

SMT1 safety light curtain



- High safety performance
- Abundant status indications
- Strong anti-interference ability
- Easy installation
- High protection level



<http://www.sdkeli.com>

product description

The SMT1 safety light curtain has passed TÜV safety certification, and the safety level reaches Type 4, PL e, Compatible with two communication modes: optical synchronization and line synchronization, compact size, exquisite appearance and excellent performance

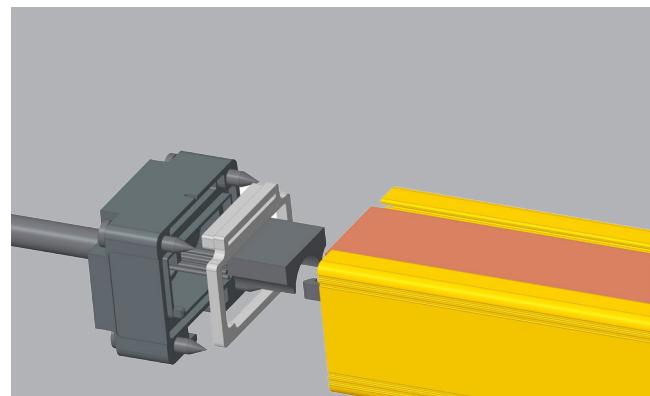
It is suitable for the field of automation, mechanical presses, hydraulic presses, shears, bending machines, etc.

Features

- High safety performance, passed TÜV 4 safety certification, performance reached PL e;
- Two synchronization methods, optical synchronization and line synchronization, simplify wiring and improve installation efficiency;
- Abundant status indications, the end cap indicator light can clearly identify the working status of the grating from a long distance;
- Small size, exquisite structure, flexible installation methods;
- Large protection height, up to 2872mm, and stable beam distance greater than 15m;
- Unique internal vibration damping design, good vibration resistance;
- High protection level: IP65/IP67 protection level;
- Strong anti-light interference and electromagnetic interference ability, more stable performance.



High protection level
IP65/IP67



Internal damping design
Better vibration resistance

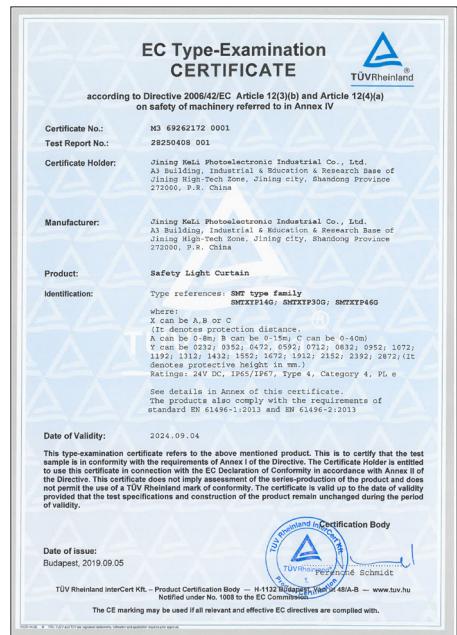
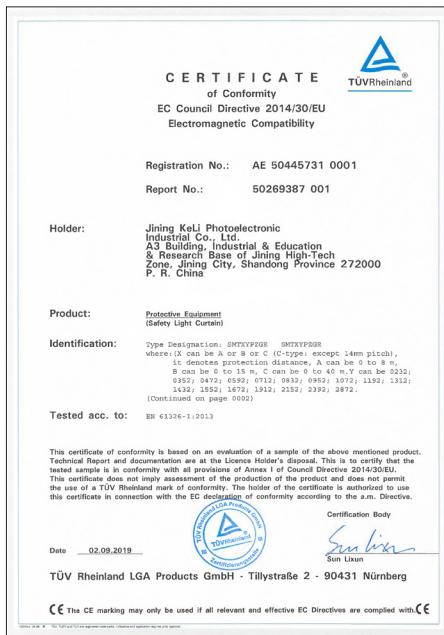
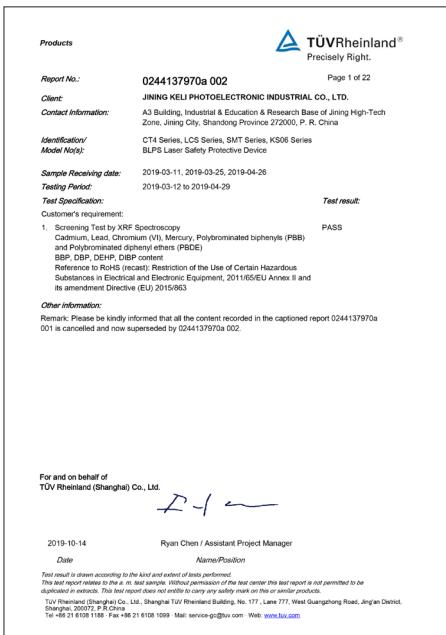


