

Solid State Relay

Description

- 1-12 meters sensing range
- 20 to 53 parallel scanning beams
- Active height of 1800 mm to 2340 mm
- Length of 1970 mm to 2510 mm
- 3 different beam patterns
- Automatic sensitivity adjustment
- Colour-coded M8 plug pigtail with extension cables
- Micro aluminium IP67 profile design
- Fully encapsulated electronics
- Power, output and system status indicators
- 10-30 V dc supply voltage
- Solid state relay output
- Test input and static blanking function
- EN 12978 compliant
- TÜV approved as E-device acc. EN 12453



The SG 16 series is especially designed as a safety device for doors and gates. The system is approved by TÜV to be an E-device according to EN 12453, allowing it to be a stand-alone safety device on a power operated door or gate.

The SG 16 light curtain system consists of a self-contained transmitter, SGT and receiver, SGR, which are to be positioned opposite of each other. The detectors are housed in ultra compact, but sturdy, aluminium profiles that are mounted using plastic fixture clips (included). All electronics are fully potted. The light curtain can be fitted with an optional front cover for additional protection of the optoelectronic components.

The system is supplied with a 10-30 V dc power supply and the SGR includes a solid state relay output. The control input in the SGT may be used for either disabling or enabling the transmitter power temporarily for test purpose or for set up of a static blanking function which allows a selection of beams to be permanently ignored (only available in C1 models). The SGT and SGR are electrically synchronised.

The advanced automatic signal-tracking (AST) feature ensures that no onsite set up or adjustments are required. The signal of each individual channel is adjusted automatically, which compensates for misalignment and contamination during operation.

The SG 16 series features the Dynamic Sequential Blanking Function which allows the detectors to be positioned in the guide tracks of an industrial door, where the door travels directly in front of the protection area, interrupting the beams sequentially from top to bottom. The special feature ensures that the system can distinguish between the closing door and an object by ignoring the beams that are obstructed by the moving door whilst leaving the below remaining beams active to detect an object below the door edge.

Two sets of SG 16 light curtains can be wire configured together to form a synchronised and multiplexed Master/Slave system, which ensures that optical cross-talk between the two sets is prevented.

The door can stop at any position and reverse, as required for partial door opening. The light curtain has an additional beam positioned 35 mm above the floor for extra safety.

Technical Data			
		SGT	SGR
Supply voltage		10-30 V dc	
Current consumption		70 mA (RMS)	40 mA
Max output load	Solid State Relay	–	100 mA
Short circuit protected		–	Yes
Inductive load protection		–	Yes
Reverse polarity protected		Yes	
Light source		Infrared (880 nm)	–
Number of parallel beams		20, 21, 22, 23, 29, 30, 31, 32, 41, 45, 49 or 53	
Active height		1800, 1980, 2160 or 2340 mm	
Bottom spacing to Ch 1		35 mm	
Spacing between Ch 1 and Ch 2		10 mm	
Channel spacing (Ch 1 excluded)	C1	45 mm: between all channels	
	D1	45 mm: up to 1080 mm 180 mm: from 1080 mm to top	
	F1	45 mm: up to 540 mm 180 mm: from 540 mm to top	
Maximum response time		–	40 ms
Maximum sequential blanking speed		1,6 m/s	
Minimum size of detectable objects		50 mm / 185 mm	
Power on indicator		Green LED	
Output indicator		–	Yellow LED
System status indicator		Red LED	
Opening angle		–	+/- 4°
Emission angle		+/- 5°	–
Profile dimensions (w x d)		12 mm x 14 mm	
Housing material	Profile	Aluminium (black anodised)	
	Lens cover (optional)	Polycarbonate	
Pigtail, PVC Ø 4,5 mm		0.3 m with 4 pin, M8 male plug (black)	0.3 m with 6 pin, M8 male plug (grey)
Extension cable, PVC Ø 4,5 mm		15 m with 4 pin, M8 female plug (black)	5 m with 6 pin, M8 female plug (grey)

