



SH/TH

SAFETY DEVICE



- M18 Models 10 m (axial optic) and 5 m (radial optic) operating distance
- M30 models 60 m operating distance
- EN50100 Category 2 and Category 4 compliant

- LED indicators
- Plastic and Metal Housing
- Inputs and Outputs IEC61131-2 compliant and adaptable with any safety module
- To be used together with a Category 2 or Category 4 safety control unit to obtain a safety system EN ISO 13849 compliant



CODE DESCRIPTION

SH 2 / E - 0 E - IC

series	SH	M18 safety photocell							
	TH	M30 safety photocell							
type	2	Type 2, 123 kHz modulation							
	6	Type 4, 123 kHz modulation							
	4	Type 4, 123 kHz modulation							
model	E	Emitter unit							
	R	Receiver unit							
housing	0	Plastic housing, axial emission							
	1	Metal housing, axial emission							
	2	Plastic housing, radial emission							
	3	Metal housing, radial emission							
output connection	K	M2 radial connector output							
	E	M12 connector output							
logic	IA	Emitter Test Input Logic L = light H = dark, Receiver Output Logic: L = light, H = dark							
	IC	Emitter Test Input Logic H = light L = dark, Receiver Output Logic: H = light, L = dark							

SH/TH TECHNICAL SPECIFICATIONS

SAFETY SENSORS

	SH2/E-**IC		SH2/R-**IC	
	SAFETY TYPE 2			
GENERAL DATA				
Operating principle	Emitter		Receiver	
DETECTION CAPABILITIES				
Nominal sensing distance	0 ... 10 m			
Controlled height	Single-beam			
Thermal drift	≤ 10% Sr			
EMISSION DATA				
Emission	Red			
Effective beam angle	≤ ±5 ° (SH2/*-**IC)			
SAFETY PARAMETERS				
Type	2 (IEC 61496)			
PL	c (EN ISO 13849)			
PFHd	1 x 10 ⁻⁶			
INPUT/OUTPUT				
Output type			Totem-pole	
HMI/UI				
LED indicators	Yellow (power)		Yellow (alignement)	
ELECTRICAL DATA				
Supply voltage	10 ... 30 Vdc			
Maximum residual ripple	5%			
Maximum No-load absorption	25mA			
Maximum DC output voltage drop			2.5 V @ IL=50mA	
Maximum DC output voltage drop			70 mA	
MECHANICAL DATA				
Dimensions	M18x1 / L=98 mm			
Diameter / Dimensions	M18			
Housing material	PBT, Metal			
Active part material	Glass			
ENVIRONMENTAL DATA				
Operating Temperature	-20 ... 55 °C (without freeze)			
Mechanical Protection	IP67			
Storage temperature max.	-40 ... 75 °C			
Shocks and vibrations	IEC60068-2-6			
Humidity	15 ... 95 % no condensation			

TECHNICAL SPECIFICATIONS

	SH4/E-***IA	SH4/E-***IC	SH4/R-***IA	SH4/R-***IC
	SAFETY TYPE 4			
GENERAL DATA				
Operating principle	Emitter		Receiver	
Control units to be used	SBCR03 Series		SBCR03 Series	
DETECTION CAPABILITIES				
Nominal sensing distance			0 ... 10 m	
Controlled height			Single-beam	
Thermal drift			≤ 10% Sr	
EMISSION DATA				
Emission	Red			
Effective beam angle			≤ ±2.5 ° (SH4/*-*EI*)	
SAFETY PARAMETERS				
Type			4 (IEC 61496)	
PL			e (EN ISO 13849)	
PFHd			8.1 x 10-10	
INPUT/OUTPUT				
Output type			Totem-pole	
Output function			To be connected to SBCR03	
HMI/UI				
LED indicators	Yellow (power)		Yellow (alignment)	
ELECTRICAL DATA				
Supply voltage			10 ... 30 Vdc	
Maximum residual ripple			5%	
Maximum No-load absorption			25mA	
Maximum DC output voltage drop			2.5 V @ IL=50mA	
Maximum DC output voltage drop			70 mA	
MECHANICAL DATA				
Dimensions			M18x1 / L=98 mm	
Diameter / Dimensions			M18	
Housing material			PBT, Metal	
Active part material			Glass	
ENVIRONMENTAL DATA				
Operating Temperature			-20 ... 55 °C (without freeze)	
Mechanical Protection			IP67	
Storage temperature max.			-40 ... 75 °C	
Shocks and vibrations			IEC60068-2-6	
Humidity			15 ... 95 % no condensation	