Strong anti-electromagnetic
interference ability



Front and side installation (ZC) bracket
flexible installation

Certifications



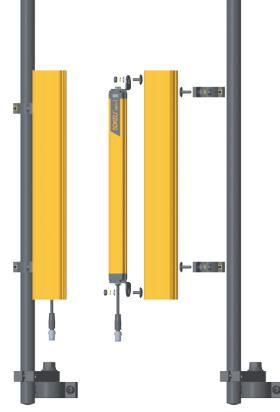
Installation method



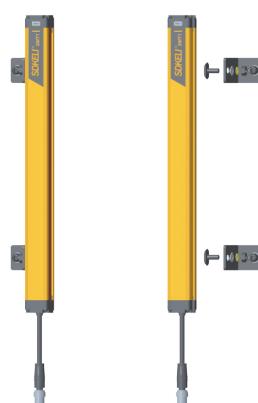
Front and side installation(ZC)



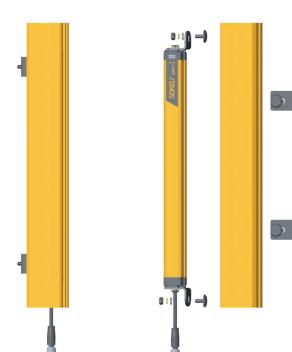
Pipe installation(GC)



Pipe mounting bracket with protective cover (GF)

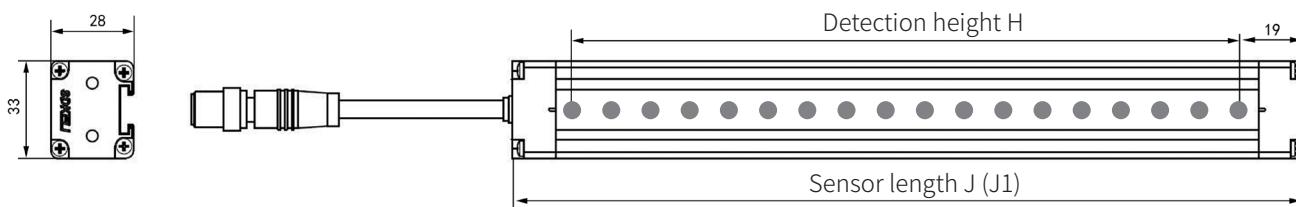


T-slot installation(TC)



Front and side installation with protective cover (FZC)

