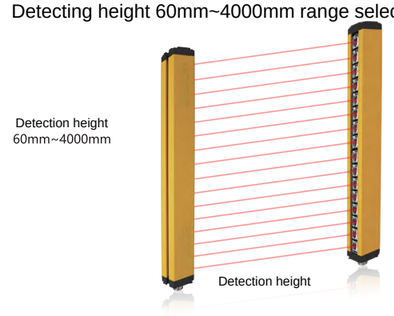
SAFETY SENSOR

- **Fully certified:**
  All series of safety light grating, safety relay, safety door lock, door magnetic switch products, in line with the national CNAS unified certification standards, obtained ISO9100 quality management system certification, with CE, PLe, Pld, REACH, EMC, ROHS, FCC and other certifications and test reports.
- **CPU self-inspect:**
  Grating using the CPU self-inspection, when the grating itself has a fault (such as : light source is not synchronized, light source intensity is not enough, the light projection drive circuit error, the master control circuit error, cable problems, as well as receiving drive circuit error, the master control circuit error, CPU error), the grating can ensure that not to send an error signal to the controlled equipment, to ensure the grating safety.
- **Dual independent OSSD output:**
  In terms of outputs, in pursuit of better safety, dual independent redundant outputs are adopted to provide a high level of safety against automatic failures, and can directly drive safety relays and safety PLCs.
- **External relay contact bonding protection (EDM) function:**
  When the output signals of the grating need to be connected to the customer's common relay/contactor equipment, in order to ensure the safety of the entire system, the safety grating is equipped with an EDM function to monitor the “ external relay contact status” , preventing the loss of safety protection function due to the failure of the external relay bonding.
- **Strong anti-interference ability:**
  Adopts infrared communication and special optical system, with strong anti-interference ability (good anti-interference ability to electromagnetic signal, strobe light, welding arc light and surrounding light source).
- **More responsive:**
  All the grating products of this series have a response time within 5ms; Overload and short circuit protection: When the safety grating output is overloaded or short -circuited, the grating will enter a protective status, and the grating safety system will be shut down; Self-detection: Self-detection is carried out within 2 seconds of the power supply being switched on to make sure that there are no faults in the grating itself.
- **Power-up delay function:**
  After 3 seconds of power-up, the grating can make the equipment work normally, which can give the operator and the equipment a buffer time to improve the safety of the equipment and personnel.
- **With shielding (floating/fixed blanking) function:**
  Customizable automatic shielding and set shielding functions greatly enhance the use of various on-site environments.
- **Optical synchronization technology:**
  Unique optical synchronization technology replaces the traditional data line synchronization, to avoid signal interference, while eliminating the need for longer data line connections.
- **Ultra-high detection accuracy:**
  Standard products provide hardware accuracy of 2mm, software cross algorithm accuracy of 1mm, to realize high-end demand of the safety grating such as small pitch, long distance, high accuracy, long size.

Safety light curtain sensor

Equipped with a wide range of detection heights

Detecting height 60mm~4000mm range selection

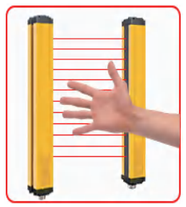


Multiple detection types

There are 3 types commonly used depending on the size of the smallest detected object.

For finger detection
Min. detected object φ15mm
(optical axis pitch of 10mm)

10mm



For palm detection
Min. detected object φ25mm
(optical axis pitch of 20mm)

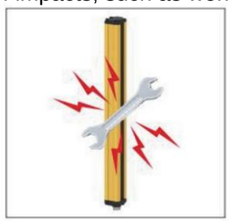
20mm

For arm detection
Min. detected object φ45mm
(optical axis pitch of 40mm)

40mm

Impact-resistant, thick-walled, rugged housing

The product has a rugged metal housing, which reliably protects it from all kinds of impacts, such as workpiece collision and stepped on.



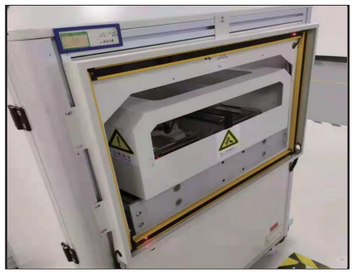
Crash, knock

Tead

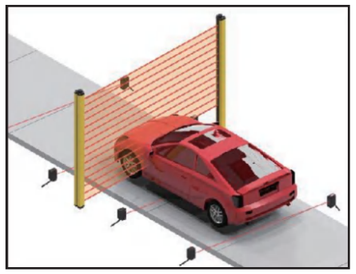
Fall

Application scenario

Detection of production line movement section protection



Automated operational protective detection

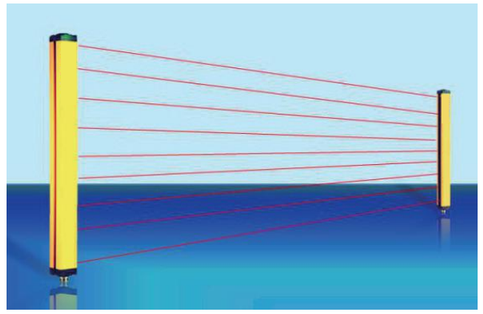


Assembly line safety protective detection

Safety sensor

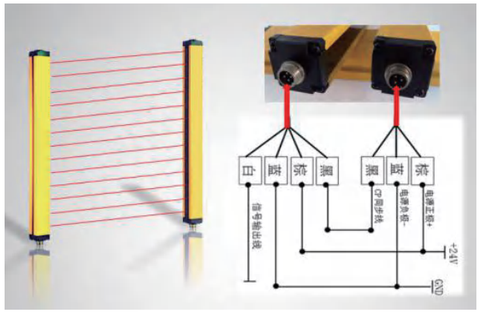
Application scenario

Easy beam-focusig, ultra-long through-beam



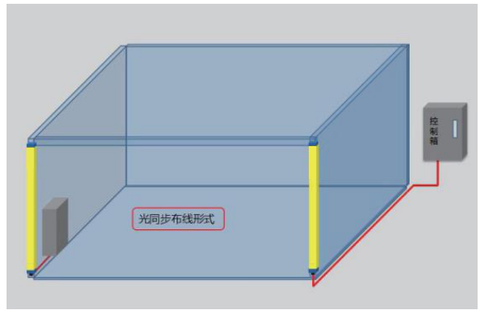
Grating infrared receiving ability is stronger, beam-focusing deviation of 5 degrees can be easily aligned to signal, the farthest distance between the emitter and receiver can be up to 30 meters.

Simple wiring



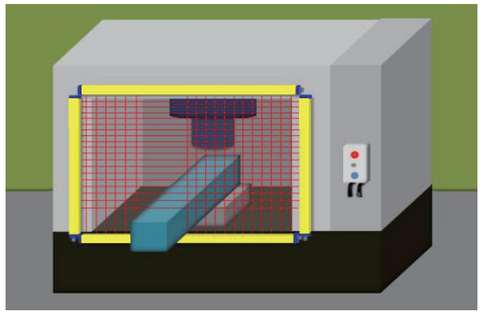
The encoder is developed using the latest technology of phase pulse technology, which has simplified the complexity of wiring, and at the same time achieves the function of simple wiring and stable performance.

Optical synchronization, line synchronization



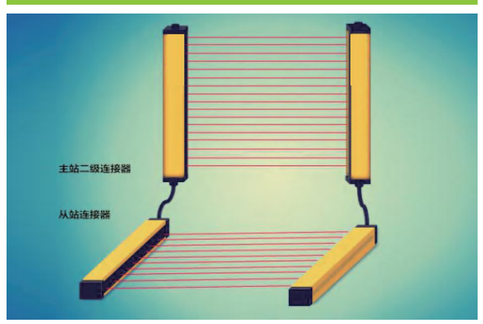
Optical synchronization technology adopts advanced optical principles, which can eliminate the synchronization line between the emitter and receiver, and at the same time, it can be independently accessed to the power supply, so the on-site wiring will be more simple and shorten the operation inspection time.
Main applications: Suitable for all types of machinery and equipment.

Fixed/floating blanking



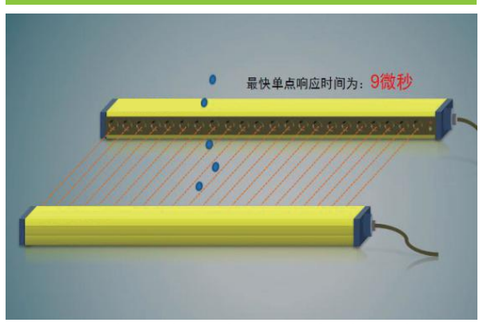
Settable light curtain blind area, integrated time monitoring shielding function, used to make the light curtain temporarily into the shielding state, such as: when the workpiece passing through the protected area, it does not affect the normal operation but play a protective role.
Main applications: Equipment where the workpiece is out of the mold range.

Cascade connection



Master-slave mode consisting of multiple sets of gratings connected in series

Fast response speed



MOTEE's pioneering “ fast ” grating is not just a little faster, but has a high speed response, with a single-point response time of up to 9 microseconds, which is one of the highest speed grating products on the market at present, and allows for the effective detection/measurement of high-speed moving objects, demonstrating the advantages of fast and reliable detection.

Application scenario

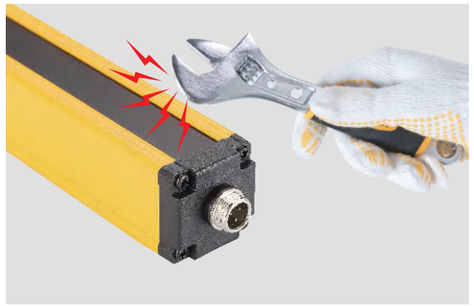
Ultra-strong electromagnetic interference, light interference resistant ability

Products adopt the latest anti-interference circuit design from the core, fundamentally solve the problem of interference, for high and low frequency converter, strobe light, welding arc light and peripheral light source has good anti-interference ability.

Operating temperature -25~65℃

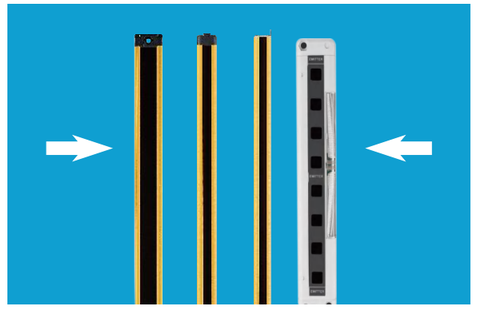
MOTEE full series of grating components are imported, low temperature resistance of -25 degrees, high temperature resistance of 65 degrees, according to different working environment to take different components, so as to meet the requirements of different working environments.

Reinforced collision resistance



Reinforced and thickened grating housing, solid structure, strong vibration resistance, collision resistance, powerful functions, complete self-inspection, easy to use, easy to install.
Main applications: for high-speed punching machines, large tonnage press machines and other large equipment.

Adapts to narrow spaces



Ultra-thin series products have the industry's smallest size, a variety of outline options, front light output, side light output, to meet the demanding installation, powerful functions, complete self-inspection, easy to use, truly no blind areas.

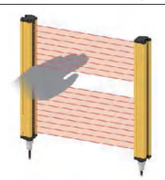
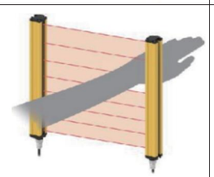
Waterproof level up to IP69

The waterproof grating is IP69 rated and has been proven in the market to work stably in water depths of up to 3 meters.

