

MCD 573X

Smoke and heat detector

The multiple sensor detector MCD 573X is an individual addressable automatic fire detector for smoke and heat.

The MCD573X meets the SecuiLine eXtended specification for operation on the ring circuit of the SecuriFire fire detection system.



Fig. 1 MCD 573X

Description

The multiple sensor detector MCD 573X is a combined smoke and heat detector. It detects smouldering and open fires in good time as it can both detect and evaluate the fire characteristic smoke as well as heat. The Tyndall (scattered light) principle is applied for smoke detection and the NTC sensor principle for heat detection. An appropriate signal is sent to the control panel, if the signal values specified in the detector are exceeded.

The MCD 573X is equipped with a short circuit isolator that is capable of isolating a short circuit in the installation.

The MCD 573X can generate the following messages:

- Fire alarm smoke or heat
- Smoke pre-signal:
 - PS1 at 30%, PS2 at 75% of alarm threshold
- Soiling (smoke sensor): Level 1 and 2
- Temperature pre-signal
- Revision alarm for smoke and heat
- Fault messages:
 - ageing, optical system error, supply voltage error, NTC short circuit and interruption, EEPROM memory error

Most important features of the MCD 573X:

- Digital signal processing
- Alarm threshold tracing
- Temperature-supported smoke evaluation
- Temperature-compensated smoke part
- Signature alarm for smoke and heat
- Multidimensional event memory
- Smoke alarm filter to reduce the occurrence of false alarms
- Downward compatibility with MCD573 and STD 531 detector series
- Self-acting short circuit detection at start-up

The MCD 573X can be programmed and set according to its field of application. The most important settings are:

- Selecting the smoke responsiveness; at 80% (higher responsiveness), 100% (normal responsiveness) and 120% (lower responsiveness) of the alarm threshold
- Selection of heat classes according to EN 54-5; Class A1, A2, B inclusive index R (for unheated rooms) and index S (for kitchens) for all 3 heat classes.
- Activating/deactivating the fire characteristic smoke and/or heat
- Combination of the fire characteristic smoke and heat
- Alarm output for external alarm display, programmable as output independent of own alarm LED
- Voltage alarm output 5V, 6.8V
- Current limiting alarm output 0.1mA, 1mA, 5mA
- Fault message "Over temperature"

- Function up to a cable length of 3.5 km (at 25°C ambient temperature)
- Blinking at function (activatable)



Fire detectors may cause false alarms due to operational disturbances such as cigarette smoke, steam, heat, dust.

Planning

Country-specific guidelines for planning and installation of automatic fire alarm systems apply to the project planning. Additional guidelines may apply for combined fire detectors (MCD 573X), if one of the detection features is disconnected permanently or temporarily.

Mounting/Installation

Mounting and installation of the MCD 573X is accomplished with the assembly base series USB 502.

- USB 502-1 Standard base for surface mounting
- USB 502-2 Base for flush mounting in dropped ceilings
- USB 502-3 Base for damp rooms
- USB 502-4 Base for flush mounting in concrete
- USB 502-6 Standard base surface mounting without loop contact
- USB 502-20 Standard base with illuminated ring without loop contact

The specifications in the data sheets shall apply for installation; detector base series USB 502.

Dimensional drawing

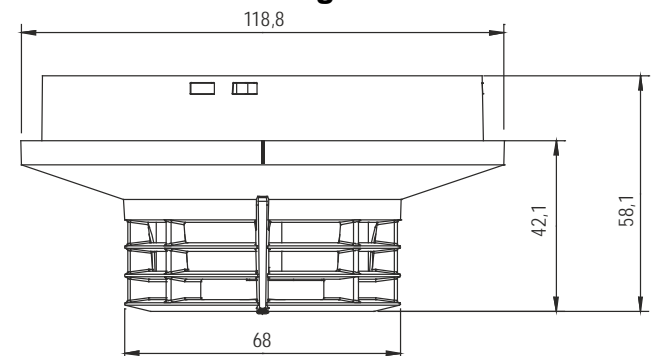


Fig. 2 Dimensional drawing MCD 573X

Connection



The max. number of detectors on a ring circuit must be calculated. The current consumption, the installation, further SecuriLine (SecuriLine eXtended) devices and the valid regulations/ guidelines must hereby be observed.