Dimensions



单位: mm

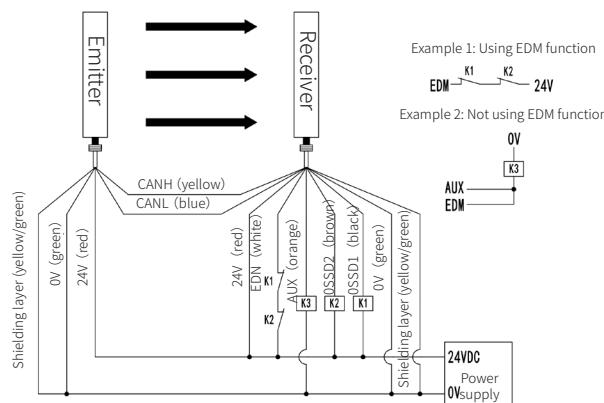
Technical parameters

Executive standard	EN 61496-1:2013 (Type 4 ESPE) EN 61496-2:2013 (Type 4 AOPD) EN ISO 13849-1:2015 (Category 4、PL e) EN 61326-1:2013 IEC 61496-1:2012 (Type 4 ESPE), IEC 61496-2:2013 (Type 4 AOPD) IEC 61326-1 ISO 13855						
Guideline	2014/35/EU(Low Voltage Directive) EN/IEC 61508 EN/IEC 61010-1 EN 60204-1 EN/IEC 62061 safety class						
Security Level	Type 4 Category 4 PL e						
DCavg	99%						
CCF	100						
MTTF _D /PFH _D	(See SMT1 safety grating specification table)						
Optical properties							
Detection accuracy	14 mm	30 mm	46 mm				
Detection distance	Aseries: 0~8m; Bseries: 0~15m; Dseries: 0~2m; Eseries: 0~5m;						
Detection height	112 mm~2872 mm (See SMT1 safety grating specification model parameter list)						
EAA	Meet the requirements of IEC 61496-2, when the detection distance is more than 3m						
light source	Infrared LED (wavelength 850nm)						
Environmental characteristics							
Ambient temperature	work	-10°C~55°C(No frost and condensation)	storage	-30°C~70°C			
environment humidity	work	35% RH~85%RH	storage	35% RH~95%RH			
Anti-light interference	Incandescent light source: ≥3000 Lux; fluorescent light source: ≥3000 Lux; solar light source: ≥10000 Lux						
Homologous light interference	The interference light of the emitting element of the same design will not cause dangerous failure of the SMT1 safety grating						
Vibration resistance	Frequency10 Hz~55Hz, amplitude0.35±0.05mm, 20 times each in X, Y and Z directions						
Shock resistance	Acceleration 10g, Pulse duration 16ms, 1000 times each in X, Y and Z directions						
Protection level	IP65/IP67 (IEC 60529)						
Dimensions	33×28×Jmm (J is the length of emitter/receiver)						
Electrical characteristics							
voltage	24V DC±20% (Ripple±5%)						
Current consumption (when there is no load)	Transmitter: <200 mA; Receiver: <200 mA						
Response time	12 ms~140 ms (See the SMT1 safety grating specification model parameter list)						
Synchronously	Optical synchronization compatible line synchronization						
Safety output (OSSDs)	PNP	PNP Transistor output×2; In ON state, load current ≤300mA, Output voltage≥Vcc-2V; In OFF state, leakage current≤1mA, residual voltage≤1V (excluding the influence of wire extension);					
	NPN	NPN Transistor output×2, In ON state, load current ≤300mA, output voltage ≤2V; in OFF state, leakage current ≤1mA, residual voltage ≤2V (excluding the influence of wire extension); capacitive load: 0.9μF, inductive load: 2H					
Start Time	<2s						
Detection function	Power-on self-check, real-time self-check during work						
protect the circuit	Overvoltage and overcurrent protection, output short circuit protection						
Mutual interference prevention	function Avoid optical interference algorithm, when optical synchronization, use different optical communication codes when using adjacent machines						
Additional features							
Auxiliary output (AUX)	non-safety output, one PNP output, inverse to OSSD, output current in shading state ≤300mA, voltage ≥Vcc-2V, output current in light-on state <2mA, voltage<2V						
External device monitoring (EDM)	When an external relay or contactor load is connected, monitor the state of the load normally closed contact; ON state input voltage: 0~7V or open circuit; OFF state input voltage: 9V~24V; when optical synchronization: optical communication code 1 is the same as line synchronization; when optical communication code 2, ON state input voltage: 9V~24V; OFF state input Voltage: 0~7V or open circuit						
Manual reset	When the line is synchronized, a set of normally open contacts are serially connected to the EDM circuit to realize the manual reset function						

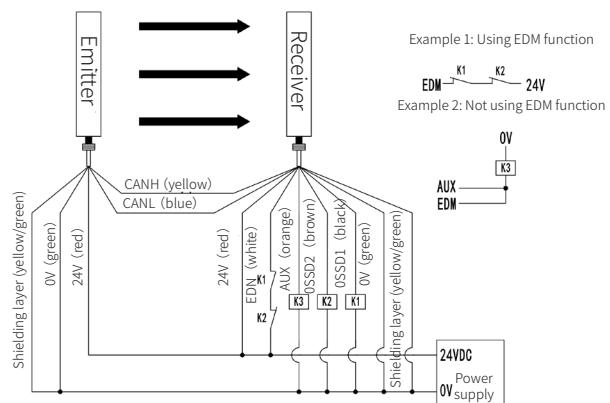
Typical wiring diagram

When there is strong EMC interference in on-site environment or wire layout is difficult, it is recommended to use the optical synchronous wiring method; when two sets of optical synchronous gratings are installed in parallel, different optical communication codes need to be used to improve the anti-light interference ability;