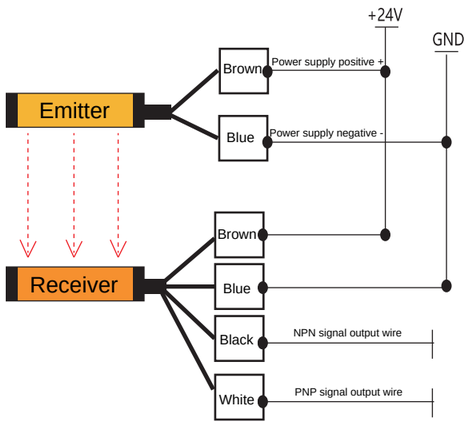
Non-standard customization

Non-standard customized grating / light curtain is a major advantage of our company, from the customized appearance to the core customization, we have many years of experience, according to customer requirements, there are non-standard products: arc light curtain, T-shaped light curtain, V-shaped light curtain, round light curtain, etc. Main applications: machinery and equipment that can't be installed with ordinary light curtains in general.

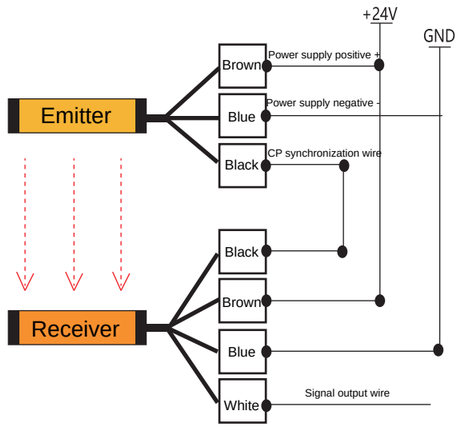
Category

Shape	Application	Optical axis pitch	Series
	When reaching the hazard source in close proximity Detection object φ15mm (finger detection) 	5mm	MT□□05
		10mm	MT□□10
	Most common standard type Detection object φ25mm (palm detection) 	20mm	MT□□20
	When the distance to the hazard source is long Detection object φ45mm (arm, foot, body detection) 	40mm	MT□□40

Product wiring statement



Optical synchronization

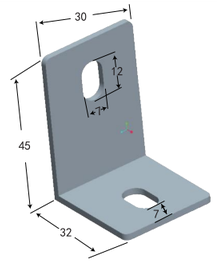


Line synchronization

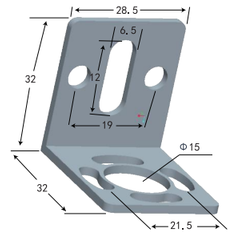
Technical parameters

Product series	MTS	MTC	MTF	MTP	MTL	MTE	MTG
Product characteristics / Cross section dimension	Common type 29X30	Compact type 21X25	Front ultra-thin 13X28	Plastic housing 13X30	Side ultra-thin 16X29	Type 4 no blind area 30X30	Enhanced type 35X35
Optical characteristics							
Optical axis pitch	1mm/2mm/5mm/10mm/20mm/40mm			20mm	10mm/20mm/40mm		
Number of optical axis	4, 6, 8, 10, ...256						
Protection height	Optical axis pitch X (number of optical axis-1)						
Protection width	0.2-7m		0.2-3m			0.2-6m	0.2-30m
Electronic characteristics							
Power supply voltage	24V±10%						
Net power	3~8W						
Response time	≤10ms						
Insulation resistance	≥100MΩ						
Signal output	NPN, PNP, relay			NPN, PNP			
Operating temperature	-10℃~+55℃						
Storage temperature	-40℃~+70℃						
Operating humidity	35%RH~85%RH						
Light interference resistant	10000Lux						
Light curtain form	Default optical synchronization, optional line synchronization					Default line synchronization (5M or more optical synchronization)	
Protection level	IP65						
Product certification	CE/FCC/EMC/REACH/SIL3/TYPE 4						
Circuit protection	Reverse-connection protection/output short circuit protection						
Standard wiring	Pigtail aviation plug	Direct outgoing wire 2 meters	?Pigtail aviation plug	Direct outgoing wire 2 meters	Pigtail aviation plug		Direct aviation plug

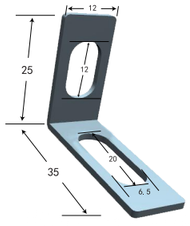
Product installation instruction



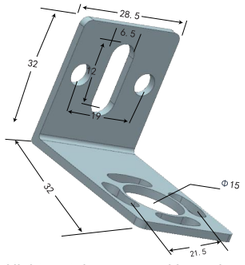
L-type side mounting bracket



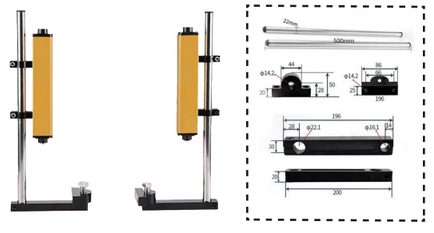
Upper and lower mounting brackets



MTC mounting bracket



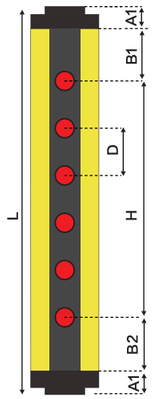
Waterproof light curtain upper and lower bracket

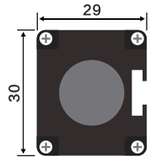


Movable bracket mounting diagram

MTS STANDARD SAFETY GRATING

Dimension diagram





A1: End cover
B1: Upper blind spot
B2: Lower blind spot
D: Optical axis pitch
H: Grating protection height
L: Grating total height

A1=12mm
B1=1/2 optical axis pitch
B2=1/2 optical axis pitc
H=(number of optical axis-1)*optical axis pitch
L=number of optical axis*optical axis pitch+24mm

Side mounting bracket	
Upper and lower mounting brackets	

Selection rule

MTS 20 10 N C 03 E ☐

Cable specification: None=standard pigtail aviation plug 2m S20n=shielded wire type A=straight outgoing aviation plug W=line synchronization X=cross through-beam Cn=wiring length n meters FX= floating blanking GX= fixed blanking

Installation method: E=Upper and lower mounting (default) L= Side mounting bracket T=Steel tube bracket Installation distance: 01=0-1m 03=1-3m 05=1-5m 07 =1-7m

Signal method: " C = normally close" " O = normally open"

Signal output: N=NPN P=PNP R=Relay

Optical axis pitch: 10, 20, 40mm

Number of optical axis: 4, 6, 8, 10, 12, ...256

MTS Series Safety Grating

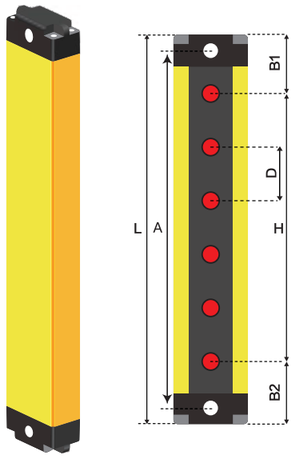
MTS standard grating selection table

Optical axis pitch	10mm			20mm			40mm		
Number of optical axis	Model	Protection height (mm)	Total height (mm)	Model	Protection height (mm)	Total height (mm)	Model	Protection height (mm)	Total height (mm)
4	MTS0410	30	84	MTS0420	60	104	MTS0440	120	184
6	MTS0610	50	84	MTS0620	100	144	MTS0640	200	264
8	MTS0810	70	104	MTS0820	140	184	MTS0840	280	344
10	MTS1010	90	124	MTS1020	180	224	MTS1040	360	424
12	MTS1210	110	144	MTS1220	220	264	MTS1240	440	504
14	MTS1410	130	164	MTS1420	260	304	MTS1440	520	584
16	MTS1610	150	184	MTS1620	300	344	MTS1640	600	664
18	MTS1810	170	204	MTS1820	340	384	MTS1840	680	744
20	MTS2010	190	224	MTS2020	380	424	MTS2040	760	824
22	MTS2210	210	244	MTS2220	420	464	MTS2240	840	904
24	MTS2410	230	264	MTS2420	460	504	MTS2440	920	984
26	MTS2610	250	284	MTS2620	500	544	MTS2640	1000	1064
28	MTS2810	270	304	MTS2820	540	584	MTS2840	1080	1144
30	MTS3010	290	324	MTS3020	580	624	MTS3040	1160	1224
32	MTS3210	310	344	MTS3220	620	664	MTS3240	1240	1304
34	MTS3410	330	364	MTS3420	660	704	MTS3440	1320	1384
36	MTS3610	350	384	MTS3620	700	744	MTS3640	1400	1464
38	MTS3810	370	404	MTS3820	740	784	MTS3840	1480	1544
40	MTS4010	390	424	MTS4020	780	824	MTS4040	1560	1624
42	MTS4210	410	444	MTS4220	820	864	MTS4240	1640	1704
44	MTS4410	430	464	MTS4420	860	904	MTS4440	1720	1784
46	MTS4610	450	484	MTS4620	900	944	MTS4640	1800	1864
48	MTS4810	470	504	MTS4820	940	984	MTS4840	1880	1944
50	MTS5010	490	524	MTS5020	980	1024	MTS5040	1960	2024
52	MTS5210	510	544	MTS5220	1020	1064	MTS5240	2040	2104
54	MTS5410	530	564	MTS5420	1060	1104	MTS5440	2120	2184
56	MTS5610	550	584	MTS5620	1100	1144	MTS5640	2200	2264
58	MTS5810	570	604	MTS5820	1140	1184	MTS5840	2280	2344
60	MTS6010	590	624	MTS6020	1180	1224	MTS6040	2360	2424

Note: This product model optical axis pitch includes 10mm, 20mm, 40mm etc., selection table is not fully embodied, if your choice is not among them , you could select by selection rule or contact us for your selection.

MTF FRONT ULTRA-THIN SAFETY GRATING

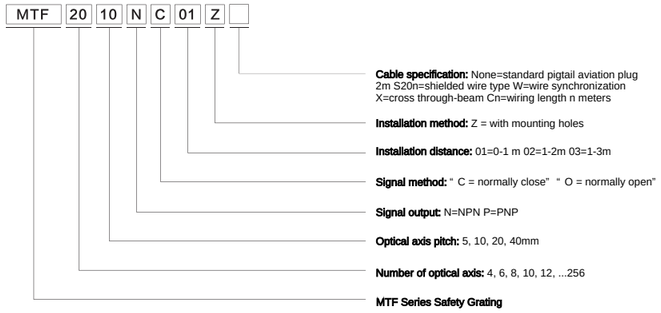
Dimension diagram



B1: Upper blind spot
B2: Lower blind spot
D: Optical axis pitch
H: Grating protection height
L: Grating total height

B1=1/2 optical axis pitch+13mm
B2=1/2 optical axis pitch+13mm
L=number of optical axis*optical axis pitch+26mm
A=L-12mm

Selection rule



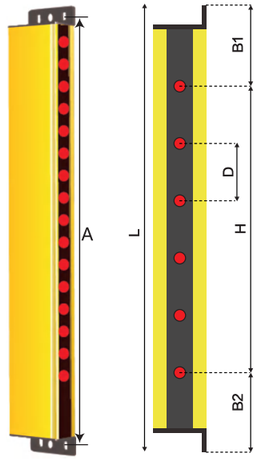
MTL front ultra-thin grating selection table