TECHNICAL SPECIFICATIONS

	TH2/E-KIC	TH2/R-KIC
	SAFETY TYPE 4 	
GENERAL DATA		
Operating principle	Emitter	Receiver
DETECTION CAPABILITIES		
Nominal sensing distance	0 ... 60 m	
Controlled height	Single-beam	
Thermal drift	≤ 10% Sr	
EMISSION DATA		
Emission	Red	
Effective beam angle	≤ ±5 ° (TH2/*-KIC)	
SAFETY PARAMETERS		
Type	2 (IEC 61496)	
PL	c (EN ISO 13849)	
PFHd	1 x 10 ⁻⁶	
INPUT/OUTPUT		
Output type		Totem-pole
HMI/UI		
LED indicators	Yellow (power)	Yellow (alignement)
ELECTRICAL DATA		
Supply voltage	10 ... 30 Vdc	
Maximum residual ripple	5%	
Maximum No-load absorption	25mA	
Maximum DC output voltage drop		2.5 V @ IL=50mA
Maximum DC output voltage drop		70 mA
MECHANICAL DATA		
Dimensions	M30x1.5 / L=100 mm	
Diameter / Dimensions	M30	
Housing material	Metal	
Active part material	Glass	
Optical location	Axial	
ENVIRONMENTAL DATA		
Operating Temperature	-20 ... 55 °C (without freeze)	
Mechanical Protection	IP67	
Storage temperature max.	-40 ... 75 °C	
Shocks and vibrations	IEC60068-2-6	
Humidity	15 ... 95 % no condensation	

TECHNICAL SPECIFICATIONS

	TH6/E-KIA	TH6/E-KIC	TH6/R-KIA	TH6/R-KIC
SAFETY TYPE 4 				
GENERAL DATA				
Operating principle	Emitter		Receiver	
Control units to be used	SBCR03 Series		SBCR03 Series	
DETECTION CAPABILITIES				
Nominal sensing distance	0 ... 60 m			
Controlled height	Single-beam			
Thermal drift	≤ 10% Sr			
EMISSION DATA				
Emission	Red			
Effective beam angle	≤ ±2.5 ° (TH6/*-KI*)			
SAFETY PARAMETERS				
Type	4 (IEC 61496)			
Pl	e (EN ISO 13849)			
PFHd	8.1 x 10-10			
INPUT/OUTPUT				
Output type			Totem-pole	
Output function			To be connected to SBCR03	
HMI/UI				
LED indicators	Yellow (power)		Yellow (alignment)	
ELECTRICAL DATA				
Supply voltage	10 ... 30 Vdc			
Maximum residual ripple	5%			
Maximum No-load absorption	25mA			
Maximum DC output voltage drop			2.5 V @ IL=50mA	
Maximum DC output voltage drop			70 mA	
MECHANICAL DATA				
Dimensions	M30x1.5 / L=100 mm			
Diameter / Dimensions	M30			
Housing material	Metal			
Active part material	Glass			
Optical location	Axial			
ENVIRONMENTAL DATA				
Operating Temperature	-20 ... 55 °C (without freeze)			
Mechanical Protection	IP67			
Storage temperature max.	-40 ... 75 °C			
Shocks and vibrations	IEC60068-2-6			
Humidity	15 ... 95 % no condensation			