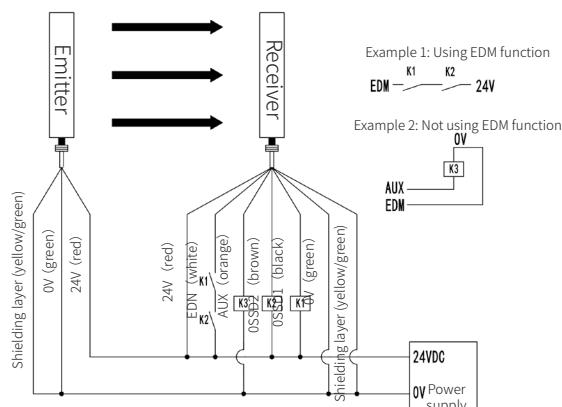
When there is strong light interference on site or there is light interference between two adjacent sets of gratings, it is recommended to use line synchronization wiring.



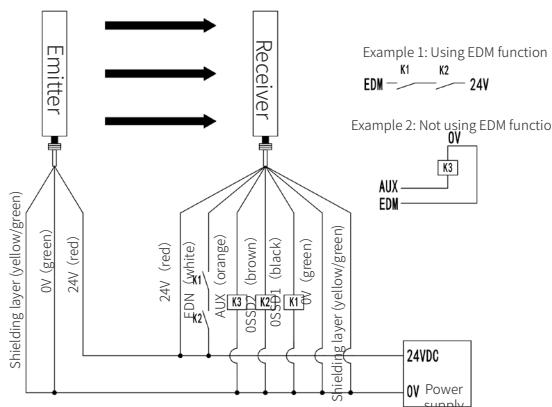
NPN, Line synchronization



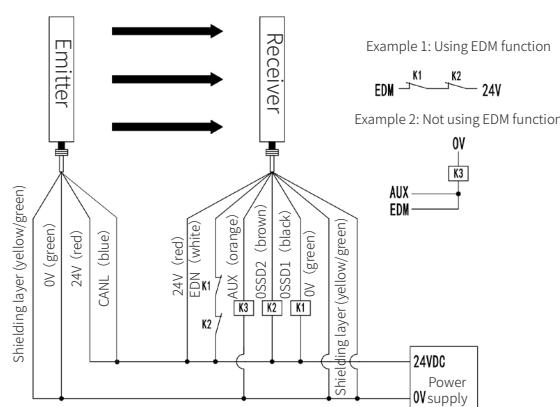
PNP, Line synchronization



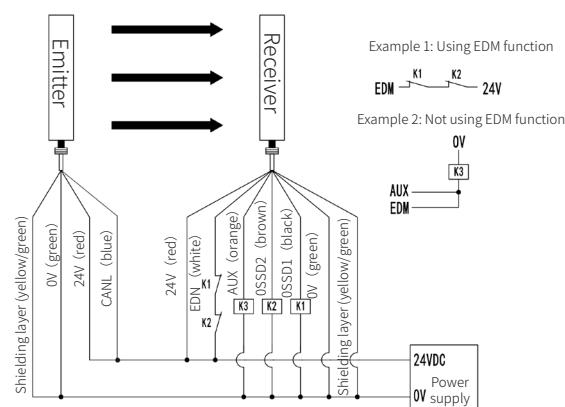
NPN, Optical synchronization,
optical communication coding1



PNP, Optical synchronization,
optical communication coding1



NPN, Optical synchronization,
optical communication coding2



PNP, Optical synchronization,
optical communication coding2

1.Load 1. Load 2: Relay or other equipment that controls the dangerous parts of the machine;
Load 3: Load or PLC (for monitoring). When load 3 is not used, the grating can work normally.