Optical axis pitch	10mm			20mm			40mm		
Number of optical axis	Model	Protection height (mm)	Total height (mm)	Model	Protection height (mm)	Total height (mm)	Model	Protection height (mm)	Total height (mm)
4	MTF0410	30	86	MTF0420	60	106	MTF0440	120	186
6	MTF0610	50	86	MTF0620	100	146	MTF0640	200	266
8	MTF0810	70	106	MTF0820	140	186	MTF0840	280	346
10	MTF1010	90	126	MTF1020	180	226	MTF1040	360	426
12	MTF1210	110	146	MTF1220	220	266	MTF1240	440	506
14	MTF1410	130	166	MTF1420	260	326	MTF1440	520	586
16	MTF1610	150	186	MTF1620	300	346	MTF1640	600	666
18	MTF1810	170	206	MTF1820	340	386	MTF1840	680	746
20	MTF2010	190	226	MTF2020	380	426	MTF2040	760	826
22	MTF2210	210	246	MTF2220	420	466	MTF2240	840	906
24	MTF2410	230	266	MTF2420	460	506	MTF2440	920	986
26	MTF2610	250	286	MTF2620	500	546	MTF2640	1000	1066
28	MTF2810	270	306	MTF2820	540	586	MTF2840	1080	1146
30	MTF3010	290	326	MTF3020	580	626	MTF3040	1160	1226
32	MTF3210	310	346	MTF3220	620	666	MTF3240	1240	1306
34	MTF3410	330	366	MTF3420	660	706	MTF3440	1320	1386
36	MTF3610	350	386	MTF3620	700	746	MTF3640	1400	1466
38	MTF3810	370	406	MTF3820	740	786	MTF3840	1480	1546
40	MTF4010	390	426	MTF4020	780	826	MTF4040	1560	1626
42	MTF4210	410	446	MTF4220	820	866	MTF4240	1640	1706
44	MTF4410	430	466	MTF4420	860	906	MTF4440	1720	1786
46	MTF4610	450	486	MTF4620	900	946	MTF4640	1800	1866
48	MTF4810	470	506	MTF4820	940	986	MTF4840	1880	1946
50	MTF5010	490	526	MTF5020	980	1026	MTF5040	1960	2026
52	MTF5210	510	546	MTF5220	1020	1066	MTF5240	2040	2106
54	MTF5410	530	566	MTF5420	1060	1106	MTF5440	2120	2186
56	MTF5610	550	586	MTF5620	1100	1146	MTF5640	2200	2266
58	MTF5810	570	606	MTF5820	1140	1186	MTF5840	2280	2346
60	MTF6010	590	626	MTF6020	1180	1226	MTF6040	2360	2426

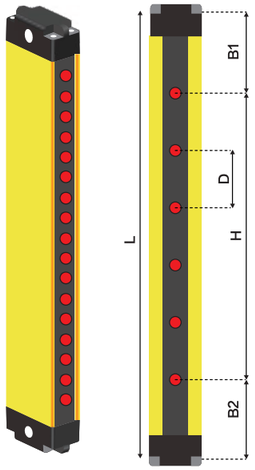
Note: This product model optical axis pitch includes 5mm, 10mm, 20mm, 40mm etc., selection table is not fully embodied, if your choice is not among them, please contact us for your selection.
Total height of all products in this series except 0805 and 0410 = (optical axis pitch * number of optical axes) + 26mm

MTL SIDE ULTRA-THIN SAFETY GRATING

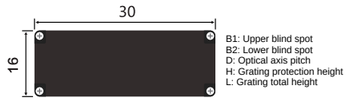
Dimension diagram



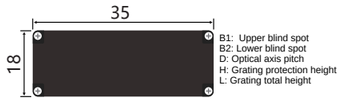
Default type (16*30)



B-type (18*35)

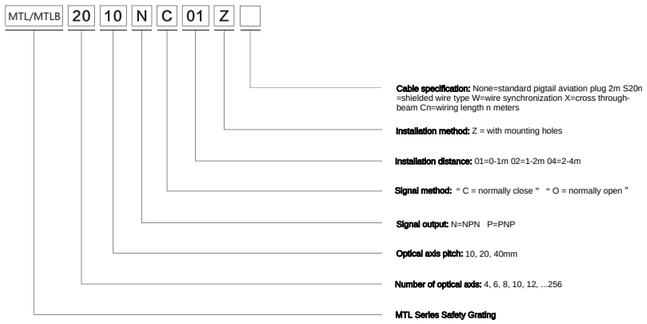


B1=1/2 optical axis pitch+9.5mm
B2 = 1/2 optical axis pitch + 11.5mm (outgoing wire end)
L=number of optical axis*optical axis pitch+21mm
A=L-7mm



B1=1/2 optical axis pitch+12mm
B2 = 1/2 optical axis pitch + 14mm (outgoing wire end)
L=number of optical axis*optical axis pitch+26mm
A=L-12mm

Selection rule



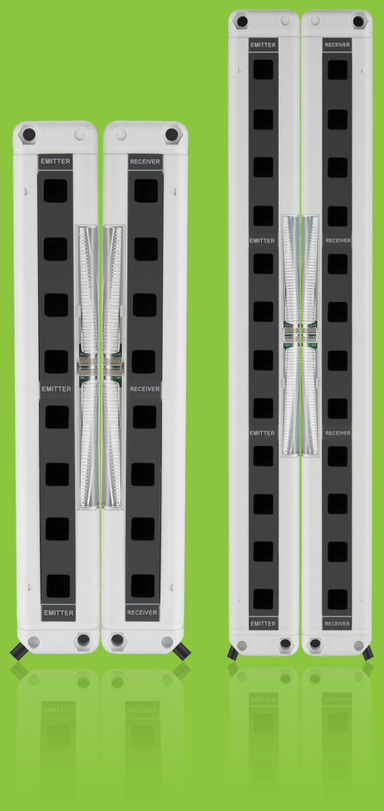
Side ultra-thin safety grating

MTL side ultra-thin grating selection table

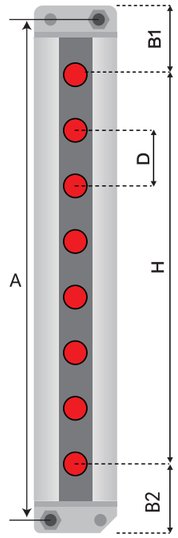
Optical axis pitch	10mm			20mm			40mm		
Number of optical axis	Model	Protection height (mm)	Total height (mm)	Model	Protection height (mm)	Total height (mm)	Model	Protection height (mm)	Total height (mm)
4	MTL0410	30	101	MTL0420	60	101	MTL0440	120	181
6	MTL0610	50	101	MTL0620	100	141	MTL0640	200	261
8	MTL0810	70	101	MTL0820	140	181	MTL0840	280	341
10	MTL1010	90	121	MTL1020	180	221	MTL1040	360	421
12	MTL1210	110	141	MTL1220	220	261	MTL1240	440	501
14	MTL1410	130	161	MTL1420	260	301	MTL1440	520	581
16	MTL1610	150	181	MTL1620	300	341	MTL1640	600	661
18	MTL1810	170	201	MTL1820	340	381	MTL1840	680	741
20	MTL2010	190	221	MTL2020	380	421	MTL2040	760	821
22	MTL2210	210	241	MTL2220	420	461	MTL2240	840	901
24	MTL2410	230	261	MTL2420	460	501	MTL2440	920	981
26	MTL2610	250	281	MTL2620	500	541	MTL2640	1000	1061
28	MTL2810	270	301	MTL2820	540	581	MTL2840	1080	1141
30	MTL3010	290	321	MTL3020	580	621	MTL3040	1160	1221
32	MTL3210	310	341	MTL3220	620	661	MTL3240	1240	1301
34	MTL3410	330	361	MTL3420	660	701	MTL3440	1320	1381
36	MTL3610	350	381	MTL3620	700	741	MTL3640	1400	1461
38	MTL3810	370	401	MTL3820	740	781	MTL3840	1480	1541
40	MTL4010	390	421	MTL4020	780	821	MTL4040	1560	1621
42	MTL4210	410	441	MTL4220	820	861	MTL4240	1640	1701
44	MTL4410	430	461	MTL4420	860	901	MTL4440	1720	1781
46	MTL4610	450	481	MTL4620	900	941	MTL4640	1800	1861
48	MTL4810	470	501	MTL4820	940	981	MTL4840	1880	1941
50	MTL5010	490	521	MTL5020	980	1021	MTL5040	1960	2021
52	MTL5210	510	541	MTL5220	1020	1061	MTL5240	2040	2101
54	MTL5410	530	561	MTL5420	1060	1101	MTL5440	2120	2181
56	MTL5610	550	581	MTL5620	1100	1141	MTL5640	2200	2261
58	MTL5810	570	601	MTL5820	1140	1181	MTL5840	2280	2341
60	MTL6010	590	621	MTL6020	1180	1221	MTL6040	2360	2421

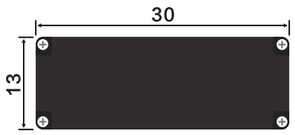
Note: The table shows the parameters of MTLA type, MTLB type protective height is the same as that of A type, total length = A type total length +5mm
The optical axis pitch of this product model includes 10mm, 20mm, 40mm etc. if the selected model is not found in the table, please according to the selection rules or contact us.Safety grating with corresponding protection height can be customized according to customer's needs

MTP PLASTIC HOUSING SAFETY OPTICAL GRATING



Dimension diagram





B1: Upper blind spot
B2: Lower blind spot
D: Optical axis pitch
H: Grating protection height
L: Grating total height

B1=25mm
B2=25mm

Selection rule

MTP 16 20 N C 01 Z □

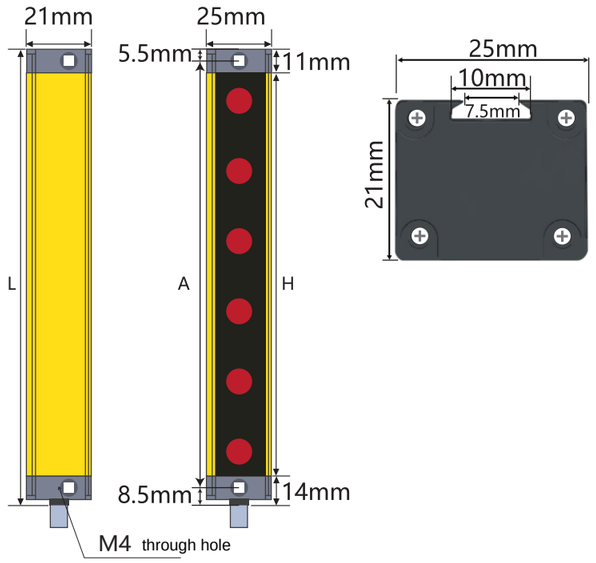
- **Cable specification:** none=direct outgoing 2 meters J=pigtail plug S20n= Shielded cable type W=line synchronization Cn=wiring length n meters
- **Installation method:** Z = with mounting holes
- **Installation distance:** 01=0-1m 02=1-2m 03=2-3m 05=3-5m
- **Signal method:** " C = normally close" " O = normally open"
- **Signal output:** N=NPN P=PNP
- **Optical axis pitch:** 20mm
- **Number of optical axis:** 6, 8, 12, 16
- **MTP Series Safety Grating**

MTP plastic housing grating selection table

Optical axis pitch 20mm			
Number of optical axis	Model	Protection height (mm)	Total height(mm)
6	MTP0620	100	140
8	MTP0820	140	190
12	MTP1220	220	270
16	MTP1620	300	350

