BOSCH
Invented for life

FCP-320/FCH-320 Conventional Automatic Fire Detectors

▸ **High reliability of detection thanks to evaluation electronics**

▸ **Active adjustment of the threshold (drift compensation) if the optical sensor becomes dirty**

▸ **Activation of a remote external detector alarm display possible**

▸ **Mechanical removal lock (can be activated/deactivated)**

▸ **Dust-repellent labyrinth and cap construction**

▸ **All detectors have an „Chamber Maid Plug"at the bottom for cleaning the optical chamber with compressed air (not required with the Heat Detector FCH-T320.**

The FCP-320/FCH-320 Series Conventional Automatic Fire Detectors set new standards in fire detection technology through a combination of optical, thermal and chemical (gas) sensors and intelligent evaluation electronics. Their most impressive feature is their ability to prevent false alarms, as well as speed and accuracy of detection.

The enhanced operating voltage range of 8,5 V DC up to 30 V DC and the two variants with 820 Ω alarm resistor or 470 Ω alarm resistor enables the detector application with nearly all conventional fire panels.

System Overview

Operating mode	Detector type			
	FCP-OC320	FCP-OT320	FCP-O320	FCH-T320/T320-FSA
Combined	x	x	-	-
Optical (scattered light measurement)	x	x	x	-
Thermal max.	-	x	-	x
Thermal differential	-	x	-	x
Chemical (gas measurement)	x	-	-	-

Functions

The FCP-OC320 and FCP-OT320 Multisensor Detectors each combine two detection principles. All sensor signals are analyzed continually by the internal evaluation electronics and are linked with each other.

If a signal combination fits the detector's programmed code field, an alarm is automatically triggered. By linking the sensors, the combined detectors can also be used in places where work carried out gives rise to light smoke, steam or dust.

Optical sensor (smoke sensor)

The optical sensor uses the scattered-light method.

An LED transmits light to the measuring chamber, where it is absorbed by the labyrinth structure. In the event of a fire, smoke enters the measuring chamber and the smoke particles scatter the light from the LED. The amount of light hitting the photo diode is converted into a proportional electrical signal.

Thermal sensor (temperature sensor)

A thermistor in a resistance network is used as a thermal sensor; an analog-digital converter measures the temperature-dependent voltage at regular intervals.

When the maximum temperature of 54°C is exceeded (thermal maximum), or if the temperature rises by a defined amount within a specified time (thermal differential), the temperature sensor triggers the alarm status.

Chemical sensor (CO gas sensor)

The main function of the gas sensor is to detect carbon monoxide (CO) generated as a result of a fire, but it will also detect hydrogen (H) and nitrous monoxide (NO). The sensor signal value is proportional to the concentration of gas. The gas sensor delivers additional information to effectively suppress deceptive values.

Depending on the service life of the gas sensor, the OC 310 detector switches off the C sensors after five years of operation. The detector will continue to function as an O detector. The detector should then be exchanged immediately in order to be able to keep using the higher reliability of detection of the OC detector.

Special features	Detector type			
	FCP-OC320	**FCP-OT320**	**FCP-O320**	**FCH-T320 / T320-FSA**
Drift compensation in optical unit	x	x	x	-
Drift compensation in the gas sensor	x	-	-	-

Installation/Configuration Notes

- Up to 32 detectors can be connected per primary line.
- Maximum cable length: 1000 m, for J-Y(St) Y n x 2 x 0.6/0.8
- Country-specific standards and guidelines must be observed during the planning phase.

Installation/configuration notes in accordance with VdS/VDE/DIBt

- Planning for multisensor detectors follows the guidelines for optical detectors, unless a specific VdS planning guideline is available (see DIN VDE 0833 Part 2 and VDS 2095).
- The OC and OT types are planned using the guidelines for optical detectors if operated as optical detectors or as combined detectors; see DIN VDE 0833 Part 2 and VDS 2095.
- When planning fire barriers according to DIBt, you have to use the FCH-T320-FSA. This detector has the characteristic curve corresponds to class A1R.