2.The suspended signal lines must be insulated separately;

3.The optical communication encoding is selected through EDM wiring. Repower is required when there is switch between optical communication encoding 1, 2, and line synchronization.

Specification table

H represents protection height, J represents the length of emitter / receiver, L represents steel pipe length, C represents the length of scatter shield (unit: mm)

Detection accuracy	Specification model	Number of beams	H	J	L	C	response time(ms)	MTTF _D (year)	PFH _D (1/h)	MTTF (year)
14mm series	SMT1 □ 0112 △ 14G	15	112	150	500	220	< 16	364	6.44E-09	43
	SMT1 □ 0152 △ 14G	20	152	190	500	260	< 18	332	7.04E-09	42
	SMT1 □ 0192 △ 14G	25	192	230	500	300	< 19	305	7.76E-09	41
	SMT1 □ 0232 △ 14G	30	232	270	500	340	< 21	282	8.67E-09	40
	SMT1 □ 0272 △ 14G	35	272	310	750	380	< 23	263	8.67E-09	39
	SMT1 □ 0312 △ 14G	40	312	350	750	420	< 25	246	9.81E-09	38
	SMT1 □ 0352 △ 14G	45	352	390	750	460	< 27	231	1.08E-08	37
	SMT1 □ 0392 △ 14G	50	392	430	750	500	< 28	218	1.08E-08	36
	SMT1 □ 0432 △ 14G	55	432	470	750	540	< 30	206	1.19E-08	36
	SMT1 □ 0472 △ 14G	60	472	510	750	580	< 32	195	1.19E-08	35
	SMT1 □ 0512 △ 14G	65	512	550	1000	620	< 34	186	1.33E-08	34
	SMT1 □ 0552 △ 14G	70	552	590	1000	660	< 36	177	1.33E-08	33
	SMT1 □ 0592 △ 14G	75	592	630	1000	700	< 37	169	1.50E-08	33
	SMT1 □ 0632 △ 14G	80	632	670	1000	740	< 39	162	1.50E-08	32
	SMT1 □ 0672 △ 14G	85	672	710	1000	780	< 41	155	1.61E-08	32
	SMT1 □ 0712 △ 14G	90	712	750	1000	820	< 43	149	1.61E-08	31
	SMT1 □ 0752 △ 14G	95	752	790	1000	860	< 45	143	1.61E-08	30
	SMT1 □ 0792 △ 14G	100	792	830	1200	900	< 46	138	1.87E-08	30
	SMT1 □ 0832 △ 14G	105	832	870	1200	940	< 48	133	1.87E-08	29
	SMT1 □ 0872 △ 14G	110	872	910	1200	980	< 50	129	1.87E-08	29
	SMT1 □ 0912 △ 14G	115	912	950	1200	1020	< 52	124	2.03E-08	28
	SMT1 □ 0952 △ 14G	120	952	990	1200	1060	< 54	120	2.03E-08	28
	SMT1 □ 0992 △ 14G	125	992	1030	1500	1100	< 55	117	2.03E-08	27
	SMT1 □ 1032 △ 14G	130	1032	1070	1500	1140	< 57	113	2.23E-08	27
	SMT1 □ 1072 △ 14G	135	1072	1110	1500	1180	< 59	110	2.23E-08	27
	SMT1 □ 1112 △ 14G	140	1112	1150	1500	1220	< 61	107	2.23E-08	26
	SMT1 □ 1152 △ 14G	145	1152	1190	1500	1260	< 63	104	2.47E-08	26
	SMT1 □ 1192 △ 14G	150	1192	1230	1500	1300	< 64	101	2.47E-08	25
	SMT1 □ 1232 △ 14G	155	1232	1270	1500	1340	< 66	98	2.47E-08	25
	SMT1 □ 1272 △ 14G	160	1272	1310	1750	1380	< 68	96	2.47E-08	25
	SMT1 □ 1312 △ 14G	165	1312	1350	1750	1420	< 70	94	2.74E-08	24
	SMT1 □ 1352 △ 14G	170	1352	1390	1750	1460	< 72	91	2.74E-08	24
	SMT1 □ 1392 △ 14G	175	1392	1430	1750	1500	< 73	89	2.74E-08	24
	SMT1 □ 1432 △ 14G	180	1432	1470	1750	1540	< 75	87	3.08E-08	23
	SMT1 □ 1472 △ 14G	185	1472	1510	1750	1580	< 77	85	3.08E-08	23
	SMT1 □ 1512 △ 14G	190	1512	1550	2000	1620	< 79	83	3.08E-08	23
	SMT1 □ 1552 △ 14G	195	1552	1590	2000	1660	< 81	81	3.08E-08	22
	SMT1 □ 1592 △ 14G	200	1592	1630	2000	1700	< 82	80	3.08E-08	22
	SMT1 □ 1632 △ 14G	205	1632	1670	2000	1740	< 84	78	3.41E-08	22
	SMT1 □ 1672 △ 14G	210	1672	1710	2000	1780	< 86	76	3.41E-08	21
	SMT1 □ 1912 △ 14G	240	1912	1950		2020	< 97	68	3.80E-08	20
	SMT1 □ 2152 △ 14G	270	2152	2190		2260	< 108	61	4.22E-08	19
	SMT1 □ 2392 △ 14G	300	2392	2430		2500	< 118	56	4.73E-08	17
	SMT1 □ 2872 △ 14G	360	2872	2910		2980	< 140	47	5.76E-08	15