SH/TH AVAILABLE MODELS

SAFETY SENSORS

Diameter / Dimensions	Type	Operating principle	Nominal sensing distance	Housing material	Model		
M18	2	Emitter	Red Emitter 0 ... 10 m	PBT	SH2/E-0EIC		
					SH2/E-0KIC		
				Metal	SH2/E-2EIC		
					SH2/E-1EIC		
					SH2/E-1KIC		
					SH2/E-3EIC		
		Receiver	Receiver 0 ... 10 m	PBT	SH2/R-0EIC		
					SH2/R-0KIC		
				Metal	SH2/R-2EIC		
					SH2/R-1EIC		
					SH2/R-1KIC		
					SH2/R-3EIC		
	4	Emitter	Red Emitter 0 ... 10 m	PBT	SH4/E-0EIA		
						SH4/E-0KIA	
						SH4/E-2EIA	
						SH4/E-0EIC	
				Metal	SH4/E-2EIC		
					SH4/E-1EIA		
					SH4/E-1KIA		
					SH4/E-1EIC		
		SH4/E-3EIC	Receiver	Receiver 0 ... 10 m	PBT	SH4/R-0EIA	
							SH4/R-0KIA
							SH4/R-2EIA
							SH4/R-0EIC
SH4/R-2EIC	SH4/R-1EIA						
		SH4/R-1KIA					
		SH4/R-1EIC					
		SH4/R-3EIC					
M30	2	Emitter	Red Emitter 0 ... 60 m	Metal	TH2/E-KIC		
		Receiver	Receiver 0 ... 60 m		TH2/R-KIC		
	4	Emitter	Red Emitter 0 ... 60 m		TH6/E-KIA		
		Receiver	Receiver 0 ... 60 m		TH6/E-KIC		
					TH6/R-KIA		
					TH6/R-KIC		

CONNECTIONS

SH*/E-****, TH*/E-***

1	Brown	10...30 Vdc
2		n.c.
3	Blue	
4	Black	Test

SH*/R-****, TH*/R-***

1	Brown	10...30 Vdc
2		n.c.
3	Blue	
4	Black	Output

MECHANICAL DRAWINGS

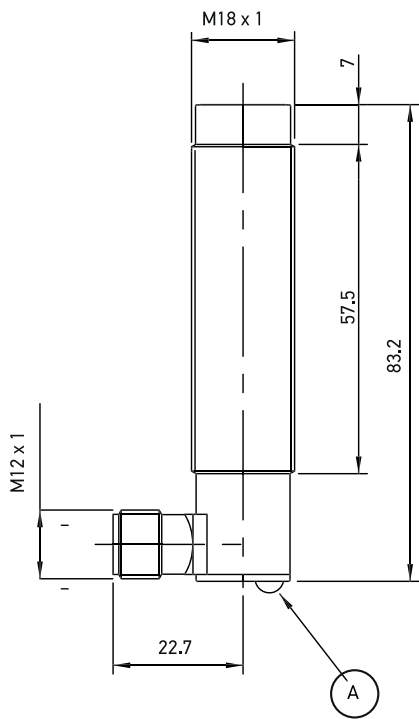
SH*/*-0E**

(mm)

SH*/*-1E**

(mm)

SH*/*-0K**



(mm)

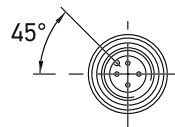
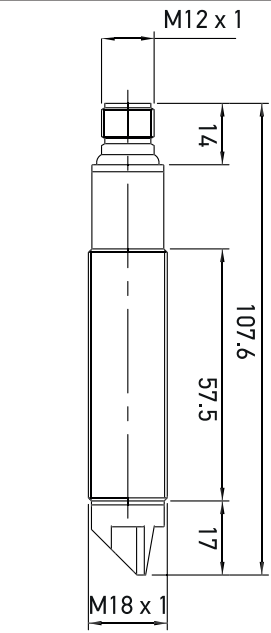
Models