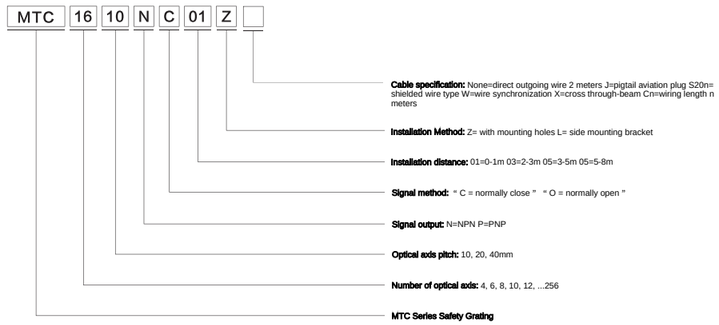
MTC COMPACT SAFETY GRATING

Dimension diagram



L=number of optical axis*optical axis pitch+25mm
A=L-14mm

Selection rule

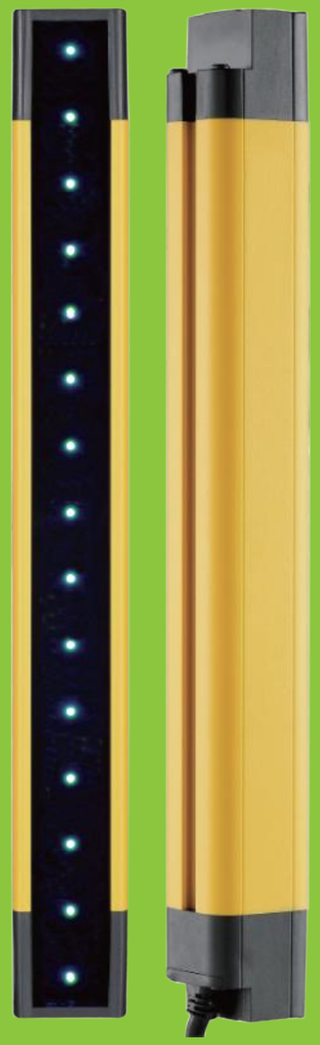


MTC Compact grating selection table

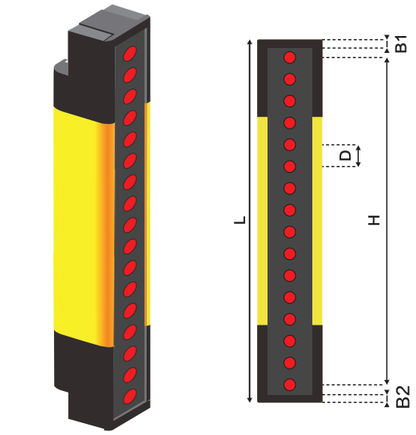
Optical axis pitch	10mm			20mm			40mm		
Number of optical axis	Model	Protection height (mm)	Total height (mm)	Model	Protection height (mm)	Total height (mm)	Model	Protection height (mm)	Total height (mm)
4	MTC0410	30	85	MTC0420	60	105	MTC0440	120	185
6	MTC0610	50	85	MTC0620	100	145	MTC0640	200	265
8	MTC0810	70	105	MTC0820	140	185	MTC0840	280	345
10	MTC1010	90	125	MTC1020	180	225	MTC1040	360	425
12	MTC1210	110	145	MTC1220	220	265	MTC1240	440	505
14	MTC1410	130	165	MTC1420	260	305	MTC1440	520	585
16	MTC1610	150	185	MTC1620	300	345	MTC1640	600	665
18	MTC1810	170	205	MTC1820	340	385	MTC1840	680	745
20	MTC2010	190	225	MTC2020	380	425	MTC2040	760	825
22	MTC2210	210	245	MTC2220	420	465	MTC2240	840	905
24	MTC2410	230	265	MTC2420	460	505	MTC2440	920	985
26	MTC2610	250	285	MTC2620	500	545	MTC2640	1000	1065
28	MTC2810	270	305	MTC2820	540	585	MTC2840	1080	1145
30	MTC3010	290	325	MTC3020	580	625	MTC3040	1160	1225
32	MTC3210	310	345	MTC3220	620	665	MTC3240	1240	1305
34	MTC3410	330	365	MTC3420	660	705	MTC3440	1320	1385
36	MTC3610	350	385	MTC3620	700	745	MTC3640	1400	1465
38	MTC3810	370	405	MTC3820	740	785	MTC3840	1480	1545
40	MTC4010	390	425	MTC4020	780	825	MTC4040	1560	1625
42	MTC4210	410	445	MTC4220	820	865	MTC4240	1640	1705
44	MTC4410	430	465	MTC4420	860	905	MTC4440	1720	1785
46	MTC4610	450	485	MTC4620	900	945	MTC4640	1800	1865
48	MTC4810	470	505	MTC4820	940	985	MTC4840	1880	1945
50	MTC5010	490	525	MTC5020	980	1025	MTC5040	1960	2025
52	MTC5210	510	545	MTC5220	1020	1065	MTC5240	2040	2105
54	MTC5410	530	565	MTC5420	1060	1105	MTC5440	2120	2185
56	MTC5610	550	585	MTC5620	1100	1145	MTC5640	2200	2265
58	MTC5810	570	605	MTC5820	1140	1185	MTC5840	2280	2345
60	MTC6010	590	625	MTC6020	1180	1225	MTC6040	2360	2425

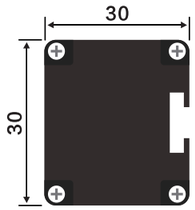
This model includes 10mm, 20mm, 40mm optical axis pitch, if you can not find the selected model in the table, please according to the selection rules or contact us.
Safety grating with corresponding protection height can be customized according to customer's needs

MTE TYPE 4 SAFETY GRATING



Dimension diagram





B1: Upper blind spot
B2: Lower blind spot
D: Optical axis pitch
H: Grating protection height
L: Grating total height

B1=1/2 optical axis pitch+3mm
B2=1/2 optical axis pitch+3mm
L=number of optical axis*optical axis pitch+6mm

Selection rule

MTE 20 10 N C 03 E C

- **Cable specification:** None=standard pigtail aviation plug 2m S20n=shielded wire type
- **Type 4 certification:** default type 4, can add cascade manual reset EDM monitoring auxiliary output and other functions
- **Installation method:** L=Side mounting bracket E= Upper and lower brackets (default)
- **Mounting distance:** 2=0-2 m 3=1-3m6=3-6m 10=5-10m 15=10-15m
- **Signal method:** " C = normally close" " O = normally open"
- **Signal output:** N=NPN P=PNP
- **Optical axis pitch:** 10, 20, 40mm
- **Number of optical axis:** 4, 6, 8, 10, 12, ...256
- **MTE Series Safety Grating**

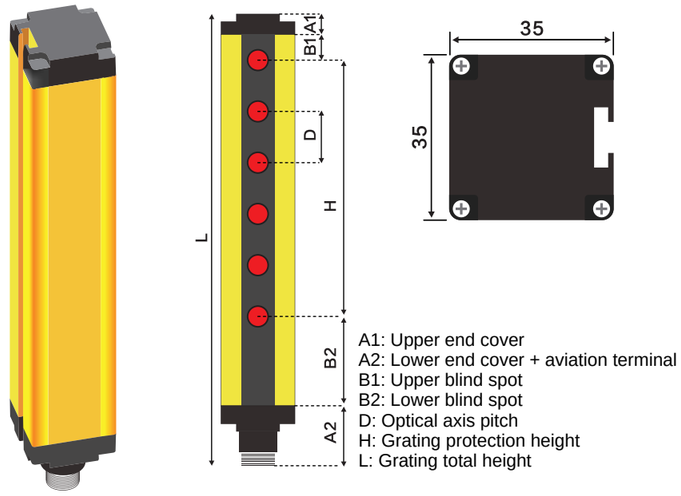
MTE type 4 safety grating selection table

Optical axis pitch	10mm			20mm			40mm		
Number of optical axis	Model	Protection height (mm)	Total height (mm)	Model	Protection height (mm)	Total height (mm)	Model	Protection height (mm)	Total height (mm)
8				MTE0820	140	166	MTE0840	280	326
10				MTE1020	180	206	MTE1040	360	406
12				MTE1220	220	246	MTE1240	440	486
14	MTE1410	130	146	MTE1420	260	286	MTE1440	520	566
16	MTE1610	150	166	MTE1620	300	326	MTE1640	600	646
18	MTE1810	170	186	MTE1820	340	366	MTE1840	680	726
20	MTE2010	190	206	MTE2020	380	406	MTE2040	760	806
22	MTE2210	210	226	MTE2220	420	446	MTE2240	840	886
24	MTE2410	230	246	MTE2420	460	486	MTE2440	920	966
26	MTE2610	250	266	MTE2620	500	526	MTE2640	1000	1046
28	MTE2810	270	286	MTE2820	540	566	MTE2840	1080	1126
30	MTE3010	290	306	MTE3020	580	606	MTE3040	1160	1206
32	MTE3210	310	326	MTE3220	620	646	MTE3240	1240	1286
34	MTE3410	330	346	MTE3420	660	686	MTE3440	1320	1366
36	MTE3610	350	366	MTE3620	700	726	MTE3640	1400	1446
38	MTE3810	370	386	MTE3820	740	766	MTE3840	1480	1526
40	MTE4010	390	406	MTE4020	780	806	MTE4040	1560	1606
42	MTE4210	410	426	MTE4220	820	846	MTE4240	1640	1686
44	MTE4410	430	446	MTE4420	860	886	MTE4440	1720	1766
46	MTE4610	450	466	MTE4620	900	926	MTE4640	1800	1846
48	MTE4810	470	486	MTE4820	940	966	MTE4840	1880	1926
50	MTE5010	490	506	MTE5020	980	1006	MTE5040	1960	2006
52	MTE5210	510	526	MTE5220	1020	1046	MTE5240	2040	2086
54	MTE5410	530	546	MTE5420	1060	1086	MTE5440	2120	2166
56	MTE5610	550	566	MTE5620	1100	1126	MTE5640	2200	2246
58	MTE5810	570	586	MTE5820	1140	1166	MTE5840	2280	2326
60	MTE6010	590	606	MTE6020	1180	1206	MTE6040	2360	2406

Note: This product model optical axis pitch includes 10mm, 20mm, 40mm etc., selection table is not fully embodied, if your choice is not among them, please contact us for your selection.
Total height of all products in this series = (optical axis pitch * number of optical axes) + 6mm.

MTG ENHANCED SAFETY GRATING

Dimension diagram

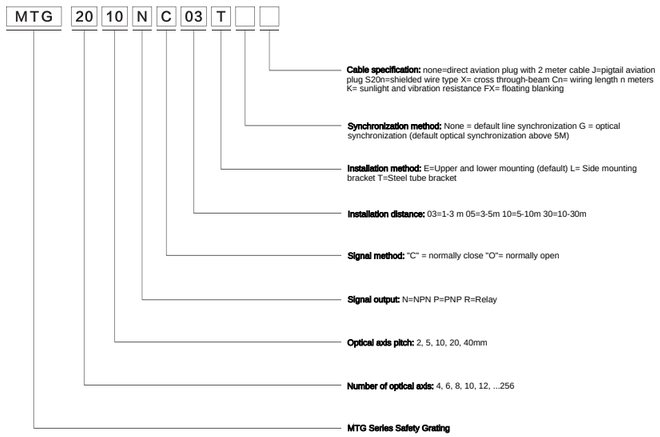


A1: Upper end cover
A2: Lower end cover + aviation terminal
B1: Upper blind spot
B2: Lower blind spot
D: Optical axis pitch
H: Grating protection height
L: Grating total height

A1=12mm A2=19mm
B1=1/2 optical axis pitc
B2 = 1/2 optical axis pitch + 25mm (02, 05, 10, 20 pitch) 1/2 optical axis pitch + 15mm (40 pitch)
H=(number of optical axis- 1)*optical axis pitch
L= Number of optical axes*optical axis pitch + {25 mm (02, 05, 10, 20 pitch) + 15mm (40 pitch)}+ 31mm

Bracket name and code	Bracket pictures and accessories
Side mounting bracket	
Upper and lower mounting brackets	

Selection rule



MTG series enhanced grating selection table

Optical axis pitch	10mm			20mm			40mm		
Number of optical axis	Model	Protection height (mm)	Total height (mm)	Model	Protection height (mm)	Total height (mm)	Model	Protection height (mm)	Total height (mm)
4	MTG0410	30	116	MTG0420	60	136	MTG0440	120	206
6	MTG0610	50	116	MTG0620	100	176	MTG0640	200	286
8	MTG0810	70	136	MTG0820	140	216	MTG0840	280	366
10	MTG1010	90	156	MTG1020	180	256	MTG1040	360	446
12	MTG1210	110	176	MTG1220	220	296	MTG1240	440	526
14	MTG1410	130	196	MTG1420	260	336	MTG1440	520	606
16	MTG1610	150	216	MTG1620	300	376	MTG1640	600	686
18	MTG1810	170	236	MTG1820	340	416	MTG1840	680	766
20	MTG2010	190	256	MTG2020	380	456	MTG2040	760	846
22	MTG2210	210	276	MTG2220	420	496	MTG2240	840	926
24	MTG2410	230	296	MTG2420	460	536	MTG2440	920	1006
26	MTG2610	250	316	MTG2620	500	576	MTG2640	1000	1086
28	MTG2810	270	336	MTG2820	540	616	MTG2840	1080	1166
30	MTG3010	290	356	MTG3020	580	656	MTG3040	1160	1246
32	MTG3210	310	376	MTG3220	620	696	MTG3240	1240	1326
34	MTG3410	330	396	MTG3420	660	736	MTG3440	1320	1406
36	MTG3610	350	416	MTG3620	700	776	MTG3640	1400	1486
38	MTG3810	370	436	MTG3820	740	816	MTG3840	1480	1566
40	MTG4010	390	456	MTG4020	780	856	MTG4040	1560	1646
42	MTG4210	410	476	MTG4220	820	896	MTG4240	1640	1726
44	MTG4410	430	496	MTG4420	860	936	MTG4440	1720	1806
46	MTG4610	450	516	MTG4620	900	976	MTG4640	1800	1886
48	MTG4810	470	536	MTG4820	940	1016	MTG4840	1880	1966
50	MTG5010	490	556	MTG5020	980	1056	MTG5040	1960	2046
52	MTG5210	510	576	MTG5220	1020	1096	MTG5240	2040	2126
54	MTG5410	530	596	MTG5420	1060	1136	MTG5440	2120	2206
56	MTG5610	550	616	MTG5620	1100	1176	MTG5640	2200	2286
58	MTG5810	570	636	MTG5820	1140	1216	MTG5840	2280	2366
60	MTG6010	590	656	MTG6020	1180	1256	MTG6040	2360	2446

Note: This product model optical axis accuracy includes 2mm, 5mm, 10mm, 20mm, 40mm etc., selection table is not fully embodied, if your choice is not among them, please contact us for your selection.
Total height of all products in this series = optical axis accuracy * number of optical axes + 57mm.