Note: " □ " represents the detection distance serial number, type A: 0 ~ 8m; type B: 0 ~ 15m; Dseries: 0 ~ 2m; Eseries: 0 ~ 5m; " △ " represents the output form, P-PNP; N-NPN;

Detection accuracy	Specification model	Number of beams	H	J	L	C	response time(ms)	MTTF _D (year)	PFH _D (1/h)	MTTF (year)
30mm series	SMT1 □ 0112 △ 30G	6	112	150	500	220	< 13	439	5.38E-09	44
	SMT1 □ 0152 △ 30G	8	152	190	500	260	< 13	420	5.38E-09	44
	SMT1 □ 0192 △ 30G	9	192	230	500	300	< 14	411	5.38E-09	44
	SMT1 □ 0232 △ 30G	11	232	270	500	340	< 14	394	5.94E-09	43
	SMT1 □ 0272 △ 30G	13	272	310	750	380	< 15	378	5.94E-09	42
	SMT1 □ 0312 △ 30G	15	312	350	750	420	< 16	364	6.44E-09	42
	SMT1 □ 0352 △ 30G	16	352	390	750	460	< 16	357	6.44E-09	42
	SMT1 □ 0392 △ 30G	18	392	430	750	500	< 17	344	6.44E-09	41
	SMT1 □ 0432 △ 30G	20	432	470	750	540	< 17	332	7.04E-09	41
	SMT1 □ 0472 △ 30G	21	472	510	750	580	< 18	326	7.04E-09	41
	SMT1 □ 0512 △ 30G	23	512	550	1000	620	< 19	315	7.04E-09	40
	SMT1 □ 0552 △ 30G	25	552	590	1000	660	< 19	305	7.76E-09	39
	SMT1 □ 0592 △ 30G	26	592	630	1000	700	< 20	300	7.76E-09	39
	SMT1 □ 0632 △ 30G	28	632	670	1000	740	< 21	291	7.76E-09	39
	SMT1 □ 0672 △ 30G	30	672	710	1000	780	< 21	282	8.67E-09	38
	SMT1 □ 0712 △ 30G	31	712	750	1000	820	< 22	278	8.67E-09	38
	SMT1 □ 0752 △ 30G	33	752	790	1000	860	< 22	270	8.67E-09	37
	SMT1 □ 0792 △ 30G	35	792	830	1200	900	< 23	263	8.67E-09	37
	SMT1 □ 0832 △ 30G	36	832	870	1200	940	< 23	259	9.81E-09	37
	SMT1 □ 0872 △ 30G	38	872	910	1200	980	< 24	252	9.81E-09	36
	SMT1 □ 0912 △ 30G	40	912	950	1200	1020	< 25	246	9.81E-09	36
	SMT1 □ 0952 △ 30G	41	952	990	1200	1060	< 25	243	9.81E-09	36
	SMT1 □ 0992 △ 30G	43	992	1030	1500	1100	< 26	237	9.81E-09	35
	SMT1 □ 1032 △ 30G	45	1032	1070	1500	1140	< 26	231	1.08E-08	35
	SMT1 □ 1072 △ 30G	46	1072	1110	1500	1180	< 27	228	1.08E-08	35
	SMT1 □ 1112 △ 30G	48	1112	1150	1500	1220	< 28	223	1.08E-08	34
	SMT1 □ 1152 △ 30G	50	1152	1190	1500	1260	< 28	218	1.08E-08	34
	SMT1 □ 1192 △ 30G	51	1192	1230	1500	1300	< 29	215	1.08E-08	34
	SMT1 □ 1232 △ 30G	53	1232	1270	1500	1340	< 30	210	1.19E-08	33
	SMT1 □ 1272 △ 30G	55	1272	1310	1750	1380	< 30	206	1.19E-08	33
	SMT1 □ 1312 △ 30G	56	1312	1350	1750	1420	< 31	203	1.19E-08	33
	SMT1 □ 1352 △ 30G	58	1352	1390	1750	1460	< 31	199	1.19E-08	33
	SMT1 □ 1392 △ 30G	60	1392	1430	1750	1500	< 32	195	1.19E-08	32
	SMT1 □ 1432 △ 30G	61	1432	1470	1750	1540	< 32	193	1.19E-08	32
	SMT1 □ 1472 △ 30G	63	1472	1510	1750	1580	< 33	189	1.33E-08	32
	SMT1 □ 1512 △ 30G	65	1512	1550	2000	1620	< 34	186	1.33E-08	32
	SMT1 □ 1552 △ 30G	66	1552	1590	2000	1660	< 34	184	1.33E-08	31
	SMT1 □ 1592 △ 30G	68	1592	1630	2000	1700	< 35	180	1.33E-08	31
	SMT1 □ 1632 △ 30G	70	1632	1670	2000	1740	< 35	177	1.33E-08	31
	SMT1 □ 1672 △ 30G	71	1672	1710	2000	1780	< 36	175	1.50E-08	31
	SMT1 □ 1912 △ 30G	81	1912	1950		2020	< 40	160	1.50E-08	29
	SMT1 □ 2152 △ 30G	91	2152	2190		2260	< 43	148	1.61E-08	28
	SMT1 □ 2392 △ 30G	101	2392	2430		2500	< 47	137	1.87E-08	27
	SMT1 □ 2872 △ 30G	121	2872	2910		2980	< 54	120	2.03E-08	25

