



**Model Number**

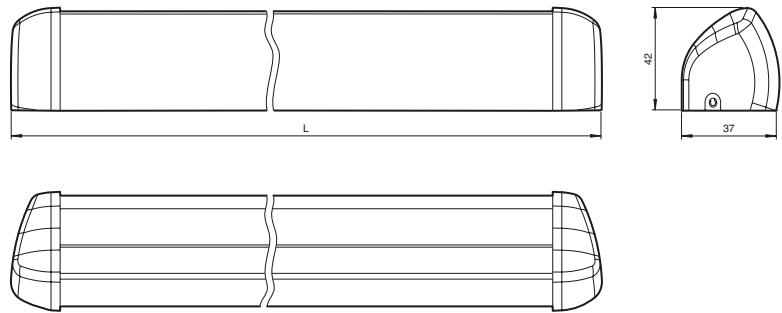
**TopScan-S-MS/L900**

Active infrared scanner

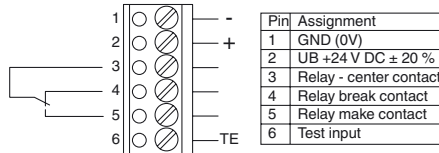
**Features**

- Moving presence sensor for swing doors
- Configurable for a wide range of door leaf widths
- Certified as cat. 2 in accordance with DIN 18650
- Safe function even on difficult floors
- Structure with Master/Slave Modules AIR17-S
- Each beam can be adjusted individually
- Easy adjustment of transmitter for belt side/belt opposite side

**Dimensions**



**Electrical connection**



Explanation:  
 Relay:  
 Relay is inactive during detection  
 Relay is active in free detection field

Test input:  
 Test input is inactive at: U\_low = -3 V ... +5 V DC  
 Test input is active at: U\_high = +11 V ... +30 V DC

Release date: 2010-03-30 10:38 Date of issue: 2011-01-25 205835\_ENG.xml

**Technical data****General specifications**

Detection range min.	0 ... 1500 mm
Detection range max.	0 ... 2500 mm
Light source	IRED
Black/White difference (6 %/90 %)	< 2 % at 2000 mm sensor range
Number of beams	2 (number of built-in sensor modules AIR)
Operating mode	Background evaluation
Diameter of the light spot	3 cm x 8 cm at 2000 mm sensor range

**Indicators/operating means**

Function display	LED red/green
Controls	Detection range adjuster

**Electrical specifications**

Operating voltage	$U_B$	24 V DC +/- 20 %
No-load supply current	$I_0$	140 mA

**Input**

Test input	active at $U = 11$ V DC at 30 V DC inactive at $U = -3$ V DC at 5 V DC
------------	--

**Output**

Switching type	Relay de-energized at object inside the scanning range
Signal output	Relay, 1 alternator
Switching voltage	5 V ... 30 V AC/DC
Switching current	max. 300 mA
Response time	≤ 70 ms

**Ambient conditions**

Ambient temperature	-10 ... 50 °C (14 ... 122 °F)
---------------------	-------------------------------

**Mechanical specifications**

Housing length L	900 mm
Mounting height	max. 2500 mm
Protection degree	IP52 , IP54 Optional (with special seal)
Connection	screw terminals
Material	
Housing	aluminum / ABS
Optical face	PMMA
Note	Safety fuse ≤ 1 A (slow-blow) according to IEC 60127-2 Sheet 1 Recommendation: after a short circuit, check that the device is functioning correctly.

**Compliance with standards and directives**

Directive conformity	
EMC Directive 2004/108/EC	EN 61000-6-2, EN 61000-6-3
Standard conformity	
Standards	EN 60947-5-2:2007 IEC 60947-5-2:2007 EN 12978 DIN 18650

**Approvals and certificates**

CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.
--------------	--

**Accessories****TopScan-S Cap Set**

End cover for TopScan-S aluminum profile section

**TopScan-S Profile L1400**

Housing profile TopScan-S

**TopScan-S Cover L1400**

Housing cover TopScan-S

**ZWKAIR16-S-TOPSCAN 240mm**

Flat cable for connection of sensor module AIR16-S

**TopScan-S Test Kit**

Adjustment accessories TopScan-S

**ZWKAIR16-S-TOPSCAN 160mm**

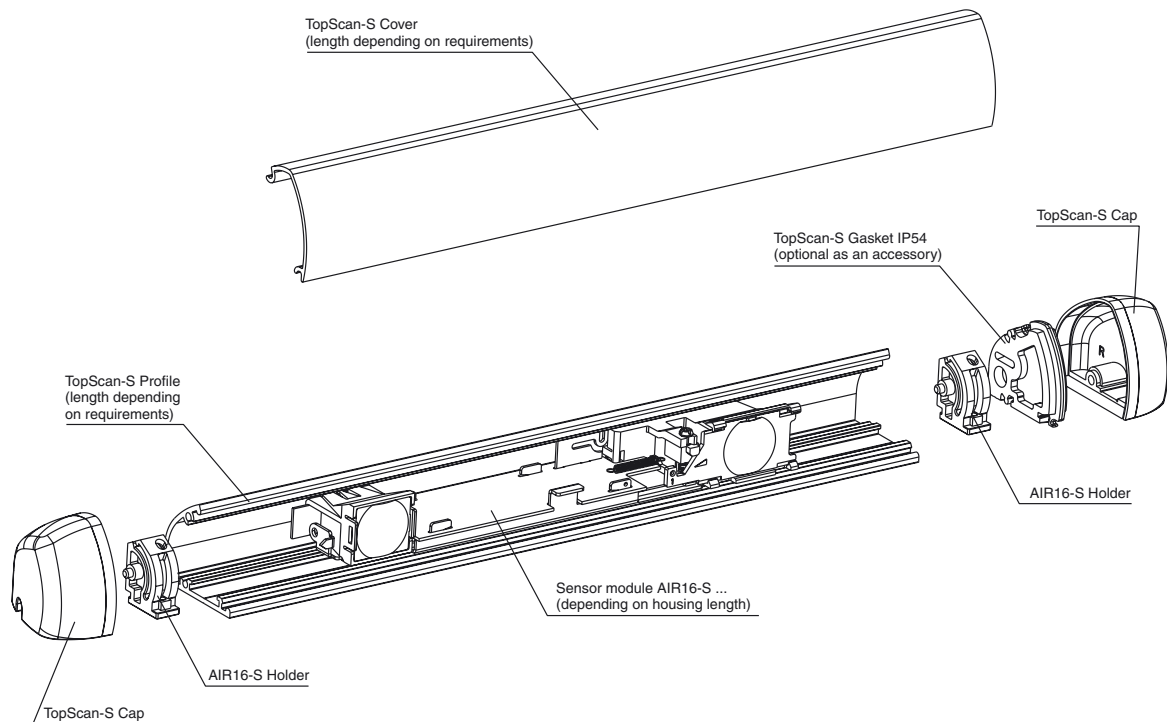
Flat cable for connection of sensor module AIR16-S

