

# FCP-320/FCH-320 Conventional Automatic Fire Detectors



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-OC320-R470	FCP-OT320 / FCP-OT320-R470	FCP-O320 / FCP-O320-R470	FCH-T320 / FCH-T320-FSA / FCH-T320-R470
Combined	x	x	-	-

### V d S

- ▶ 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

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 320 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	Drift compensation	
	Optical unit	Gas sensor
FCP-OC320 FCP-OC320-R470	x	x
FCP-OT320 FCP-OT320-R470	x	--
FCP-O320 FCP-O320-R470	x	--
FCH-T320 FCH-T320-R470 FCH-T320-FSA	--	--

**EN54 compliance**

	EN54-5	EN54-7
FCP-OC320		●
FCP-OC320-R470		●
FCP-OT320	●	●

	EN54-5	EN54-7
FCP-OT320-R470	●	●
FCP-O320		●
FCP-O320-R470		●
FCH-T320	●	
FCH-T320-R470	●	
FCH-T320-FSA	●	

**Regulatory information**

Region	Regulatory compliance/quality marks	
Europe	CE	FCP-/FCH-320
	CE	MSR 320
	DoP	FCH-T320_R470
	DoP	FCH-T320-FSA
	DoP	FCP-O320_R470
	DoP	FCP-OC320_R470
	DoP	FCP-OT320_R470
	CPR	0786-CPR-21793 FCP-OT320_FCP-OT320-R470
	CPR	0786-CPR-21790 FCH-T320_FCH-T320-R470
	CPR	0786-CPR-21791 FCH-T320-FSA
Germany	CPR	0786-CPR-21794 FCP-OC320_FCP-OC320-R470
	CPR	0786-CPR-21792 FCP-O-320-FCP-O-320-R470
	VdS	G 208001 FCP-O320_-R470
	VdS	G 208002 FCP-OT320_-R470
	VdS	G 208003 FCH-T320_-R470
Morocco	VdS	G 208004 FCH-T320-FSA
	VdS	G 208005 FCP-OC320_-R470
	CMIM	FCP-320

### 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
- The detector can be painted (cap and base) and thereby adapted to the surrounding colour scheme; note the information in the Painting Instructions (Document Number F.01U.089.231)

### 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; its characteristic curve corresponds to category A1R

### Technical specifications

#### Electrical

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

#### Mechanics

LED color	Red
• Dimensions (Ø x H) (mm)	99.5 mm x 52.0 mm
• Dimensions (Ø x H) (mm) with base (Ø x H)	120 mm x 63.5 mm
Material	Plastic

Color (RAL)	White, similar to RAL 9003	
	Weight (g)	Shipping weight (g)
FCH-T320 Heat detector, rate-of-rise	74 g	98 g
FCH-T320-FSA Heat detector, DIBt protection closures	75 g	98 g
FCH-T320-R470 Heat detector	75 g	98 g
FCP-O320 Smoke detector optical	76 g	99 g
FCP-O320-R470 Smoke detector, optical	76 g	99 g
FCP-OC320 Multisensor detector optical/chemical	87 g	110 g
FCP-OC320-R470 Multisensor detector optical/chemical	87 g	112 g
FCP-OT320 Multisensor detector optical/thermal	76 g	100 g
FCP-OT320-R470 Multisensor detector optical/thermal	75 g	99 g

#### Environmental conditions

Protection class as per EN 60529	IP 41, IP 43 with FAA-420-SEAL or MSC 420
Permissible relative humidity	95% (non-condensing)
Permissible air speed	20 m/s
Permissible operating temperature	-20 °C to +50 °C

• FCP-0320 / FCP-0320-R470	-20 °C to +65 °C
• FCP-OC320 / FCP-OC320-R470	-10 °C to +50 °C

**Limits**

Heed local guidelines. They overrule the following limits.

Maximum installation height	16 m (Heed local guidelines!)
• FCH-T320 / -R470 / -FSA	6 m (Heed local guidelines!)