Solid State Relay

Environmental Data

	SGT	SGR
Light immunity @ 5° incidence	–	100 000 lux
Temperature, operation	–20 to +55 °C	
Temperature, storage	–40 to +80 °C	
Sealing class	IP 67	
Safety category	EN 12978:2003 +A1:2009 EN 12453:2017, safe guarding level E EN ISO 13849-1:2015, Cat. 2, PL d IEC 61496-2, Type 2 ESPE	
EU directives	2011/65/EU, 2014/30/EU, 2006/42/EC	
Standards	EN 12978:2003 +A1:2009 EN 12453:2017 EN ISO 13849-1:2015, EN 13849-2:2012 IEC 61496-2 IEC 60068-2-6:2007, EN 61000-6-2:2019, EN 61000-6-3:2007 +A1:2011	
Certificate	EC type examination, TÜV NORD	
Marking	CE UK CA	

Available Types

U-profile

Transmitter	Housing Length		Active Height	Number of Channels	Channel Placement	Connection		4 pin M8 plug: 0.3 m pigtail + 15 m extension cable	Range
						Output		Order Reference	
	1970 mm	1800 mm	41	C1	-	-	SGT 16-197-041-C1-U-00-0.3-T4-15		12 m
			29	D1			SGT 16-197-029-D1-U-00-0.3-T4-15		
			20	F1			SGT 16-197-020-F1-U-00-0.3-T4-15		
	2150 mm	1980 mm	45	C1			SGT 16-215-045-C1-U-00-0.3-T4-15		
			30	D1			SGT 16-215-030-D1-U-00-0.3-T4-15		
			21	F1			SGT 16-215-021-F1-U-00-0.3-T4-15		
	2330 mm	2160 mm	49	C1			SGT 16-233-049-C1-U-00-0.3-T4-15		
			31	D1			SGT 16-233-031-D1-U-00-0.3-T4-15		
22			F1	SGT 16-233-022-F1-U-00-0.3-T4-15					
2510 mm	2340 mm	53	C1	SGT 16-251-053-C1-U-00-0.3-T4-15					
		32	D1	SGT 16-251-032-D1-U-00-0.3-T4-15					
		23	F1	SGT 16-251-023-F1-U-00-0.3-T4-15					

Receiver	Housing Length	Active Height	Number of Channels	Channel Placement	Connection		6 pin M8 plug: 0.3 m pigtail + 5 m extension cable	Range
					Output		Order Reference	
	1970 mm	1800 mm	41	C1	Solid State Relay	LO (NC)	SGR 16-197-041-C1-U-09-0.3-T6-5	1-12 m
			29	D1			SGR 16-197-029-D1-U-09-0.3-T6-5	
			20	F1			SGR 16-197-020-F1-U-09-0.3-T6-5	
	2150 mm	1980 mm	45	C1			SGR 16-215-045-C1-U-09-0.3-T6-5	
			30	D1			SGR 16-215-030-D1-U-09-0.3-T6-5	
			21	F1			SGR 16-215-021-F1-U-09-0.3-T6-5	
	2330 mm	2160 mm	49	C1			SGR 16-233-049-C1-U-09-0.3-T6-5	
			31	D1			SGR 16-233-031-D1-U-09-0.3-T6-5	
22			F1	SGR 16-233-022-F1-U-09-0.3-T6-5				
2510 mm	2340 mm	53	C1	SGR 16-251-053-C1-U-09-0.3-T6-5				
		32	D1	SGR 16-251-032-D1-U-09-0.3-T6-5				
		23	F1	SGR 16-251-023-F1-U-09-0.3-T6-5				

Note: 1. Special lengths are available upon request.

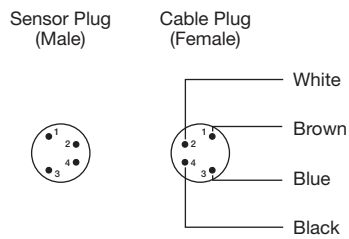
2. Different test input configurations are available upon request.

