	5m	AS-B-WT050	AS-B-WR050	AS-E-WT050	AS-E-WR050	AS-T-W
	10m	AS-B-WT100	AS-B-WR100	AS-E-WT100	AS-E-WR100	AS-T-W

Bracket (Please select brackets based on sensor modules)

Sensor Model		
Bracket Model	AS-B-BK01	AS-B-BK02
		



Cable Length

025 = 2.5m | 030 = 3m | 035 = 3.5m | 050 = 5m | 100 = 10m

Sensor Module Cable

T = Transmitter Cable B/E/T Standard Type (TX)



TC = Transmitter Cable E Communication Type (TC)

R = Receiver Cable B/E/T Standard Type (RX/NX)

RC = Receiver Cable E Communication Type (NC)

C = Receiver Cable B Communication Type (CX)

		Object Measurement (Communication Type)			
AS-T Outdoor		AS-B General		AS-E Compact	
Transmitter (TX)	Receiver (NX)	Transmitter (TX)	Receiver (CX)	Transmitter (TC)	Receiver (NC)
	-	AS-B-WT025	AS-B-WC025	-	-
AS-T-WT030	AS-T-WR030	AS-B-WT035	AS-B-WC035	AS-E-WTC030	AS-E-WRC030
AS-T-WT050	AS-T-WR050	AS-B-WT050	AS-B-WC050	AS-E-WTC050	AS-E-WRC050
AS-T-WT100	AS-T-WR100	AS-B-WT100	AS-B-WC100	AS-E-WTC100	AS-E-WRC100

AS-B General	
AS-B-BK03	AS-B-BK04
	



Smarter. Greener. Together.

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