**Special features**

Response sensitivity	
• Optical part (in line with EN 54-7)	FCP-OC320 / FCP-OC320-R470 < 0.23 dB/m FCP-OT320 / FCP-OT320-R470 < 0.19 dB/m FCP-O320 / FCP-O320-R470 < 0.16 dB/m
• Thermal maximum part	>54 °C
• Thermal rate-of-rise part (in line with EN 54-5)	FCH-T320 / FCH-T320-R470: A2R FCH-T320-FSA: A1R
• Chemical part	In ppm range
Color code	
• FCP-OC320 / FCP-OC320-R470	Blue ring
• FCP-OT320 / FCP-OT320-R470	Black ring
• FCP-0320 / FCP-0320-R470	No marking
• FCH-T320 / FCH-T320-R470 / - FSA	Red ring

**Ordering information**

**FCH-T320 Heat detector, rate-of-rise**  
conventional technology, thermal differential/thermal maximum detector, with 820 Ohm alarm resistor  
Order number **FCH-T320**

**FCH-T320-FSA Heat detector, DIBt protection closures**  
thermal differential/thermal maximum detector, conventional technology, with 820 Ohm alarm resistor  
Order number **FCH-T320-FSA**

**FCH-T320-R470 Heat detector**  
thermal differential/thermal maximum detector, conventional technology, with 470 Ohm alarm resistor  
Order number **FCH-T320-R470**

**FCP-O320 Smoke detector optical**  
conventional technology, with 820 Ohm alarm resistor  
Order number **FCP-O320**

**FCP-O320-R470 Smoke detector, optical**  
conventional technology, with 470 Ohm alarm resistor  
Order number **FCP-O320-R470**

**FCP-OC320 Multisensor detector optical/chemical**  
conventional technology, with 820 Ohm alarm resistor  
Order number **FCP-OC320**

**FCP-OC320-R470 Multisensor detector optical/chemical**  
conventional technology, with 470 Ohm alarm resistor  
Order number **FCP-OC320-R470**

**FCP-OT320 Multisensor detector optical/thermal**  
conventional technology, with 820 Ohm alarm resistor  
Order number **FCP-OT320**

**FCP-OT320-R470 Multisensor detector optical/thermal**  
conventional technology, with 470 Ohm alarm resistor  
Order number **FCP-OT320-R470**

**Accessories**

**FAA-420-RI-DIN Remote indicator for DIN application**  
For applications where the automatic detector is not visible, or mounted in false ceilings/floors, complies with DIN 14623.  
Order number **FAA-420-RI-DIN**

**FAA-420-RI-ROW Remote indicator**  
For applications where the automatic detector is not visible, or mounted in false ceilings/floors, complies with DIN 14623.  
Order number **FAA-420-RI-ROW**

**FMX-DET-MB Mounting bracket**  
Mounting bracket for installation in false floors  
Order number **FMX-DET-MB**

**MH 400 Heating element**  
usable at locations where the functional safety of the detector might be impaired by condensation  
Order number **MH 400**

**MS 400 B Detector base with Bosch logo**  
Bosch-branded detector base for surface mounted and flush-mounted cable feed  
Order number **MS 400 B**

**MS 400 Detector base**  
Detector base for surface mounted and flush-mounted cable feed, not branded.  
Order number **MS 400**

**MSC 420 Base extension with damp room sealing**  
Extension for detector bases with surface-mounted cable feed  
Order number **MSC 420**

**MSR 320 Base with relay, conventional**  
with a change-over relay (Form C)  
Order number **MSR 320**

**MSS 300 Base sounder white**

Control via C-point of the detector

Order number **MSS 300**

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**MSS300-WH-EC Base sounder, white**

Control through fire panel via interface

Order number **MSS300-WH-EC**

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**SK 400 Protective cage**

prevents damage

Order number **SK 400**

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**SSK400 Dust protection, 10pcs**

Protective dust cover for automatic point type detectors.

Delivery unit is 10.

Order number **SSK400**

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**TP4 400 Label plate small**

Support plate for detector identification.

Delivery unit is 50.

Order number **TP4 400**

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**TP8 400 Label plate large**

Support plate for detector identification, large.

Delivery unit is 50.

Order number **TP8 400**

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**WA400 Wall bracket**

Console for DIBt compliant mounting of detectors above doors etc., including detector base

Order number **WA400**

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**Services****EWE-FPTDT-IW 12 mths wrty ext Fire Point Detector**

12 months warranty extension

Order number **EWE-FPTDT-IW | F.01U.360.736**

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