Solid State Relay

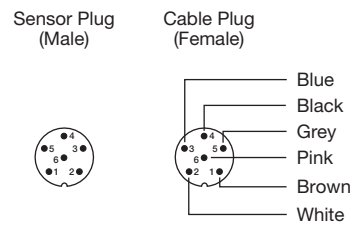
Connections

	M8 Plug / Cable	
	SGT	SGR
Supply +	Pin 1 / Brown	Pin 1 / Brown
Common sync	Pin 2 / White	Pin 2 / White
Supply -	Pin 3 / Blue	Pin 3 / Blue
Control input	Pin 4 / Black	-
Output	-	Pin 4 / Black
Output	-	Pin 5 / Grey
Not connected	-	Pin 6 / Pink

4 pin, M8

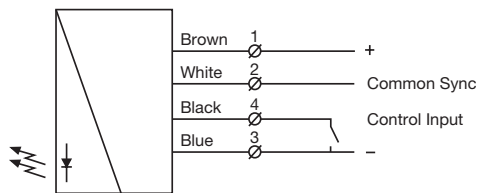


6 pin, M8



Refer to SpaceGuard Cables datasheet for extension cables.

Wiring Diagrams



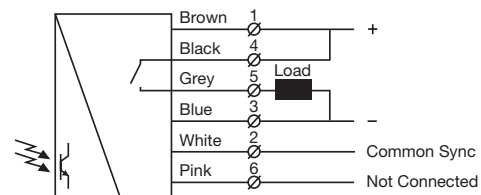
SGT 16

Control wire for test input and static blanking function (blanking function in C1 models only)