SH*/*-0K**

A

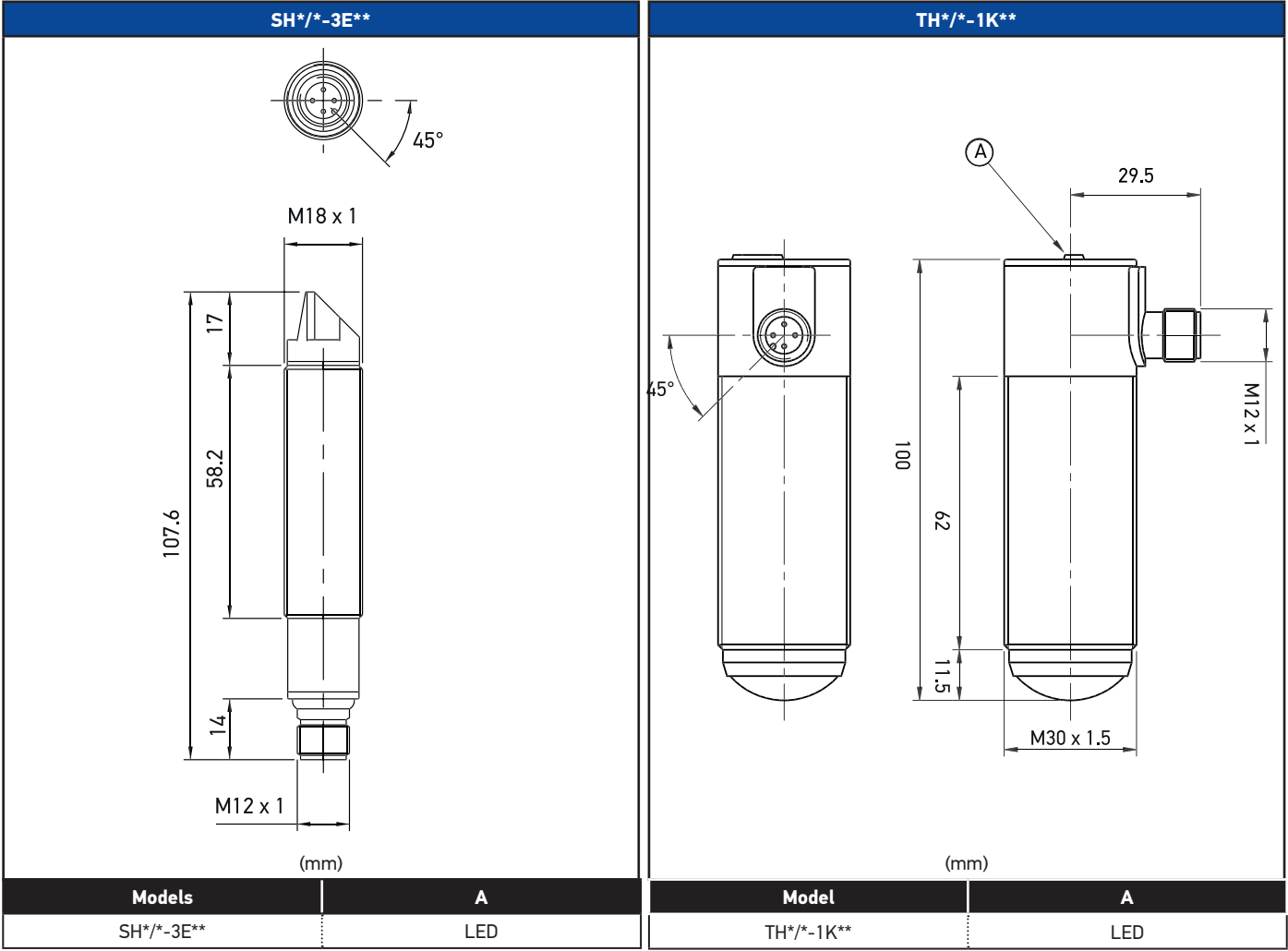
LED

SH*/*-2E**



(mm)

