

SZ-V04

Multi-function type Standard

*Please note that accessories depicted in the image are for illustrative purposes only and may not be included with the product.

Specifications

Model				SZ-V04 *1
Type				Multi-function Type
Detection capability	Minimum detectable object size			Diameter 20, 30, 40, 50, 70, 150 mm 0.79", 1.18", 1.57", 1.97", 2.76", 5.91" (depends on the setting) Reflectance 1.8% min., Speed 1.6 m/s 5.25 ft/s max. *2
	Detectable angle			190° (-5° to 185°)
	Response time (ON to OFF)	Standard Mode	Scan Cycle A	160 ms (2scans) to 1280 ms (16scans) *3 *4
			Scan Cycle B	168 ms (2scans) to 1344 ms (16scans) *3 *4
			Scan Cycle C	176 ms (2scans) to 1408 ms (16scans) *3 *4
		High Speed Mode	Scan Cycle A	80 ms (2scans) to 640 ms (16scans) *3 *4
			Scan Cycle B	84 ms (2scans) to 672 ms (16scans) *3 *4
			Scan Cycle C	88 ms (2scans) to 704 ms (16scans) *3 *4
	Response time (OFF to ON)			Response time (ON to OFF) + 150 ms
	Protection zone	Minimum detectable object size: 70 / 150 mm 2.76" / 5.91"		8.4 m 27.56' (Standard Mode) 5.7 m 18.70' (High Speed Mode)
		Minimum detectable object size: 50 mm 1.97"		5.6 m 18.37' (Standard Mode) 3.8 m 12.47' (High Speed Mode)
		Minimum detectable object size: 40 mm 1.57"		4.3 m 14.11' (Standard Mode) 2.9 m 9.51' (High Speed Mode)
		Minimum detectable object size: 30 mm 1.18"		2.9 m 9.51' (Standard Mode) 2.0 m 6.56' (High Speed Mode)
		Minimum detectable object size: 20 mm 0.79"		1.6 m 5.25' (Standard Mode) 1.1 m 3.61' (High Speed Mode)
	Warning zone	Minimum detectable object size: 70 / 150 mm 2.76" / 5.91"		26 m 85.30' (Standard Mode) 23 m 75.46' (High Speed Mode) *5
		Minimum detectable object size: 50 mm 1.97"		25 m 82.02' (Standard Mode) 21 m 68.90' (High Speed Mode) *5
		Minimum detectable object size: 40 mm 1.57"		24 m 78.74' (Standard Mode) 20 m 65.62' (High Speed Mode) *5
		Minimum detectable object size: 30 mm 1.18"		23 m 75.46' (Standard Mode) 18 m 59.06' (High Speed Mode) *5
		Minimum detectable object size: 20 mm 0.79"		21 m 68.90' (Standard Mode) 15 m 49.21' (High Speed Mode) *5
	Additional safety distance			100 mm 3.94" *6
	Maximum measurement distance			60 m 196.85' *7
Maximum number of banks				Max. 4 banks
Multiple scanner heads				Max. 3 scanner heads
Camera monitoring area				Monitor area: over 190° (-5° to 185°) *8
Display				QVGA 2.2inch color LCD
Light source	Type, wavelength			Infrared laser diode, 905 nm