MTM MEASURING SAFETY OPTICAL GRATING

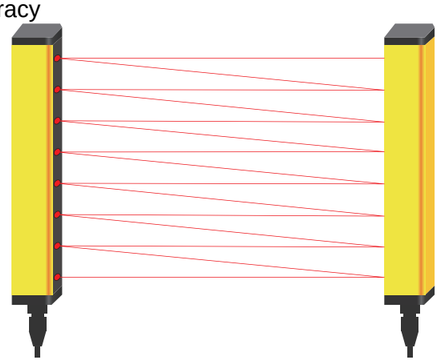
Product overview

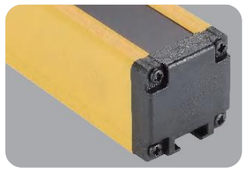
◆High-precision MTMF series measuring gratings are applicable to high-precision detection and measurement.

◆Includes online detection, dimensional measurement, profile detection, accuracy correction, hole diameter detection, outline detection, edge and center positioning, tension control, parts counting, online product dimensional detection, and similar detection and measurement as above

Scanning method

Parallel scan (default): scans all beams, the emitter's emission corresponds to the receiver's reception.
Cross scan: It consists of parallel scanning and tilted beams, and the tilted beams are sent from the second channel of the emitter corresponding to the first channel of the receiver; the third channel of the emitter corresponds to the second channel of the receiver until the last channel of the emitter corresponds to the penultimate channel of the receiver, completing the whole scanning. Therefore cross scanning improves detection accuracy





MTM F

(13mmx28m ultra-thin design)

MTM G

(35mmx35mm standard design)

Control output type

1. Analog output M: Output is 4-20MA current
Type I MA: Masking the highest point effectively defaults to full masking below the highest point
Type II MB: Masking the highest and lowest point effectively default to full masking between highest and lowest points
Type III MC: Number of blocked optical axis effective defaults to the actual blocked optical axis
2. RS485 communication function RS: adopts the standard MODBUS protocol to communicate with the upper computer
Type I RSA: Answer type - requires the upper computer to read the grating data;
Default configuration: Address 1 Baud rate 9600 BPS Data byte format: 1 start bit, 8-bit data bit, no parity check, 1-bit stop bit.Type III MC: Number of blocked optical axis effective defaults to the actual blocked optical axis
A. Lowest point, address 0X40H
B. Highest point, address 0X41H
C. The number of light curtains blocked, address 0X42H
D. The status value of all light points in the light curtain, address 0X00H
Type II RSB: Active type - grating actively sends data to the upper computer
Default configuration: baud rate: 9600BPS
Data format: 1 start bit, 8 data bits, no parity check, 1-bit stop bit.
The read data type is optional:
RSBA, output the status of all light points in the light curtain
Scanning one frame to send one frame of data, the format is 0Xaaaa 0Xxx 0Xxx...xx
Start code Grating address Grating data
RSBB, output light curtain blocked lowest point and highest point
Scanning one frame to send one frame of data, the format is
0Xaaaa 0Xxx 0Xxx 0Xxx 0Xxx
Starting code Grating address Lowest point Highest point

Selection rule

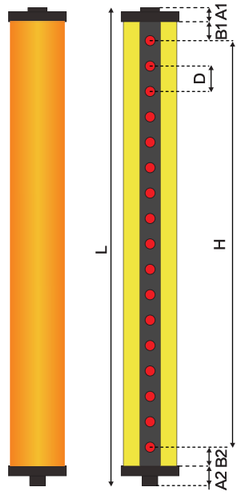
MTM | F | 20 | 10 | MA | | 01 | Z | W

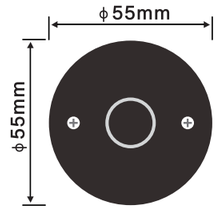
Synchronization method: W=Line synchronization
Installation Method: Z= with mounting holes L= side mounting bracket
Installation distance: 01=0.1-0.4m 02=0.4-1m 03=1-3m 20 =3-20m
Detection method: default parallel scanning “ x ” = cross
Signal output: MA MB MC RSA RSB, etc.
Optical axis pitch: 2, 5, 10, 20, 40mm
Number of optical axis: 4, 6, 8, 10, 12, ...256
Cross section size: F:13*28mm high precision (5mm pitch only) G: 35*35mm high precision
MTM Series Measuring Grating

MTR WATERPROOF SAFETY GRATING

*The pioneering domestic IP69 waterproof and dustproof safety grating
*Can be submerged up to 10 meters for normal use
*Anti-electromagnetic, optical interference passes the CE / FCC certification
*Internal self-inspection, LED indicator and fault lights

Dimension diagram

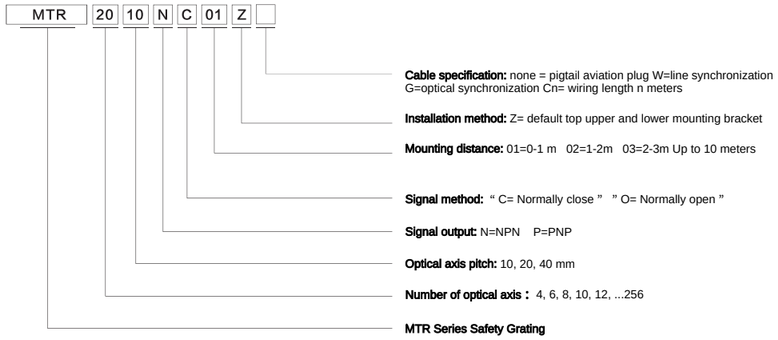




A1: Upper end cover
A2: Lower end cover
B1: Upper blind spot
B2: Lower blind spot
D: Optical axis pitch
H: Grating protection height
L: Grating total height

A1=15mm A2=15mm
B1=1/2 optical axis pitc
B2=1/2 optical axis pitch + 25mm (10, 20 pitch) 1/2 optical axis pitch + 15mm (40 pitch)
H=(number of optical axis-1)*optical axis pitch
L= Number of optical axes * optical axis pitch +30mm +25mm (10, 20 pitch) +15mm (40 pitch)

Selection rule

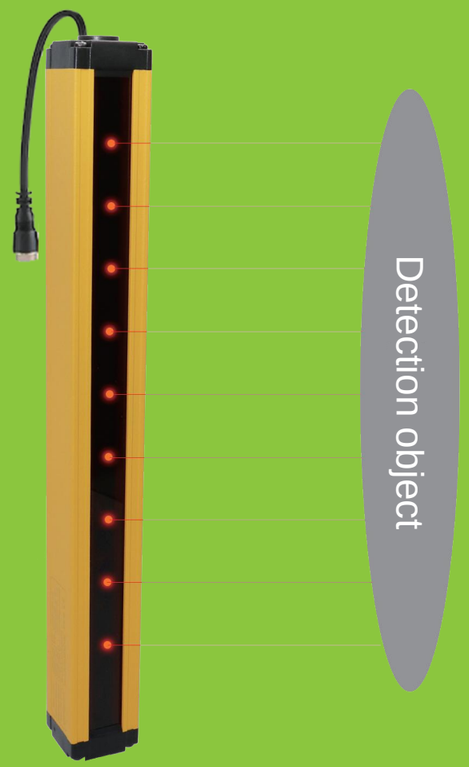


MTR waterproof grating selection table

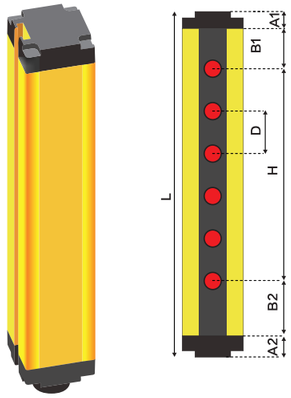
Optical axis pitch	10mm			20mm			40mm		
Number of optical axis	Model	Protection height (mm)	Total height (mm)	Model	Protection height (mm)	Total height (mm)	Model	Protection height (mm)	Total height (mm)
4	MTR0410	30	115	MTR0420	60	135	MTR0440	120	205
6	MTR0610	50	115	MTR0620	100	175	MTR0640	200	285
8	MTR0810	70	135	MTR0820	140	215	MTR0840	280	365
10	MTR1010	90	155	MTR1020	180	255	MTR1040	360	445
12	MTR1210	110	175	MTR1220	220	295	MTR1240	440	525
14	MTR1410	130	195	MTR1420	260	335	MTR1440	520	605
16	MTR1610	150	215	MTR1620	300	375	MTR1640	600	685
18	MTR1810	170	235	MTR1820	340	415	MTR1840	680	765
20	MTR2010	190	255	MTR2020	380	455	MTR2040	760	845
22	MTR2210	210	275	MTR2220	420	495	MTR2240	840	925
24	MTR2410	230	295	MTR2420	460	535	MTR2440	920	1005
26	MTR2610	250	315	MTR2620	500	575	MTR2640	1000	1085
28	MTR2810	270	335	MTR2820	540	615	MTR2840	1080	1165
30	MTR3010	290	355	MTR3020	580	655	MTR3040	1160	1245
32	MTR3210	310	375	MTR3220	620	695	MTR3240	1240	1325
34	MTR3410	330	395	MTR3420	660	735	MTR3440	1320	1405
36	MTR3610	350	415	MTR3620	700	775	MTR3640	1400	1485
38	MTR3810	370	435	MTR3820	740	815	MTR3840	1480	1565
40	MTR4010	390	455	MTR4020	780	855	MTR4040	1560	1645
42	MTR4210	410	475	MTR4220	820	895	MTR4240	1640	1725
44	MTR4410	430	495	MTR4420	860	935	MTR4440	1720	1805
46	MTR4610	450	515	MTR4620	900	975	MTR4640	1800	1885
48	MTR4810	470	535	MTR4820	940	1015	MTR4840	1880	1965
50	MTR5010	490	555	MTR5020	980	1055	MTR5040	1960	2045
52	MTR5210	510	575	MTR5220	1020	1095	MTR5240	2040	2125
54	MTR5410	530	595	MTR5420	1060	1135	MTR5440	2120	2205
56	MTR5610	550	615	MTR5620	1100	1175	MTR5640	2200	2285
58	MTR5810	570	635	MTR5820	1140	1215	MTR5840	2280	2365
60	MTR6010	590	655	MTR6020	1180	1255	MTR6040	2360	2445

Note: This product model optical axis pitch includes 10mm, 20mm, 40mm etc., selection table is not fully embodied, if your choice is not among them, please contact us for your selection.