**TopScan-S Gasket IP54**

Housing seal TopScan-S

Additional accessories can be found in the Internet.

## Design of the device



## Additional information

### Description of Function

The TopScan-S is an active infrared scanner.

TopScan-S operates on the active infrared method with evaluation in the background, and enables traveling installation on door wings apart from static operation. Thus, it is ideal for securing the closing edges of automatic revolving doors. In case of revolving doors, a sensor mounted to the door wing offer the best possible protection as it always monitors the direct vicinity of the respectively present door wing position.

### Arrangement

The TopScan-S consists of an aluminum profile with front cover which can be adapted as required to the various door widths of up to 1,400 mm. The profile is fitted with sensor modules, and is arranged modularly according to the master/slave principle. The minimum arrangement with sensor modules in keeping with German standard DIN 18650 consists of a master module AIR16-S master and a slave module AIR16-S slave and provides a twin-beam protection. For a 900 mm door, for example, a master module and three slave units are required whilst a seven-beam system with master and six slaves covers a maximum variant of 1,400 mm.

The TopScan-S system can either be ordered in the required configuration or it can be factory plugged together as required for the necessary operation edge.



*The intended use of TopScan-S is to secure automatic revolving doors in keeping with German standard DIN 18650. If used as intended, the sensor shall influence the door movement through the safe door control only and not by direct intervention as only the entirety of safe door control and sensor constitute a protective device of Category 2 EN 954/1.*



*The modification of the construction / arrangement of the device without consultation of the manufacturer may lead to hazardous situations.*

### Principle of Operation

Any objects entering the protected area will be detected by the infrared beams and will cause the relay outputs to be switched off.

The light spot produced by the infrared beam on the ground is approx. 3 cm x 8 cm in size (at a mounting height of approx. 2 m).

The angle of the two lens systems can be modified by an adjustment mechanism. A detection range (detection height of objects) of up to a maximum of 2.50 m can be set. The factory setting is 1.90 m. The device has been provided with an optical adjustment aid.

The sensor reacts to objects in the detection range largely independently of the surface color and structure. Reflecting and very dark objects are detected as well.

Several sensors can be operated in a master and slave combination in order to be able to adapt the area protected to the prevailing conditions. The master module is connected to the door control by means of a six-pole screw terminal. The slave modules are connected to and supplied by the master module by means of flat cables. The master module and the slave modules are located in an aluminum profile together.

### Test

If the TopScan-S is used as a safety device, the device has to be tested cyclically by the door controller. This test should be conducted only if no object is detected, and the recommended door position for the test is completely open.

The door controller's test signal should be connected to the master module's 6-position screw terminal only.

Test Description:

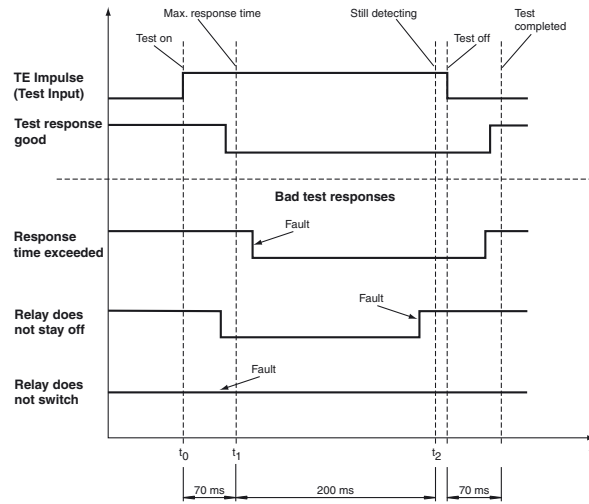
**Time  $t_0$ :** The door controller sends the test request input.

**Time  $t_1$ :** After a response time of no more than 70 ms, the sensor output must go into detection mode.

**Time  $t_2$ :** After 200 ms, the sensor output must remain in detection mode.

The test input signal can now be turned off by the door controller.

The test is now completed. After another 70 ms, the sensor will be available again.



The door controller sends signals to the sensor at the times  $t_1$  and  $t_2$ .

The inside and outside of the door has to be switched on and off alternately (muting) -> or has to be excluded from the evaluation of the door control.

If the device is not used as a safety sensor in complying with German standard DIN 18650, the test input can be left unconnected.