The electrical connection in the USB 502 base is with terminal strips. The electrical connection between detector and base is by means of a 5-pin plug connector.

Terminal	Signal	SecuriFire	SecuriPro
1	GND	C1/C2	U / Y
2	DATA A	L1	T
3	DATA B	L2	X
4	GND alarm output		
5	+ alarm output		
6	Terminal point (shielding)	shield	shield



The alarm output on terminal 5 may not be loaded with more than 5mA (or 1mA, 0.1mA respectively in the extended mode of function)

The terminal of base USB 502 is designed such that the SecuriLine (SecuriLine eXtended) is closed on removal of the detector MCD 573X.

The base types USB 502-6 / USB 502-6 MC and USB 502-20 are not equipped with a loop contact. Therefore, SecuriLine (SecuriLine eXtended) will not be closed when the detector is removed.

A short circuit separator in the MCD 573X ensures that a short circuit in the installation (ring) is disconnected in the area of the damage. The detector therefore continues to work properly.

Exception:

Under the conditions listed below, detectors on the SecuriLine (SecuriLine eXtended) are possibly no longer detected:

- Detector defect (short circuit/interruption)
- Multiple short circuit or interruption upstream or downstream of the detector
- short circuit or interruption in stub lines

Connection SecuriFire

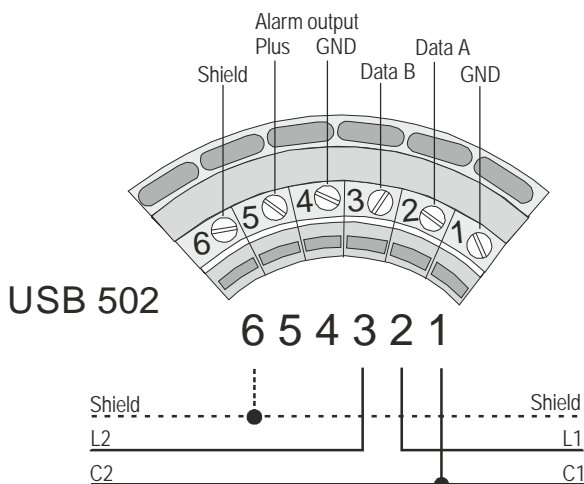


Fig. 3 Connection MCD 573X

Revision

The MCD 573X may only be tested with Securiton smoke detector test gas. The appropriate group must be connected to the central fire alarm system in revision mode before testing. The detector can only be tested with the test gas in revision mode or via signature triggering during normal plant operation.

Maintenance

The provisions of the respective country in which the facility is operated basically apply for maintenance and inspection work on danger alarm systems. The following apply e.g.:

- In GERMANY the DIN VDE 0833 part 1 + 2 and the DIN 14675
- In SWITZERLAND the VKF Guideline and the Technical guideline of the SES (TR SES)

The national guidelines partly refer to the manufacturer's instructions concerning the inspection intervals.

Securiton fire alarms have a detector self-test, with which the detector is automatically subjected to an extensive electronic function control. They are also equipped with automatic contamination compensation. It is nevertheless necessary to accomplish a physical function test on the alarm onsite in regular intervals. Securiton recommends for this purpose:

- Maintenance and inspection work should be accomplishing regularly and only by trained technical personnel (electrical specialist).
- At least once a year, a function and visual inspection has to be carried out according to the Securiton maintenance instructions:

