

SZ-04M

Main Unit, Multi-function Type

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

Specifications

Model			SZ-04M
Type			Multi-function type
Detection capability	Minimum detectable object size		Diameter 30 mm 1.18"/40 mm 1.58", 50 mm 1.97", 70 mm 2.76", 150 mm 5.91" (depends on the setting) Reflectance 1.8% min., Speed 1.6 m/s 5.25 ft/s max.
	Detectable angle		270° (-45° to 225°)
	Response time (ON to OFF)	General scan cycle (Scan cycle A)	60 ms (2 scans) to 480 ms (16 scans)
		Specific scan cycle (Scan cycle B)	66 ms (2 scans) to 528 ms (16 scans)
	Response time (OFF to ON)	General scan cycle (Scan cycle A)	Response time of ON to OFF +125 ms
		Specific scan cycle (Scan cycle B)	
	Max. protection zone	Minimum detectable object size: 70 mm 2.76"/150 mm 5.91"	4.2 m 13.78' (-5° to 185°), 2.8 m 9.19' (-45° to -5°, 185° to 225°)
		Minimum detectable object size: 50 mm 1.97"	3.0 m 9.84' (-5° to 185°), 2.0 m 6.56' (-45° to -5°, 185° to 225°)
		Minimum detectable object size: 40 mm 1.58"	2.4 m 7.87' (-5° to 185°), 1.6 m 5.25' (-45° to -5°, 185° to 225°)
		Minimum detectable object size: 30 mm 1.18"	1.8 m 5.91' (-5° to 185°), 1.2 m 3.94' (-45° to -5°, 185° to 225°)
	Max. warning zone (non safety related)	Minimum detectable object size: 70 mm 2.76"/150 mm 5.91"	10.0 m 32.18' (-5° to 185°), 7.0 m 22.97' (-45° to -5°, 185° to 225°)*1
		Minimum detectable object size: 50 mm 1.97"	7.5 m 24.61' (-5° to 185°), 5.0 m 16.4' (-45° to -5°, 185° to 225°)*1
		Minimum detectable object size: 40 mm 1.58"	6.0 m 19.69' (-5° to 185°), 4.0 m 13.12' (-45° to -5°, 185° to 225°)*1
		Minimum detectable object size: 30 mm 1.18"	4.5 m 14.76' (-5° to 185°), 3.0 m 9.84' (-45° to -5°, 185° to 225°)*1
	Additional safety distance		100 mm 3.94"*2
Light source	Type, wavelength		Infrared laser diode, 905 nm
	Laser class		Class 1 Laser Product (IEC 60825-1, FDA (CDRH) Part 1040.10 *3)
OSSD output	Output		PNP or NPN (Selectable according to the connector cable) 4 outputs

	Max. load current		500 mA*4
	Residual voltage (during ON)		Max. 2.5 V (with a cable length of 5 m 16.4')
	OFF-state voltage		Max. 2.0 V (with a cable length of 5 m 16.4')
	Leakage current		Max. 1 mA*5
	Max. capacitive load		2.2 µF (with a load resistance of 100Ω)
	Load wiring resistance		Max. 2.5Ω*6
Input (safety-related)	Input resistance		4.4 kΩ (for Input 1, 3, 4, and 5) 2.2 kΩ (for Input 2 and 6)
Non safety-related output (AUX output)	Output		PNP/NPN totem pole output 6 outputs
	Max. load current		50 mA
	Residual voltage (during ON)		Max. 2.5 V (with a cable length of 5 m 16.4')
Muting lamp output	(AUX6 output can be assigned for the muting lamp output)		Can be connected to the incandescent lamp (24 V DC, 1 to 5.5 W) and LED lamp (load current 10 to 230 mA)
Cable length			30 m 98.43' or less *7
Approved standards	EMC	EMS	IEC61496-1, EN61496-1, UL 61496-1
		EMI	EN55011 Class A, FCC Part15B Class A
	Safety		IEC61496-1, EN61496-1, UL 61496-1 (Type 3 ESPE), IEC61496-3, EN61496-3 (Type 3 AOPDDR) IEC61508, EN61508, IEC62061, EN62061 (SIL2), EN ISO13849-1:2015 (PL d, Category 3) UL508, UL1998
Rating	Power voltage		When using a converter power supply: 24 VDC ±10 %, Ripple (P-P) 10 % or less When using a battery: 24 VDC +20 %/-30 %
	Power consumption		Max. 9.5 W (without load) Max. 50 W (with load)
Environmental resistance	Enclosure rating		IP65 (IEC60529)*8
	Ambient light		Incandescent lamp: 1,500 lux or less*9
	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, Double amplitude 0.7 mm 0.03", 20 sweeps in each of the X, Y, and Z directions
	Shock resistance		100 m/s² (Approx. 10 G), 16 ms pulse, 1,000 times in each of the X, Y, and Z directions
Material	Main unit case		Aluminum die casting, SPHC (Bottom)
	Window		Polycarbonate
Weight			Approx. 1.6 kg

*1 20% or more reflectance is necessary for the minimum detectable object in the warning zone.
*2 If there is a high reflective background within 1.5 m 4.921' from the boundary of the protection zone, 200 mm 7.87" must be added as supplementary necessary distance to the protection zone in case of calculation of the minimum safety distance.
*3 The laser classification for FDA (CDRH) is implemented based on IEC60825-1 in accordance with the requirements of Laser Notice.
*4 For the load current calculation of the OSSD output and the AUX output, make sure it is 1.5 A or less when using converter power supply (or 1.0 A or less when the cable length is 25 m 82.02' or more),
and 1.0 A or less when using a battery (or 0.5 A or less when the cable length is 5 m 16.40' or more)
*5 This also takes into account the situations when power is either off or disconnected.
*6 The wiring resistance between the OSSD output and the connected equipment (excluding the resistance of the cable) must be 2.5 Ω or less to ensure operation. However, it must be 1.0 Ω or less if the load current is 300 mA or more.
*7 It must be 10 m 32.81' or less if the power is supplied by battery.
*8 When the setting cover is open, or the connector cable is not connected, the IP65 certification cannot be met. In addition, the SZ-16D doesn't fulfill the requirements of IP65 degree of protection with the connector cable for the RS-422A communication unattached..

*9 The SZ should not be installed so as to have light interference within ±5° to the detection plane.

Dimensions

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

■ SZ-01S/SZ-04M/SZ-16V