MECHANICAL DRAWINGS



SH/TH

SAFETY SENSORS

ACCESSORIES TO BE ORDERED SEPARATELY

	Model	Description	Article code
Cables	CD12M/0B-050C5	Connect.M12-F,4 poles-5m,PUR,90°	CD12M/0B-050C5
	CD12M/0B-070A1	Connect.M12-F,4 poles-7m,PVC,Axial	CD12M/0B-070A1
	CD12M/0B-070C1	Connect.M12-F,4 poles-7m,PVC,90°	CD12M/0B-070C1
	CD12M/0B-100A1	Connect.M12-F,4 poles-10m,PVC,Axial	CD12M/0B-100A1
	CD12M/0B-100A5	Connect.M12-F,4 poles-10m,PUR,Axial	CD12M/0B-100A5
	CD12M/0B-100C1	Connect.M12-F,4 poles-10m,PVC,90°	CD12M/0B-100C1
	CD12M/0B-100C5	Connect.M12-F,4 poles-10m,PUR,90°	CD12M/0B-100C5
	CD12M/0B-150A1	Connect.M12-F,4 poles-15m,PVC,Axial	CD12M/0B-150A1
	CD12M/0B-150C1	Connect.M12-F,4 poles-15m,PVC,90°	CD12M/0B-150C1
	CD12M/0B-200A1	Connect.M12-F,4 poles-20m,PVC,Axial	CD12M/0B-200A1
	CD12M/0B-200C1	Connect.M12-F,4 poles-20m,PVC,90°	CD12M/0B-200C1
	CD12M/0B-050B1	Connector Male M12 Axial 4 poles cable PVC 5 m	CD12M/0B-050B1
	CD12M/0B-100B1	Connector Male M12 Axial 4 poles cable PVC 10 m	CD12M/0B-100B1
	CD12M/AA-020A1	Connect.M12-F,3 poles-2m,PVC,Axial	CD12M/AA-020A1
	CD12M/AA-020C1	Connect.M12-F,3 poles-2m,PVC,90°	CD12M/AA-020C1
	CD12M/AA-050A1	Connect.M12-F,3 poles-5m,PVC,Axial	CD12M/AA-050A1
	CD12M/AA-050C1	Connect.M12-F,3 poles-5m,PVC,90°	CD12M/AA-050C1
	CD12M/AA-070A1	Connect.M12-F,3 poles-7m,PVC,Axial	CD12M/AA-070A1
	CD12M/AA-070C1	Connect.M12-F,3 poles-7m,PVC,90°	CD12M/AA-070C1
	CD12M/AA-100A1	Connect.M12-F,3 poles-10m,PVC,Axial	CD12M/AA-100A1
	CD12M/AA-100C1	Connect.M12-F,3 poles-10m,PVC,90°	CD12M/AA-100C1
	CD12M/AA-150A1	Connect.M12-F,3 poles-15m,PVC,Axial	CD12M/AA-150A1
	CD12M/AA-150C1	Connect.M12-F,3 poles-15m,PVC,90°	CD12M/AA-150C1
	CD12M/AA-200C1	Connect.M12-F,3 poles-20m,PVC,90°	CD12M/AA-200C1
	CD12M/0B-020A1	Connect.M12-F,4 poles-2m,PVC,Axial	CD12M/0B-020A1
	CD12M/0B-020A5	Connect.M12-F,4 poles-2m,PUR,Axial	CD12M/0B-020A5
	CD12M/0B-020C1	Connect.M12-F,4 poles-2m,PVC,90°	CD12M/0B-020C1
	CD12M/0B-020C5	Connect.M12-F,4 poles-2m,PUR,90°	CD12M/0B-020C5
	CD12M/0B-050A1	Connect.M12-F,4 poles-5m,PVC,Axial	CD12M/0B-050A1
	CD12M/0B-050A5	Connect.M12-F,4 poles-5m,PUR,Axial	CD12M/0B-050A5
	CD12M/0B-050C1	Connect.M12-F,4 poles-5m,PVC,90°	CD12M/0B-050C1
Mounting brackets	ST 18-A	Bracket M18 axial	ST 18-A
	ST 18-A7W	Bracket M18 axial AISI316L	ST 18-A7W
	ST 18-C	Bracket M18 90°	ST 18-C
	ST 18-C7W	Bracket M18 90° AISI316L	ST 18-C7W
	ST 18-V	Vertical fixing bracket	ST 18-V

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