Examination	smoke-/ heat detector
Visual examination of the detector fastening (base)	X
Visual examination of the detector (damages)	X
Visual examination of the detector (label of detection zone)	X
Examination of the monitoring range (free space not limited around the detector)	X
Triggered with test gas (Aerosol)	X
Triggered with hot air/heat	X
Examination of the alarm LED	X
Examination of the proper functioning of the alarm path from the detector to the control centre	X

Article numbers / spare parts

Brief description	Article number CH	Article number
MCD 573X	30-5000003-02-xx	30-5000003-02-xx
MCD 573X MC (colour acc. to RAL scale)	978 957	30-5000003-92-xx
MCD 573X CP	30-5000003-52-xx	30-5000003-52-xx
Accessories		
USB 502-1 standard base	265 244	30-4100005-01-xx
USB 502-1 MC (multicolour)	985 295	30-4100005-91-xx
USB 502-2 base for false ceilings	265 246	30-4100005-02-xx
USB 502-3 base for wet rooms	265 248	30-4100005-03-xx
USB 502-4 base for mounting in concrete	265 250	30-4100005-04-xx
USB 502-5 base for raised floors	265 252	30-4100005-05-xx
USB 502-6 standard base without loop contact	30-4100005-06-xx	30-4100005-06-xx
USB 502-6 MC (multicolour) without loop contact	985 297	30-4100005-96-xx
USB 502-20 standard base with illuminated ring without loop contact	249 467	20-2100019-01-xx

Technical data

Functional principle	combined smoke/heat detector (Tyndall effect, NTC sensor)
Monitoring area, mounting height	dependent on active detection principle (smoke or heat detector) ¹⁾
permissible air speed	max. 20 m/s
Responsiveness smoke detector	
Responsiveness acc. to EN 54-7	100% Sensitivity
Responsiveness acc. to EN 54-7, not VdS approved	80% Sensitivity
Responsiveness not acc. to EN 54-7	120% Sensitivity
Responsiveness heat detector acc. to EN 54-5	Class A1 (Factory setting and after reset) Class A2, Class B Index S and R
Multiple sensor detector acc. to EN 54-29	Combination smoke and heat detector
Signal transmission	serial biphasic data transmission, 2-wire-system
Operating voltage range (incl. modulation swing)	
for SecuriLine operation	11 to 31 V DC
for SecuriLine eXtended operation	7 to 31 V DC
Current consumption	max. 0.15 mA
alarm-LED active additionally	max. 2.5 mA
alarm output active additionally	max. 7.5 mA
Alarm output ^{2) 3)}	
output voltages	+6.8V DC (-10%, +15%) +5.0V DC (+1V, -0.3V)
output current, current limited (short circuit proof)	
nominal 0.1 mA	max. 0.7 mA
nominal 1.0 mA	max. 2.1 mA
nominal 5.0 mA	max. 7.5 mA
Protection system in connection with base USB 502	IP 44 ⁴⁾
Approval by VdS G210152	according to CEA 4021 part B and C EN 54 part 7, 5, 17 and 29 ⁵⁾
Declaration of performance	CPR-30-13-302-de-en
Ambient temperature range (continuous)	-25 ... +60 °C
Ambient conditions humidity	10 ... 95 % rel hum
(continuously, without condensation) at ≤ 34 °C	
Ambient conditions humidity	max. 35 g/m ³
(continuously, without condensation) at > 34 °C	min. 10% rel hum
Dimensions without base Ø x H	see dimensional drawing
Housing colour	white similar to RAL 9003
Housing material	ABS/PC
Weight	125 g

¹⁾ Values dependent on the ceiling structure (height, inclination), according to country-specific project planning guidelines.

²⁾ At an output voltage of +5V the activation of the alarm output must only be carried out if the alarm indicator lamp is connected.

³⁾ Only the following external display lamps may be connected: RAL 720X, RAL 721, RAL 722, RAL 723, MEA 720, USB 502-20

⁴⁾ For use in environments with fluctuating, briefly increased humidity, model MCD 573X CP may be used.

⁵⁾ Approval according to EN 54 Part 29 applies only from version 30-5000003-xx-05!