	Laser Class	IEC	Class1 IEC/EN60825-1
		FDA	Class1 FDA 21CFR 1040.10, 1040.11 (Laser Notice) *9
		JIS	Class1 JIS C6802
Control output (OSSD)	Output		Transistor outputs (NPN or PNP is selected in the software)
	Number of outputs		4 outputs
	Max. load current		500 mA *10
	Residual voltage (during ON)		Max. 2.5 V (with a cable length of 5 m 16.40')
	OFF-state voltage		Max. 2.0 V (with a cable length of 5 m 16.40')
	Leakage current		Max. 1 mA *11
	Max. capacitive load		2.2 µF (with a load resistance of 100 Ω)
	Load wiring resistance		Max. 2.5 Ω
Inputs	PNP		ON-voltage: 10 to 30 V, OFF-voltage: Open or 0 to 3 V, Short-circuit current: Approx. 2.5 mA (Approx. 10 mA for EDM)
	NPN		ON-voltage: 0 to 3 V, OFF-voltage: Open or 10 V to Power voltage, Short-circuit current: Approx. 2.5 mA (Approx. 10 mA for EDM)
Non-safety related output (AUX output)	Output type		Transistor outputs (NPN or PNP is selected by the dedicated PC software)
	Number of outputs		6 outputs
	Max. load current		Max. 50 mA
	Residual voltage (during ON)		Max. 2.5 V (with a cable length of 5 m 16.40')
	Muting lamp		Incandescent lamp (24 VDC, 1 to 5.5 W) or LED lamp (load current: 10 to 230 mA) can be connected
Interface	USB		USB2.0
	Ethernet	Standard	-
		Transmission rate	
		Cable	
		Connector	
Network function			
Cable length	Power and I/O cable		30 m 98.43' or less *12
	Between scanner head and display unitc		20 m 65.62' or less each *13
	Ethernet cable		-
Approved standards	EMC	EMS	IEC61496-1, EN61496-1, UL61496-1 (Type 3 ESPE)
		EMI	EN55011 ClassA, FCC Part15B ClassA, ICES-003 ClassA
	Safety		IEC61496-1, EN61496-1, UL61496-1 (Type 3 ESPE), IEC61496-3, EN61496-3 (Type 3 AOPDDR), IEC61508, EN61508, EN ISO13849-1, 2015 (PLd, Category3), UL508, UL1998, CSA C22.2 No.14, CSA C22.2 No.0.8
Rating	Power consumption		11.8 W (without load), 55.0 W (with load) *14
	Power voltage		24 VDC ±10% (Ripple P-P 10% or less): When using a converter power supply, 24 VDC +20%/-30%: When using a battery
Environmental resistance	Enclosure rating		IP65(IEC60529)
	Ambient light		Incandescent lamp: 1500 lux or less *15
	Operating ambient temperature		-10 to +50°C 14 to 122°F (No freezing)
	Operating relative humidity		35% to 85% RH (No condensation)
	Storage temperature		-25 to +60°C -13 to +140°F (No freezing)
	Storage relative humidity		35% to 95% RH
	Vibration resistance		10 to 55 Hz, 0.7 mm 0.03" compound amplitude, 20 sweeps each in X, Y, and Z directions
	Shock resistance		100 m/s² 328.08 ft/s² (Approx. 10 G) 16 ms pulse, in X, Y, Z directions 1000 times each axis
Material	Scanner head	Main unit case	Magnesium
		Window	Polycarbonate, PEI