SGR 16

Load as NPN output



SGR 16

Load as PNP output



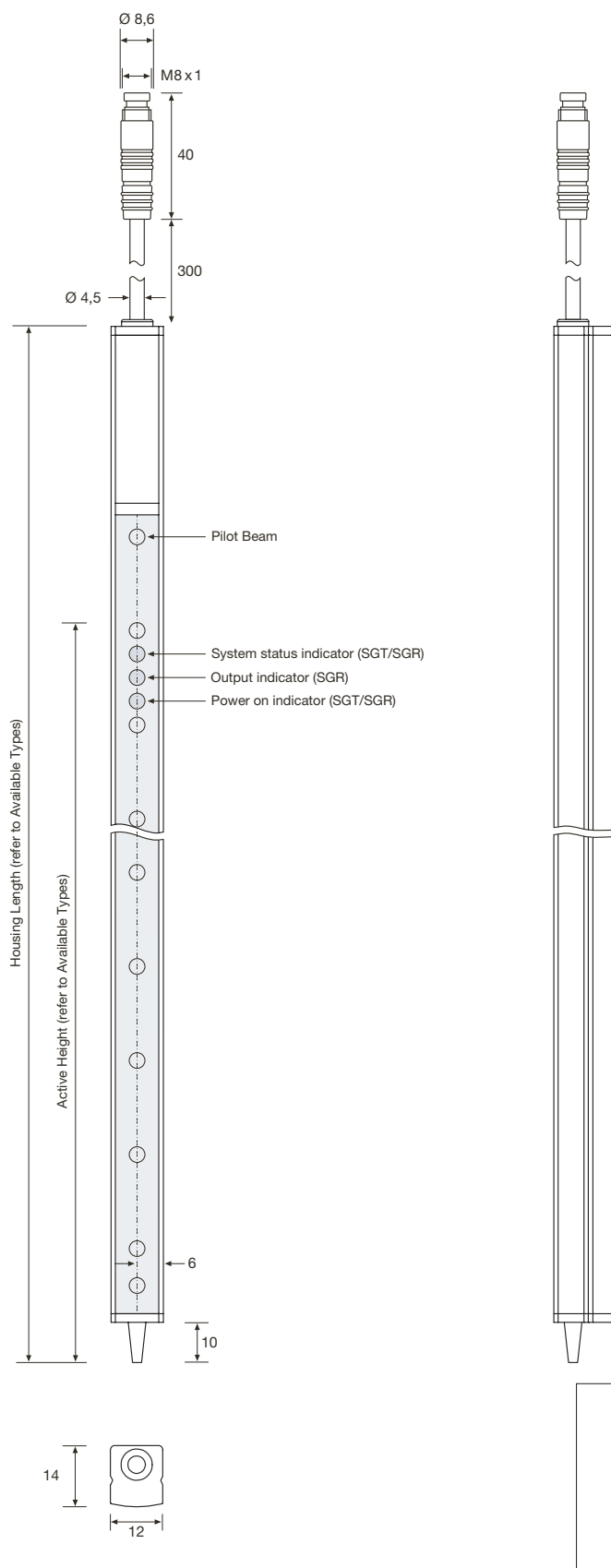
SGR 16

Solid state relay output

Solid State Relay

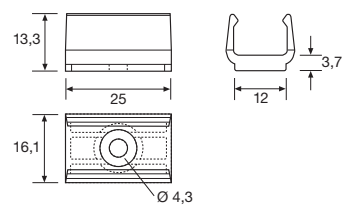
Dimensions and Descriptions

U-profile



Note: 1. Optional front lens cover to be ordered separately.

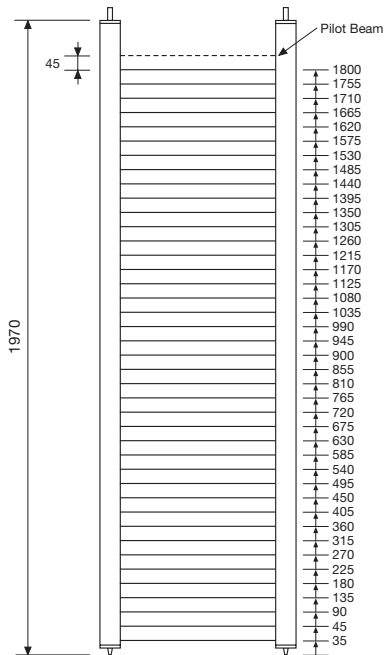
(Units in mm)



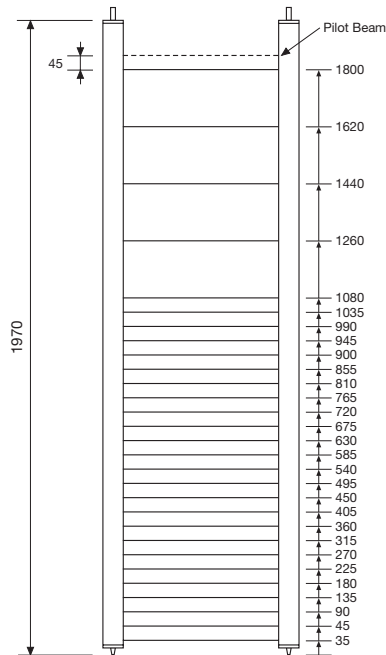
TR PSC-16-25 U
(6 pcs included with each set)