MTD DIFFUSE SAFETY GRATING



Dimension diagram



A1: Upper end cover
A2: Lower end cover
B1: Upper blind spot
B2: Lower blind spot (outgoing end)
D: Optical axis pitch
H: Grating protection height
L: Grating total height

A1=12mm A2=12mm

A1=12mm A2=12mm
B1=1/2 optical axis pitch
B2=1/2 optical axis pitch+25mm
H= number of optical axis*optical axis pitch
L=number of optical axis*optical axis pitch+49mm

Product overview

LED indicator light
Equipped with distinctive green LED power indicator light, red signal indicator light and large size digital display

Multiple gears
According to the actual use of the distance to match the number 1 ~ 9 gears, select the appropriate distance and gear, long press for 1S to save the gear or for 30S to save automatically

Independent learning
When the using environment has a fixed background, default 0 gear long press the button for 2S, grating self-learning distance, automatically select the appropriate emission intensity, green light blinking in self-learning process. This mode is not suitable for applications where the brightness of the background varies considerably or where the position of the background changes frequently

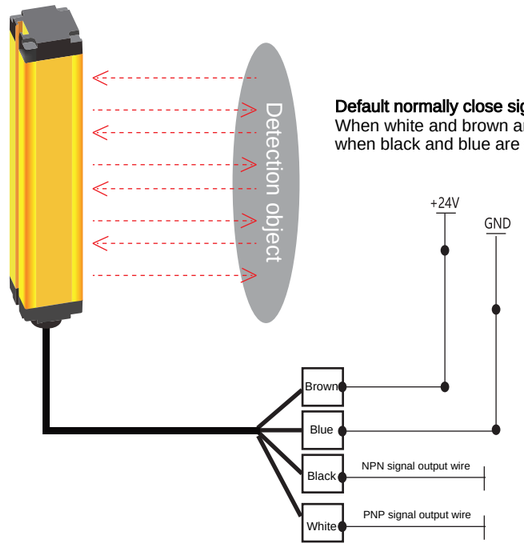
Extra-long distance
Realizes ultra-long detection distance, the longest can reach more than 2000mm, pigtail type wiring, more compact size and smaller blind area

Dual-way signal
Default NPN/PNP dual-way signal output, normally open and close can be switched, supports the number of light points customized (even) Note: This series of reflective grating is recommended only for area detection, can not be used for security purposes.

MTD diffuse grating selection table

Number of optical axis	Model	Protection height (mm)	Total height (mm)
4	MTD0440	160	209
6	MTD0640	240	289
8	MTD0840	320	369
10	MTD1040	400	449
12	MTD1240	480	529
14	MTD1440	560	609
16	MTD1640	640	689
18	MTD1840	720	769
20	MTD2040	800	849
22	MTD2240	880	929
24	MTD2440	960	1009
26	MTD2640	1040	1089
28	MTD2840	1120	1169
30	MTD3040	1200	1249
32	MTD3240	1280	1329
34	MTD3440	1360	1409
36	MTD3640	1440	1489
38	MTD3840	1520	1569
40	MTD4040	1600	1649
42	MTD4240	1680	1729
44	MTD4440	1760	1809
46	MTD4640	1840	1889
48	MTD4840	1920	1969
50	MTD5040	2000	2049

Wiring method

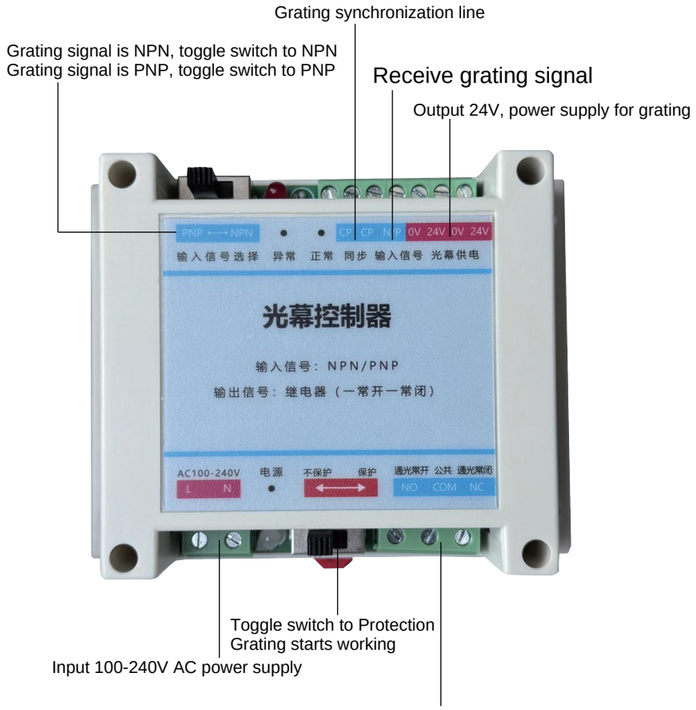


Default normally close signal output
When white and brown are shorted, black outputs NPN normally open signal; when black and blue are shorted, white outputs PNP normally open signal.

MT-KQ BUILT-IN CONTROLLER

Characteristics

- Wide range voltage
- High power relay
- Customized procedure
- Easy installation
- Industrial-grade standard
- Wide range of applications

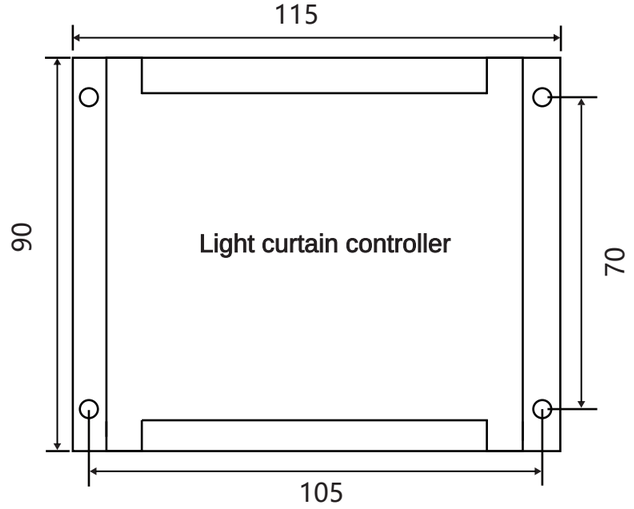


When grating is light-input: NC and COM are closed, NO and COM are disconnected
When the grating is darkening: NC and COM are disconnected, NO and COM are closed

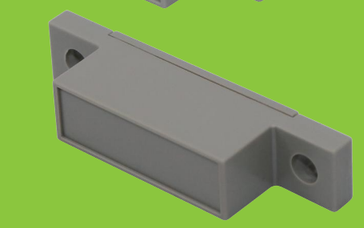
Product parameters

Apperance	
Model	MT-KQ
Protection function	✓
Key switch	✓
Number of connectable gratings	1 or 2 sets
Mounting position	Side of the machine body
Self-protection function	✓
Matching grating specifications	Full series
Signal output	Normally open/close relay signal
Power supply voltage	110V/220V
Operating temperature	-25℃~65℃
Insulation resistance	>100MΩ
Circuit protection	Reverse-connection protection/output short circuit protection
Interference resistant ability	10000Lux
Relay service life	2 million times
Power consumption	5W

Dimension diagram (unit: mm)



MT DOOR MAGNETIC SWITCH



Characteristics

Magnetosphere type, square type, terminal block type, response distance 15mm
Proximity switches with permanent magnet activated reeds or switching contacts
Suitable for detecting the opening and closing of doors and suction parts

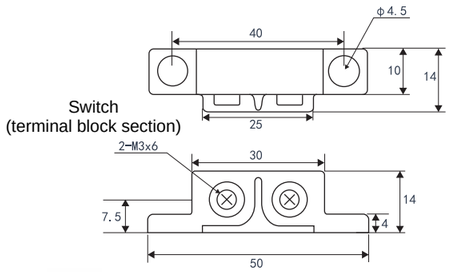
Cylindrical detection header size	50mm×14mm×14mm
Type	Square type, magnetosphere
Detection distance	type 15mm

Product parameters

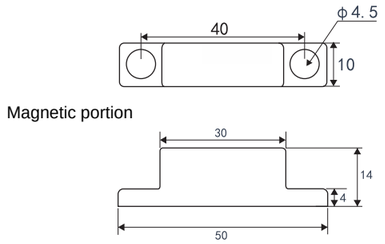
Appearance			
Model	MT-GLS	MT-GLS-NP	MT-AZC
Detection header size	50mm×14mm×14mm	50mm×14mm×14mm	59.5mm×38mm×16.2mm
Type	Magnetic reed switch/proximity conduction	NPN/PNP dual channel output	Magnetostriction contact/1 normally open 1 normally close
Detection distance	15mm		
Response frequency	20Hz or below		
Service temperature range	-20~60℃		
Storage temperature range	-20~60℃		
Service humidity range	35~85%RH		
Storage humidity range	35~85%RH		
Withstand voltage	Between each terminal and housing: AC1000V 50/60Hz 1min		
Vibration (durable)	Durability: 10~55Hz double amplitude 1.5mm 2h in each direction of X, Y, Z Durability:		
Impact (durable)	300m/s2 3 times in each direction of X, Y, Z		
Protection level	IEC:IP40		
Connection method	Terminal block type		
Material	Sensor: ABS Magnet: ABS		

Dimension diagram (unit: mm)

MT-GLS

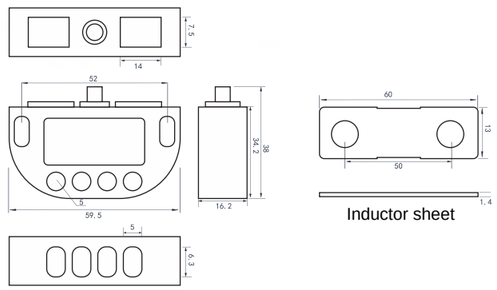


Switch
(terminal block section)



Magnetic portion

MT-AZC



Inductor sheet

Magnetic portion

Safety sensor

Slotted sensor
Optical fiber sensor
Displacement sensor
Safety sensor
Photoelectric sensor
Proximity sensor
Specialized sensor

MT-RE13 SERIES NON-CONTACT MAGNETIC ENCODING SAFETY SWITCH

Functional characteristics

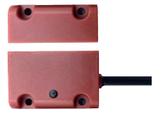
The MT-RE13 series safety switches are designed using the principles of RFID technology, with high safety and confidentiality (can provide a unique code), strong anti-interference, stable and reliable and so on. Alternatively, a magnetic code combining several magnetosensitive elements with a recognition logic that must be triggered in a specific sequence in order to function properly. Non-contact actuation with high misalignment tolerance, large detection range, easy to install, multiple cascades, MT-RE13-NP/MT-RE13-10 can be used in conjunction with the MSR-N/P safety module to achieve safety level 4, CE certified, compliant with ISO13849-1 SIL3PLe.category 4.