Parts Included

Detector type	Qty.	Components
FCP-OC320	1	Multisensor Detector Optical/Chemical
FCP-OT320	1	Multisensor Detector Optical/Thermal
FCP-O320	1	Optical Smoke Detector
FCH-T320	1	Heat Detector (Thermal Differential/Thermal Maximum)
FCH-T320-FSA	1	Heat Detector for Fire Barriers conforming to DIBt, Quality-controlled (Thermal Differential/Thermal Maximum)

Technical Specifications

Electrical

Operating voltage	8.5 V DC . . . 30 V DC
Current consumption	< 0.12 mA
Alarm output	Increase in current (alarm resistance 820 Ωor 470 Ω)
Indicator output	Open collector connects 0 V in the event of an alarm over 3.92 kΩ

Mechanics

Individual display	LED red
Dimensions	
• Without base	Ø 99.5 x 52 mm
• With base	Ø 120 x 63.5 mm
Housing material	Plastic, ABS
Housing color	White, similar to RAL 9010, matt finish
Weight	Without / with packaging
• FCP-OC320	Approx. 85 g / approx 130 g
• FCP-OT320 / FCP-O320 / FCH-T320 / FCH-T320-FSA	Approx. 80 g / approx. 120 g

Environmental conditions

Protection class as per EN 60529	IP 30, IP 32 with detector base with damp room seal
Permissible relative humidity	95% (non-condensing)
Permissible air speed	20 m/s
Permissible operating temperature	
• FCP-OC320	-10 ℃ . . . +50 ℃
• FCP-OT320	-20 ℃ . . . +50 ℃
• FCP-O320	-20 ℃ . . . +65 ℃
• FCH-T320 / T320-FSA	-20 ℃ . . . +50 ℃

Planning

Monitoring area	
• FCP-OC320, FCP-OT320, FCP-O320	Max. 120 m^2 (Heed local guidelines!)
• FCH-T320	Max. 40 m^2 (Heed local guidelines!)
Maximum installation height	16 m (Heed local guidelines!)
• FCP-OC320, FCP-OT320, FCP-O320	16 m (Heed local guidelines!)
• FCH-T320	6 m (Heed local guidelines!)

Special features

Response sensitivity

•	Optical part	< 0.2 dB/m, in line with EN 54 T7
•	Thermal maximum part	>54 ℃
•	Thermal rate-of-rise part (in line with prEN 54-5)	FCH-T320: A2R FCH-T320-FSA: A1R
•	Chemical part	In ppm range

Color code

•	FCP-OC320	Blue ring
•	FCP-OT320	Black ring
•	FCP-O320	No marking
•	FCH-T320 / T320-FSA	Red ring

Ordering Information

FCP-OC320 Multisensor Detector Optical/Chemical with 820 Ohm alarm resistor	**FCP-OC320**
FCP-OC320-R470 Multisensor Detector Optical/Chemical with 470 Ohm alarm resistor	**FCP-OC320-R470**
FCP-OT320 Multisensor Detector Optical/Thermal with 820 Ohm alarm resistor	**FCP-OT320**
FCP-OT320-R470 Multisensor Detector Optical/Thermal with 470 Ohm alarm resistor	**FCP-OT320-R470**
FCP-O320 Optical Smoke Detector with 820 Ohm alarm resistor	**FCP-O320**
FCP-O320-R470 Optical Smoke Detector with 470 Ohm alarm resistor	**FCP-O320-R470**
FCH-T320 Heat Detector thermal differential/thermal maximum detector, with 820 Ohm alarm resistor	**FCH-T320**
FCH-T320-R470 Heat Detector thermal differential/thermal maximum detector, with 470 Ohm alarm resistor	**FCH-T320-R470**
FCH-T320-FSA Heat Detector, for Fire Barriers conforming to DIBt thermal differential/thermal maximum detector, with 820 Ohm alarm resistor	**FCH-T320-FSA**

Accessories

MS 400 Detector Base for surface-mounted and flush-mounted cable feed	**MS 400**
MSF 400 Detector Base with Damp Room Seal for surface-mounted and flush-mounted cable feed	**MSF 400**
MSC 420 Additional Base with Damp Room Seal for surface-mounted cable feed	**MSC 420**

Ordering Information

MSR 320 Conventional Detector Base with Relay	**MSR 320**
MSD 320 Conventional Detector Base with Diode	**MSD 320**
MPA External Detector Alarm Display according to DIN 14623	**MPA**
FAA-420-RI Remote Indicator	**FAA-420-RI**
Mounting Bracket for Fire Detectors on False Floor Stilts	**FMX-DET-MB**
MK 400 Detector Console Console for DIBt compliant mounting of detectors above doors etc., including detector base	**MK 400**
MH 400 Detector Heating Element	**MH 400**
SK 400 Protective Basket	**SK 400**
SSK 400 Protective Dust Cover (packing unit = 10 units)	**SSK 400**
TP4 400 Support Plate for Detector Identification (packing unit = 50 units)	**TP4 400**
TP8 400 Support Plate for Detector Identification (packing unit = 50 units)	**TP8 400**