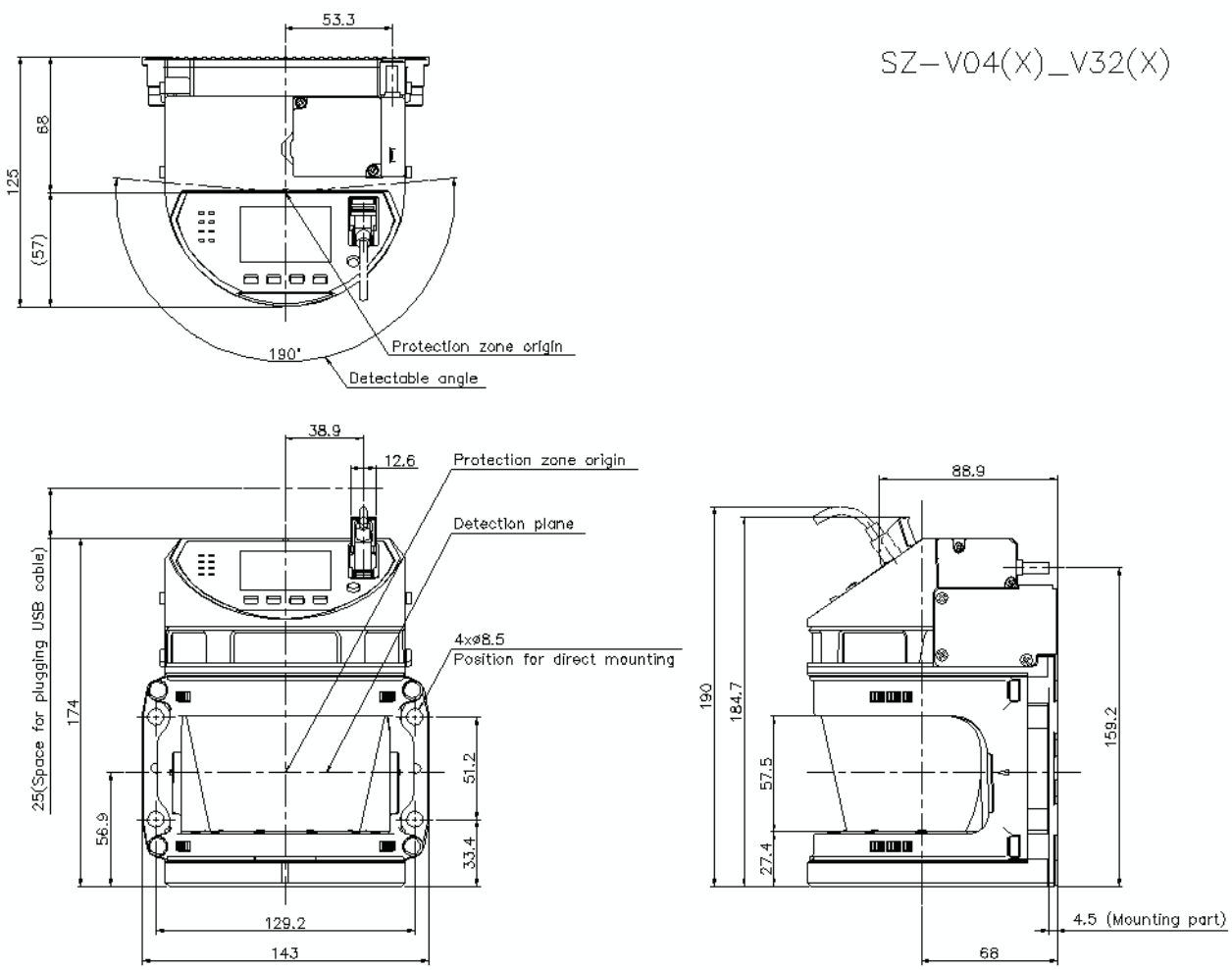
		Indicator part	Aluminum, PES
	Display unit	Case	Magnesium, PPS, Polycarbonate
	System memory		Aluminum, PPE
Weight			Approx. 2100 g

*1 Integrated models include display unit, scanner head, system memory and a connection cable (SZ-VS005).
*2 If the object to be detected moves parallel to the detection plane, SZ-V cannot detect the object moving at speed over 1.6 m/s 5.25 ft/s, regardless of the encoder setting.
*3 The response time, protection zone, and warning zone are affected by the operation mode.
*4 When using PROFIsafe, 6 ms is added to the response time. When using CIP Safety, 10ms is added to the response time.
*5 20% or more reflectance is necessary for the minimum detectable object in the warning zone.
*6 If there is a highly reflective background within 1.5 m 4.92' from the boundary of the protection zone, 200 mm 7.87" must be added as supplementary necessary distance to the protection zone when calculating the minimum safety distance.
*7 Even when using the network data output, the maximum measured output distance is 60 m 196.85'.
*8 Only applicable for the type with a camera.
*9 The laser classification for FDA (CDRH) is implemented based on IEC60825-1 in accordance with the requirements of Laser Notice.
*10 For the SZ-V04 type and the SZ-V32 type, the load current calculation of the OSSD output and AUX output is 1.5 A or less when using one scanner head, 1.0 A or less when using two scanner heads, and 0.5 A or less when using three scanner heads. For the SZ-V32N type, the load current calculation of the OSSD output and AUX output is 1.2 A or less when using one scanner head, 0.8 A or less when using two scanner heads, and 0.3 A or less when using three scanner heads.
*11 Includes when the power is OFF.
*12 10 m 32.81' or less when supplying power from a battery.
*13 When supplying power from a battery, the length of each connection cable should be 10 m 32.81' or less when using two scanner heads, and 5 m 16.40' or less when using three scanner heads.
*14 When using the SZ-V with series connected sensor heads, it is necessary to add 9.4 W per scanner head. Also, power consumption may temporarily be higher (maximum 3.6 W). Power consumption will be within the specification after SZ-V moves to normal operation.
*15 An ambient light source should not be located within ±5° of the detection plane.

Dimensions

* Download CAD file or product manual for larger image/text and more detail.

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