Note: "□" represents the detection distance serial number, type A: 0 ~ 8m; type B: 0 ~ 15m; Dseries: 0 ~ 2m; Eseries: 0 ~ 5m; "△" represents the output form, P-PNP; N-NPN;

Detection accuracy	Specification model	Number of beams	H	J	L	C	response time(ms)	MTTF _D (year)	PFH _D (1/h)	MTTF (year)
46mm series	SMT1 □ 0112 △ 46G	4	112	150	500	220	< 12	461	4.91E-09	45
	SMT1 □ 0152 △ 46G	5	152	190	500	260	< 12	450	4.91E-09	44
	SMT1 □ 0192 △ 46G	6	192	230	500	300	< 13	439	5.38E-09	44
	SMT1 □ 0232 △ 46G	7	232	270	500	340	< 13	429	5.38E-09	44
	SMT1 □ 0272 △ 46G	8	272	310	750	380	< 13	420	5.38E-09	43
	SMT1 □ 0312 △ 46G	9	312	350	750	420	< 14	411	5.38E-09	43
	SMT1 □ 0352 △ 46G	10	352	390	750	460	< 14	402	5.94E-09	43
	SMT1 □ 0392 △ 46G	11	392	430	750	500	< 14	394	5.94E-09	42
	SMT1 □ 0432 △ 46G	12	432	470	750	540	< 15	386	5.94E-09	42
	SMT1 □ 0472 △ 46G	13	472	510	750	580	< 15	378	6.44E-09	42
	SMT1 □ 0512 △ 46G	14	512	550	1000	620	< 16	371	6.44E-09	41
	SMT1 □ 0552 △ 46G	15	552	590	1000	660	< 16	364	6.44E-09	41
	SMT1 □ 0592 △ 46G	16	592	630	1000	700	< 16	357	6.44E-09	41
	SMT1 □ 0632 △ 46G	17	632	670	1000	740	< 17	350	6.44E-09	40
	SMT1 □ 0672 △ 46G	18	672	710	1000	780	< 17	344	7.04E-09	40
	SMT1 □ 0712 △ 46G	19	712	750	1000	820	< 17	338	7.04E-09	40
	SMT1 □ 0752 △ 46G	20	752	790	1000	860	< 18	332	7.04E-09	39
	SMT1 □ 0792 △ 46G	21	792	830	1200	900	< 18	326	7.04E-09	39
	SMT1 □ 0832 △ 46G	22	832	870	1200	940	< 18	321	7.04E-09	39
	SMT1 □ 0872 △ 46G	23	872	910	1200	980	< 19	315	7.76E-09	38
	SMT1 □ 0912 △ 46G	24	912	950	1200	1020	< 19	310	7.76E-09	38
	SMT1 □ 0952 △ 46G	25	952	990	1200	1060	< 19	305	7.76E-09	38
	SMT1 □ 0992 △ 46G	26	992	1030	1500	1100	< 20	300	7.76E-09	38