Beam Patterns

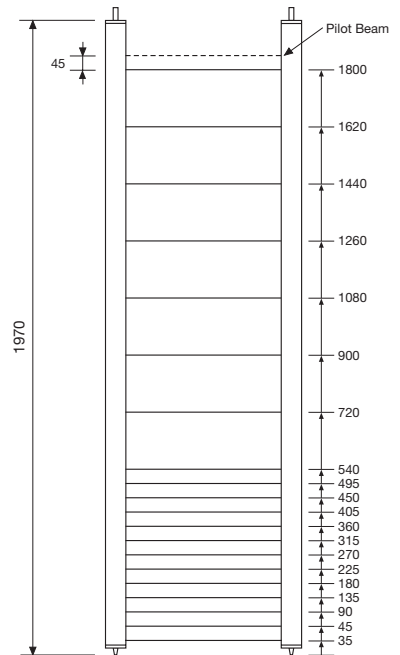
1970 mm housing length



C1



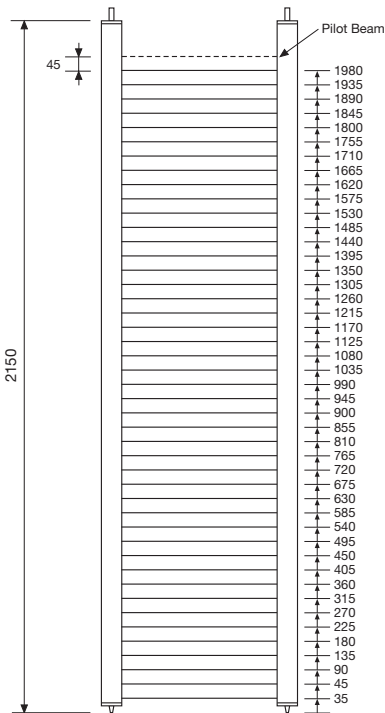
D1



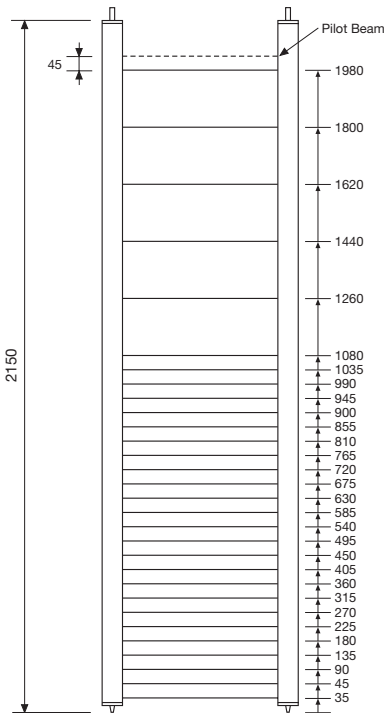
F1

(Units in mm)

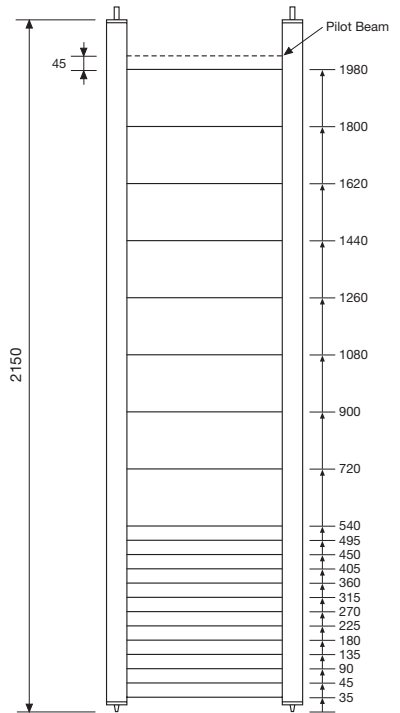
2150 mm housing length



C1



D1



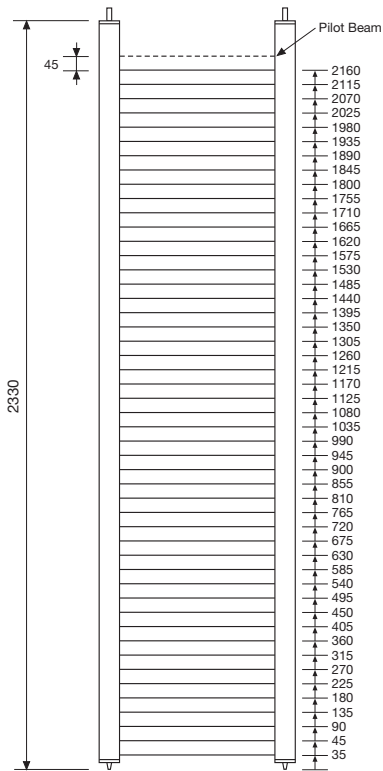
F1

(Units in mm)