Model description

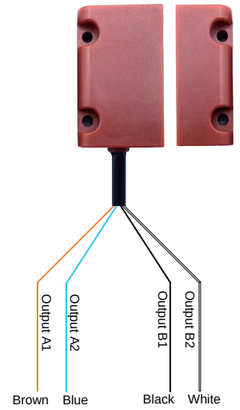
MT-RE13 — NP — ☐

- MT-RE13: Non-contact safety switch
- NP: magnetic coding scheme
  RFO: radio frequency, general code
  RF1: radio frequency, unique code
  IO: two-way normally close contact
- ☐: None: default direct outgoing wire 2M
  -J: Pigtail plug
  -Cn: Customized outlet length n meters
  -CS: Cascade function

Technical parameters

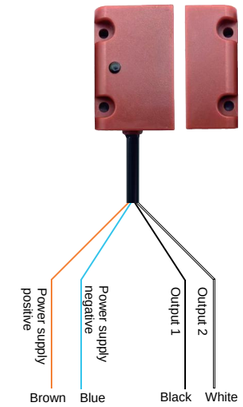
Appearance				
Model	MT-RE13-NP	MT-RE13-RF0	MT-RE13-RF1	MT-RE13-IO
Signal method	Magnetic encoding	High frequency RFID radio frequency technology		Tongue tube contact
Output method	NPN normally close + PNP normally close			Two sets of independent normally open contact
Safety standard	ISO13849-1,IEC/EN60947-5-3			
Wire outgoing method	2 meters direct outgoing wire, outgoing wire with navigation plug (-J)			
Working distance	Conducting Min:8mm; Breaking Max:17mm			
Typical tolerance	Top or side			
Output current (max.)	100mA			
Response time	5ms			
Protection level	IP67			
Operating frequency	10Hz			
Operating temperature	-10~+55℃			
Relative humidity	5%~95%			
Material	ABS+PC			

Wiring diagram



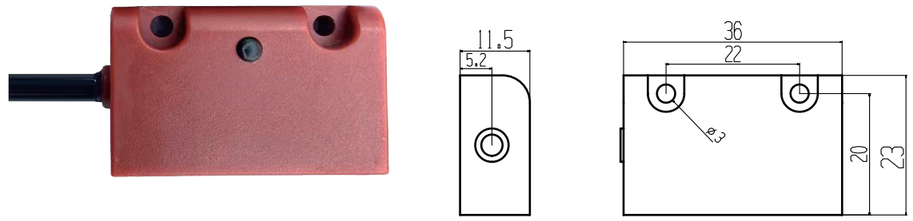
No.	Wiring definition	Color
1	Output A1	Brown
2	Output A2	Blue
3	Output B1	Black
4	Output B2	White

※ A/A2 is a set of contact outputs
B1/B2 is a set of contact outputs

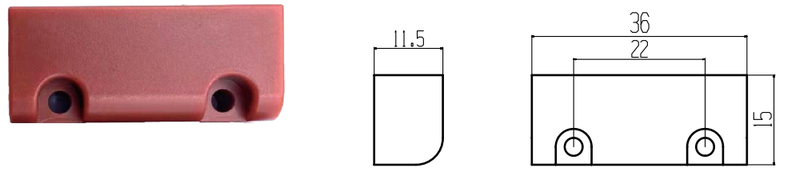


No.	Wiring definition	Color
1	Power supply 24V	Brown
2	Power supply OV	Blue
3	NPN normally close output	Black
4	PNP normally close output	White

Dimension diagram (unit: mm)



Inductor



Actuator

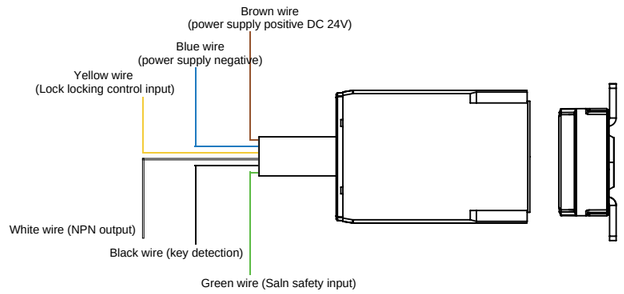
※ Subject to the product configuration and manufacturing process, the actual product size and weight may vary, please refer to the actual product.

MT SERIES ELECTROMAGNETIC LOCKING SAFETY DOOR LOCK

Characteristics

Easy and tight locking by electromagnetic force
The product has a flat electromagnetic locking structure, which can effectively solve the problem of door shift and with dual-way Hall recognition,The MT-M50 series is not only keyless, but also has a simple structure that greatly improves safety.
Easy to install, ultra-small body
No need to worry about the installation location, even if the space is small.

Wiring diagram



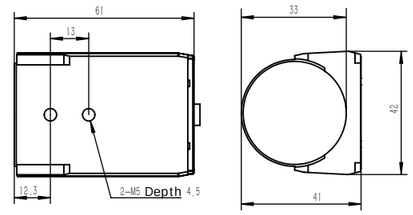
Working status:

1. When Ena, Lock is grounded:
When the key terminal is detected, a green light on, the electromagnet is energized, and the black and white wires NPN output signals;
When the key terminal is not detected, a red light on, the electromagnet is de-energized, and there is no output from the black and white wires.
2. When Ena is grounded and Lock is not grounded:
When the key terminal is detected, the green light flashes (once a second), the electromagnet is de-energized, the black wire outputs NPN, and the white wire has no output ;When the key terminal is not detected, a red light on, the electromagnet is de-energized, and there is no output from the black and white wires.
3. When Ena is not grounded and Lock is grounded:
When the key terminal is detected, the yellow light on, the electromagnet is energized, the black wire outputs NPN, and the white wire has no output;
When the key terminal is not detected, a red light on, the electromagnet is de-energized, and there is no output from the black and white wires.
4. when Ena is not grounded and Lock is not grounded:
When the key terminal is detected, the yellow light flashes (once a second), the electromagnet is de-energized, the black wire outputs NPN, and the white wire has no output ;When the key terminal is not detected, a red light on, the electromagnet is de-energized, and there is no output from the black and white wires

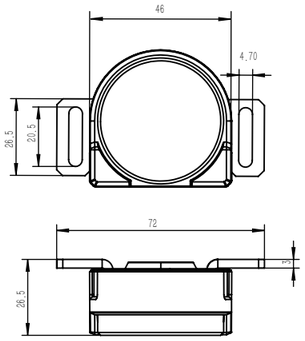
Technical parameters

Magnetic code identification model		MT-M50N	MT-M50P
RFID radio frequency identification model		MT-M50N-RF	MT-M50P-RF
Signal		Dual channel NPN Dual channel PNP	
Type		Electromagnetic locking safety door lock	
Retentivity when locked		450 N	
Retentivity when lock released		Approx. 1N	
Working distance	(OFF → ON)	2mm	
Response time (ms)	Locking → Lock released	250ms	
	Lock released → Locked	50ms	
Control output (OSSD output)	Output type	Transistor output × 2	
	Max. carry current	100mA	
	Residual voltage (when ON)	Max. 2V (at 2m cable)	
	Voltage when OFF	Max. 2.0V (at 5m cable)	
External input	Enable input	Approx. 2mA	
	Locking control input	Approx. 2.5mA	
Safety certification		CE SIL3	
Protection circuit		Power reverse connection protection, each output short circuit protection, each output surge protection, output reverse connection protection	
Power supply	Power supply voltage	24 VDC ±20% including ripple (P-P) 10% Class2	
	Power consumption	5W	
Environmental resistance	Housing protection level	IP65	
	Service ambient temperature	-20 to 55°C (no icing)	
	Storage ambient temperature	-25 to 70°C (no icing)	
	Service ambient humidity	5% to 95%RH	
	Seismic defenses	10 to 55 Hz, dual amplitude 2.0 mm, 5 minutes in each direction of X, Y , Z (IEC 60947-5-3)	
	Impact resistance	30G 6 times in each direction of X, Y, Z (IEC 60947-5-3)	

Product dimensions



Lock body



Lock head

MT SERIES SAFETY DOOR LOCK

Characteristics

This series contains gold-plated contacts with SIL 3 and PLe mechanical safety certification Safety door lock for standard loads and small loads.
Simple wiring, labor saving and easy to replace.
A variety of metal heads are available.

Wiring diagram

Terminal indication

With key inserted

Not conductive NO

Conductive MC

Conductive MC

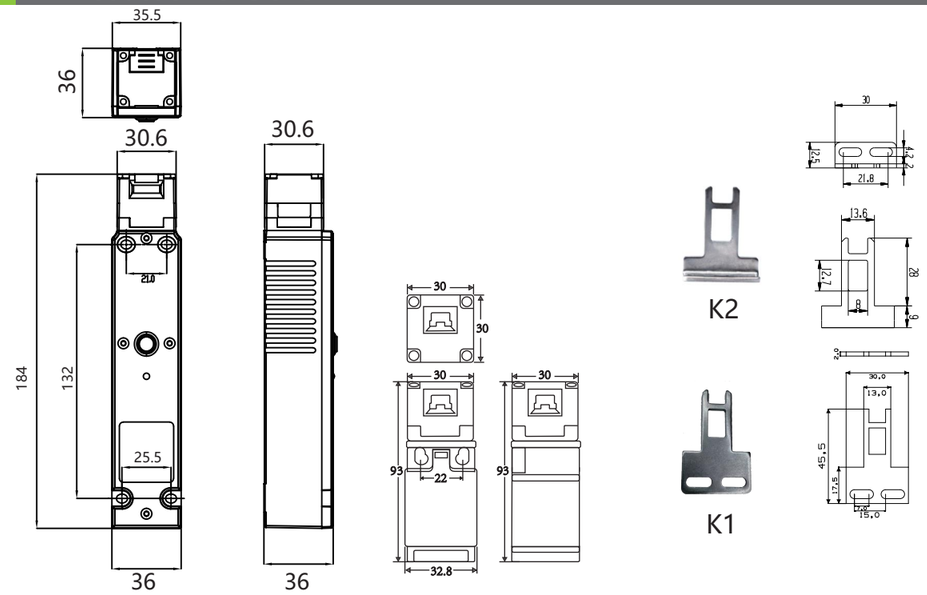
Not conductive NO

With key inserted

Technical parameters

Model		MT-D3NS	MT-D3SL-DS	MT-D3SL-DK	MT-D4NL-DS
		Small Safety Door Switch	Electromagnetic locking safety door switch	Electromagnetic locking safety door switch	Electromagnetic locking safety door switch
Interlocking type		2 sets of normally open 2 sets of normally close contacts	2 sets of normally open 2 sets of normally close contacts	2 sets of normally open 2 sets of normally close contacts	2 sets of normally open 2 sets of normally close contacts
Locking method		—	Electromagnetic locking mechanical release	Mechanical locking electromagnetic release	Electromagnetic locking mechanical release
Power supply voltage		Solenoid DC24V/Indicator light DC24V/Contact DC, AC10-230V			
Service life	Mechanical	1 million times			
	Electronic	<Standard type>More than 500,000 times (AC250V 3A, resistive load)*3 More than 300,000 times (AC250V 10A, resistive load)		<Strong Tensile Type>More than 100,000 times (AC250V 10A, resistive load)	
Certification standards		Complies with CE, PLe certification			
Forcible disconnect force		Locking force 1300N or above			
Forced disconnect pre-travel		10 mm or above			
Contact resistance		25MΩ or below			
Min. applicable load		DC5V 1mA resistive load (N level reference value)			
Rated insulation voltage (Ui)		300V			
Rated frequency		50/60 Hz			
Protection level against electric shock		Class I (double insulation)			
Pollution degree (using environment)		3(EN60947-5-1)			
Pulse withstand voltage	Between same polarity terminals	2.5kV			
	Between opposite polarity terminals	4kV			
	Between each terminal and non-energized metal parts	6kV			
Insulation resistance		100MΩ or above			
Contact interval		2×2mm or above			
Vibration-resistant	Misoperation	10~55Hz, single amplitude 0.75mm			
Impact resistance	Durable	1,000m/s2 or above			
	Misoperation	300m/s2 or above			
Conditional short-circuit current		100A(EN60947-5-1)			
Rated open thermal current (Ith)		10A(EN60947-5-1)			
Service ambient temperature		-30~70°C (no icing)			
Service ambient humidity		95% or below			
Weight		Approx. 96g			

Product dimensions



MT SERIES MAGNETIC ENCODING ELECTRONIC SAFETY DOOR LOCK

Characteristics

MT-GS51 series security door locks are based on magnetically encoded induction technology with monitored stainless steel latch structure, used for door guarding devices involving the safety of persons or machines.Safety level SIL3 or PLe can be achieved with the safety double-channel output technology, which can be used in conjunction with safety relays.