	SMT1 □ 1032 △ 46G	27	1032	1070	1500	1140	< 20	296	7.76E-09	37
	SMT1 □ 1072 △ 46G	28	1072	1110	1500	1180	< 21	291	7.76E-09	37
	SMT1 □ 1112 △ 46G	29	1112	1150	1500	1220	< 21	287	7.76E-09	37
	SMT1 □ 1152 △ 46G	30	1152	1190	1500	1260	< 21	282	8.67E-09	37
	SMT1 □ 1192 △ 46G	31	1192	1230	1500	1300	< 22	278	8.67E-09	36
	SMT1 □ 1232 △ 46G	32	1232	1270	1500	1340	< 22	274	8.67E-09	36
	SMT1 □ 1272 △ 46G	33	1272	1310	1750	1380	< 22	270	8.67E-09	36
	SMT1 □ 1312 △ 46G	34	1312	1350	1750	1420	< 23	266	8.67E-09	36
	SMT1 □ 1352 △ 46G	35	1352	1390	1750	1460	< 23	263	8.67E-09	35
	SMT1 □ 1392 △ 46G	36	1392	1430	1750	1500	< 23	259	9.81E-09	35
	SMT1 □ 1432 △ 46G	37	1432	1470	1750	1540	< 24	256	9.81E-09	35
	SMT1 □ 1472 △ 46G	38	1472	1510	1750	1580	< 24	252	9.81E-09	34
	SMT1 □ 1512 △ 46G	39	1512	1550	2000	1620	< 25	249	9.81E-09	34
	SMT1 □ 1552 △ 46G	40	1552	1590	2000	1660	< 25	246	9.81E-09	34
	SMT1 □ 1592 △ 46G	41	1592	1630	2000	1700	< 25	243	9.81E-09	34
	SMT1 □ 1632 △ 46G	42	1632	1670	2000	1740	< 26	240	9.81E-09	34
	SMT1 □ 1672 △ 46G	43	1672	1710	2000	1780	< 26	237	1.08E-08	34
	SMT1 □ 1912 △ 46G	49	1912	1950		2020	< 28	220	1.08E-08	32
	SMT1 □ 2152 △ 46G	55	2152	2190		2260	< 30	206	1.19E-08	31
	SMT1 □ 2392 △ 46G	61	2392	2430		2500	< 32	193	1.19E-08	30
	SMT1 □ 2872 △ 46G	73	2872	2910		2980	< 37	172	1.50E-08	28

Note: " □ " represents the detection distance serial number, type A: 0 ~ 8m; type B: 0 ~ 15m; Dseries: 0 ~ 2m; Eseries: 0 ~ 5m; " △ " represents the output form, P-PNP; N-NPN;

Address: Building E2, Laser Research Institute Park, No. 46, Haichuan Road, Jining High-tech Zone , Jining, Shandong, P.R.China. 272000

Tel : 0537-2168110 0537-2338345 Email : shichang@sdkeli.com