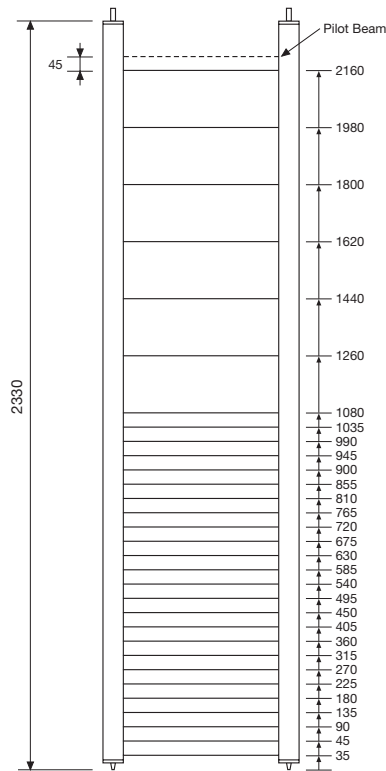
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Beam Patterns

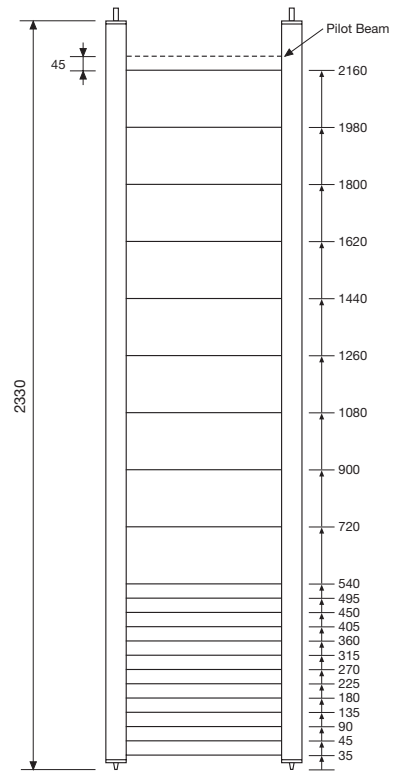
2330 mm housing length



C1



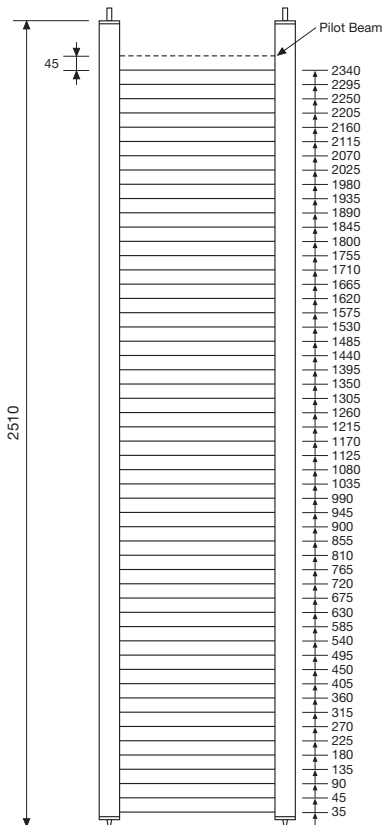
D1



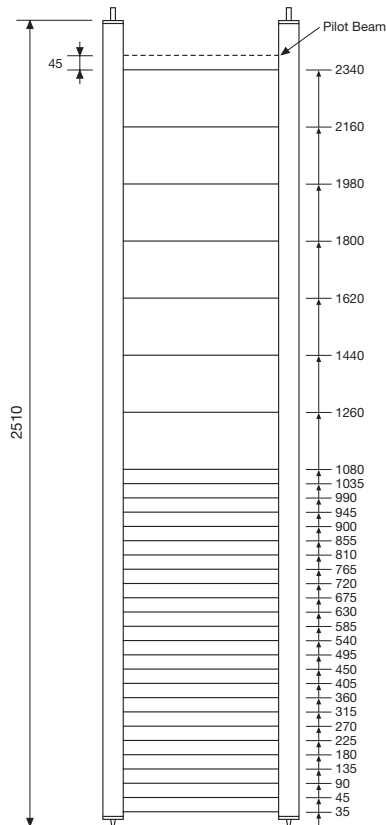
F1

(Units in mm)