Wiring diagram

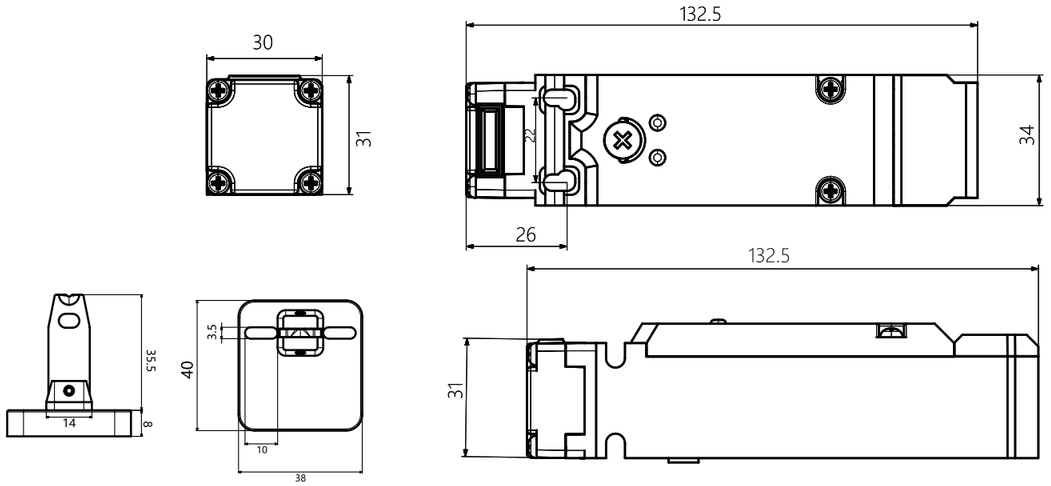
Magnetic Encoding Electronic Lock Safety Door Switch
VCC: power supply positive 24VDC
GND: Power supply negative 0V
UNLOCK: If the default is not connected, the door lock is locked; if 0V is connected, the door lock is unlocked.
0V: Common source with power supply negative
OUT1 and OUT2: Dual NPN normally close output
OUT3 and OUT4: Dual-way PNP Normally close outputs

VCC	UNLOCK	OUT1	OUT3	Null
GND	0V	OUT2	OUT4	Null

Technical parameters

Safety level	
Standard	SO 13849-1 IEC/EN60947-5-3
Safety classification	ISO 13849-1 compliant Class 4 switch/SIL3 dual channel interlock suitable for PLe/PLd
Certification	CE SIL3
Protection	
Safety short-circuit protection, overheating protection stop and restart, current limiting, reverse polarity protection, overload protection, transient noise protection, overvoltage protection, failure pulse protection	
Output	
Safe output	2-way redundant PNP and 2-way NPN Normally close signal output
Input	1-way 0V output (door open-close/door locking/fault indication, etc.)
Technical parameters	
Lock bolt insertion deviation	Max.:±2mm
Locking retention force Fmax (ISO 14119)	Above 1300N
Locking retention force Fzh (ISO 14119)	Above 1300N
Min. radius of use for revolving door	≥220mm
Operating voltage	DC 24V±15%
Rated Power	4.6W (no load)※
Output current	Max.:200mA
Output conductive voltage drop	<2.5V@200mA
Leakage current	<100uA
Operating frequency	0.5 Hz
Response time	100ms (independent working)
Risk time	100ms
Starting time	3.5s
Protection level	Ip65
Operating temperature	0…+55℃
Relative humidity	5.….95%
Material	Nylon/Zinc Alloy/Stainless Steel

Product dimensions



MT SERIES DOOR LOCK HANDLE

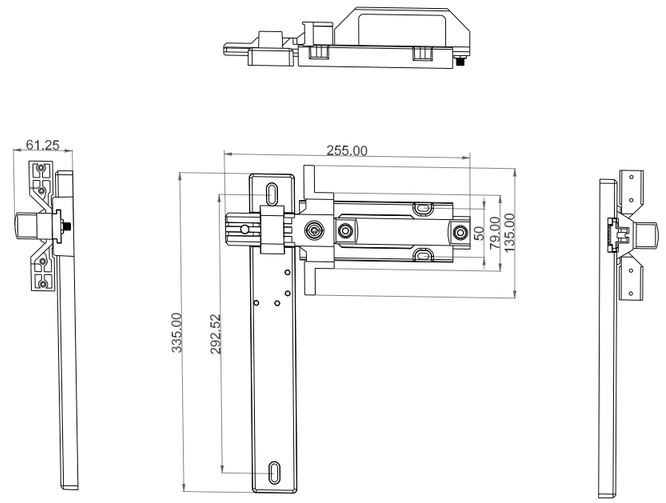
Characteristics

Can be matched with normal security door locks, can also be matched with electromagnetic locking safety door locks, with the exclusive key, can effectively prevent misopening Two levels of protection to safely maintain locked or opened door status Optional left or right handles

Specification

Appearance	Specification	Content	Model	Applicable door switch
	Weight: about 0.6kg Mechanical service life: more than 20, 000 times	Slide key: 1 (not yet installed) Door lock mounting plate: 1 Mounting screws for door switch: 4 Operating key: 1 Door switch pull handle: 1 Locking key: 2	MT-NSK10	MT-D4NS MT-D4SL

Dimension diagram



MSR SERIES
SAFETY RELAY

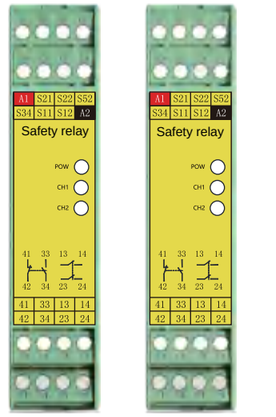
Technical parameters

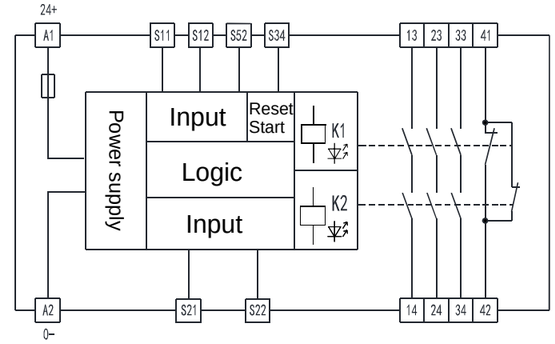
MOTEE Smart Safety Relay MSR-P and MSR-N are safety relays with 3 normally open (NO) safety output contacts and 1 Normally close (NC) auxiliary output contact for use on safety gratings. It supports single and double channel operation, manual or automatic reset, and has built-in self-diagnostics for detecting faults.

Technical parameters

Model		MSR-N	MSR-P
Type		Matching NPN grating	Matching PNP grating
Standards-compliant		EN ISO 13849-1	
		EN ISO 13849-2	
		EN 62061	
		IEC 61508	
		IEC 62061	
Conformity performance index (PL)		e(EN ISO 13849-1)	
Safety integrity level (SIL)		3(IEC6150、IEC62061)	
Corresponding security categories		4(EN ISO 13849-1)	
Rated power supply voltage		24V AC/DC-15%+10%	
Module power consumption		At ≤3W (24VDC)	
Overcurrent protection		Built-in, electronic	
Min. applicable load (reference value)		5VDC/10mA (initial value)	
Release buffer time		Emergency stop switch 30ms or below	
Rated insulation voltage		250V AC	
Rated pulse withstand voltage		6KV (1.2/50us) (input-output)	
6KV vibration resistant		10~55Hz single amplitude 0. 35mm	
Overvoltage category		III	
Contamination degree		2	
Protection level		IP20	
Safety output contact	Number of contacts	3NO+1NC	
	Contact type	Compulsory orientation	
	Contact fuse protection	10AgL/gG (normally open contact)	
		6AgUgG (normally close contacts)	
Mechanical durability		More than 10 million times	
Output contact rated value	AC-15	5A/230V AC	
	DC-13	5A/24V DC	
Service ambient temperature		-20~+60°C (no icing)	
Storage ambient temperature		-40~+85°C (no icing)	
Service ambient humidity		10~90%RH (no condensation)	
Storage ambient humidity		10~90%RH (no condensation)	

Technical parameters

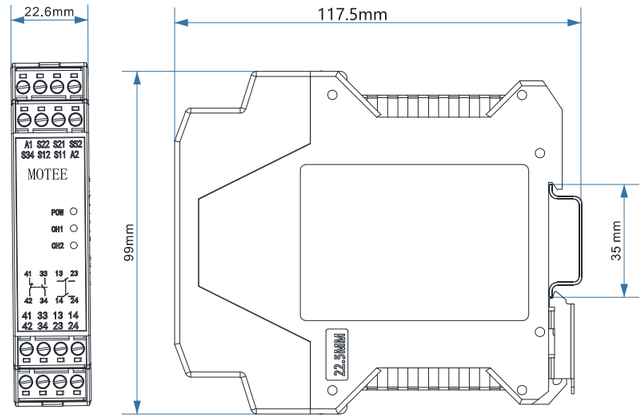




Panel display	Description		Note
A1	Power supply +24V DC input	Power supply 24V AC input	
A2	Power supply OV DC input		
S11	Satey Input 1		Connectable to contact output devices only
S12			
S52			
S21	Satey Input 2		
S22			
S34	Reset Start Input		
13-14	3-way normally open safety output contact (NO)		Rrating value AC-15,5A 230V DC-13,5A 24V
23-24			
33-34			
41-42	1-way normally close safety output contact (NC)		
POW	Green LED, light on at power-up		
Ch1	Green LED, safety relay K1 closed light up		
Ch2	Green LED, safety relay K2 closed light up		

Product dimensions

Outline dimensions: 117.5mm*99mm*22.6mm



MT LASER OBSTACLE AVOIDANCE RADAR

Laser obstacle avoidance radar

Characteristics

MT-LR10 series is the latest industrial obstacle avoidance laser radar, which has a 270° scanning angle, can divide 64 independent channels, and can support serial (Type-C interface) communication.

Excellent resistance to light interference

Max. resistance to light interference up to 80,000 Lux

±2cm Detecting distance accuracy

Advanced light path design for high precision ranging

Compact and flexible

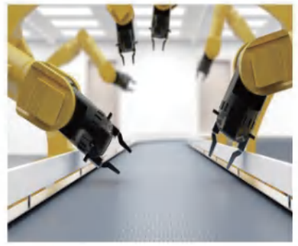
Volume is 50mm*50mm*72mm

IP65 protection level

Applicable to many complex environments

Application scenario

Suitable for AGV obstacle avoidance, forklift obstacle avoidance, industrial safety protection and other scenes.



Technical parameters

Category	Laser obstacle avoidance radar	
Model	MT-LR10N	MT-LR10P
Signal	NPN	PNP
Detection range	270°	
Scanning frequency	25 Hz	
Detecting distance accuracy	±2cm	
Starting time	<10s	
Detection output delay	0~2s range can be set	
Detection size	Settable in 0~5° range	
Operating temperature	-10℃~50℃	
Environmental humidity	80% or below, no condensation	
Protection level	IP65	
Data sampling rate	18KHz/54KHz	
Angular resolution	0.5°	
Response time	40ms	
Communication interface	USB-TYPE C (serial port)	
Detection hold delay	0~2s range can be set	
Switching input	6 (NPN)	
Storage temperature	-20℃~70℃	
Ambient light resistant	80000Lux	
Power supply source	DC 9V~28V	
Communication interface	USB-TYPE C (serial port)	
Detection hold delay	0~2s range can be set	
Switching input	6 (NPN)	
Storage temperature	-20℃~70℃	
Equipment size	50mm(L)*50mm(W)*72mm(H)	
Equipment power consumption	Rated power: <1W (no load) Starting power: <3W (no load)	
Switching output	4 (3 area signal, 1 fault signal)	
Indicator light	4 (3 area signal, 1 fault signal)	
Number of channels	64 (each channel contains 3 detection areas)	

Dimension diagram