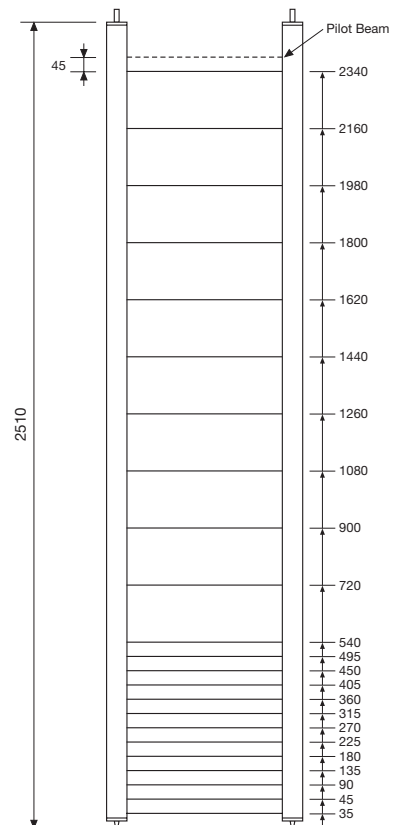
2510 mm housing length



C1



D1

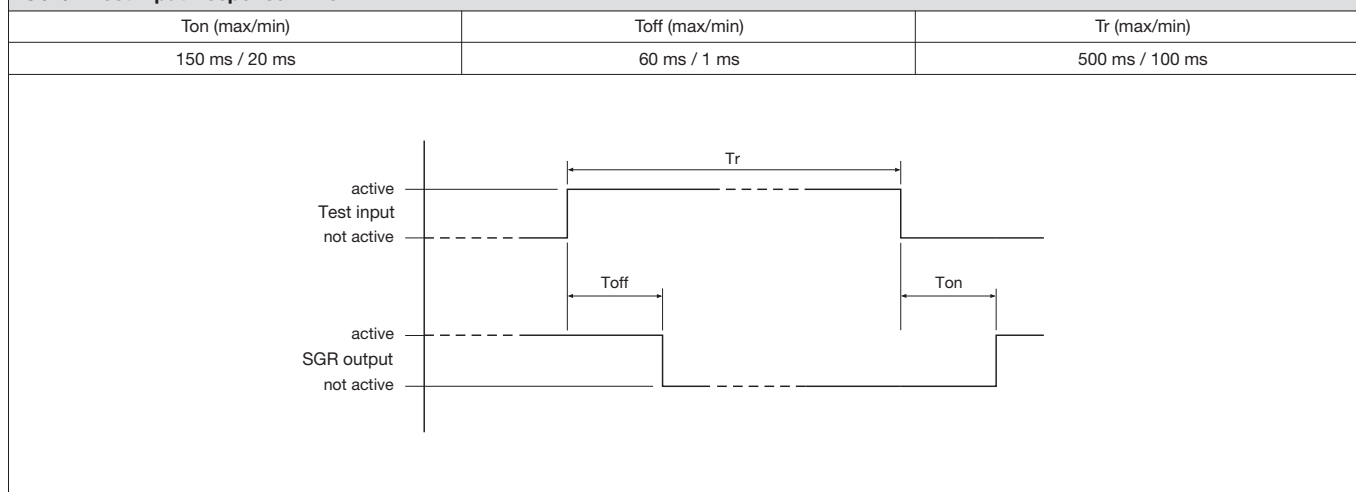


F1

(Units in mm)

Solid State Relay

SGT/R Test Input Response Time

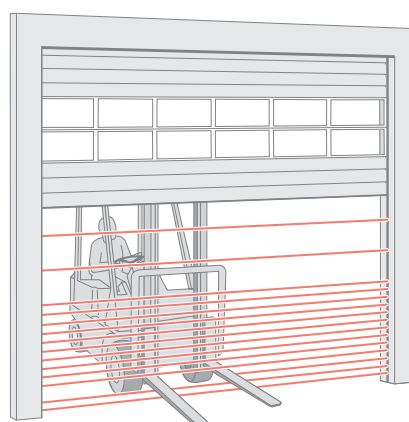


Sensing Characteristics

Parallel Displacement



Applications



OVERHEAD DOOR

Telco reserves the right to change specifications without notice.