

Security Products

Automatic Fire Detector in Conventional Technology

Detector Series FC650

Technical Data

- Detector series compliant to EN 54 comprising of smoke and heat detectors – VdS approved
- Alarm LED on the detector head
- Output of detector specific data using the Programming Device FI700/PU
- Simple handling using bayonet connection
- Test activation possible using a magnet
- Anti-tamper mechanical block feature
- Remote indicator can be connected to the detector base



Description

The FC650 fire detector series are conventional threshold alarm detectors that comply with the respective standard of the EN 54 standard series and are VdS approved. The detectors feature an alarm indicator on the detector head that is visible from all angles, and which can be triggered with a permanent magnet for test purposes. A detector base is provided for mounting and cable connection purposes, into which the detector is simply plugged-in via the bayonet connection. By connecting an address module to the detector base, the relevant detector can be identified by the alarm panel during an alarm, should the alarm panel have the respective performance features. In this case, the first detector that was triggered is detected for each detector group.

Data can be read out of the detector and displayed using the Programming Device FI700/PU. In this way, the degree of pollution of the Optical Smoke Detector FC650/O can be read out. The detector is screwed into the base of the FI700/PU for this purpose, where the required data can be read out.

Application

The FC650 series offers detectors for different applications. The Optical Smoke Detector FC650/O operates according to the scattered-light principle and is used where smoke is expected in case of a fire. The detector is equipped with a dust barrier that protects the detector both against dust contamination as well as penetration of outside light sources. An insect screen prevents intrusion by small insects.

If factors such as dust, water vapour or cigarette smoke are expected to affect the smoke detector operation or very fast heat development is expected in the event of a fire, the Heat Detectors FC650/TDIFF or FC650/TMAX should be used. The Thermal Max. Detector FC650/TMAX triggers if a predefined threshold temperature of 78 °C is exceeded. The Thermal ROR Detector FC650/TDIFF also reacts to fast increase in temperature, which generally occur in the event of a fire, and at a temperature of 57 °C or higher. The temperature is monitored with so-called measuring thermistors.

All detectors are only intended for indoor use in dry ambience.

Automatic Fire Detector in Threshold Alarm Technology

Application

Two types of detector bases are available for connection and installation of the detectors. If the detectors are connected to a fire control panel, the base FC600/BR is used. When connecting using 4-wire technology, for example, to an Intrusion Alarm Panel or a KNX Zone Terminal, the relay base FC600/BREL should be used (see separate data sheet).

The resistor that triggers the alarm is soldered into the detector base ex-works. The end of line resistor is connected to the last base of a detector group in accordance with the connection schematic.

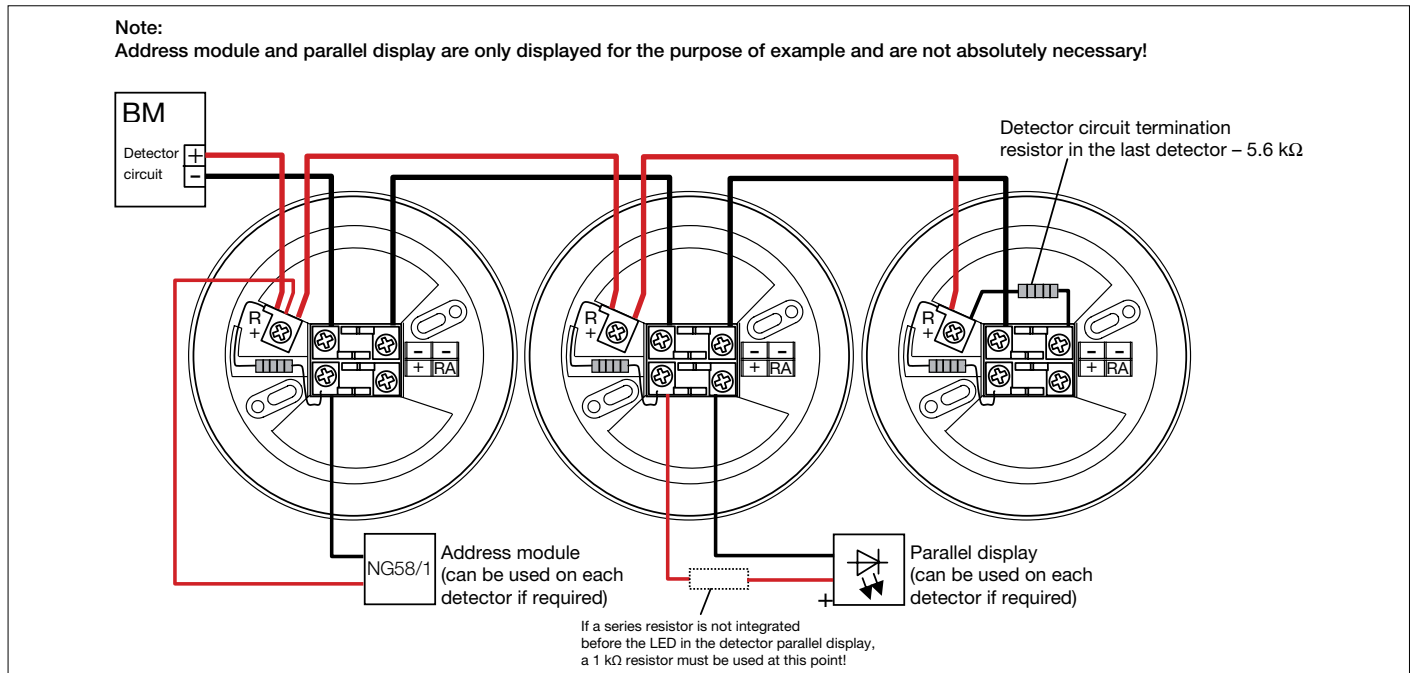
An LED on the detector head indicates the state of the detector. Optionally, a remote indicator (PA58-3) for remote signaling of an alarm can be connected to the detector base (see circuit diagram).

Should there be a requirement to hinder easy removal of the detector from the base, a small plastic peg on the side of the detector base can be broken off by inserting a solid object through the aperture on the detector base. Only after insertion at the same point, for example, of a screwdriver, is it possible to unlatch the detector and turn it out of the base (see "Unlatching the detector" illustration below).

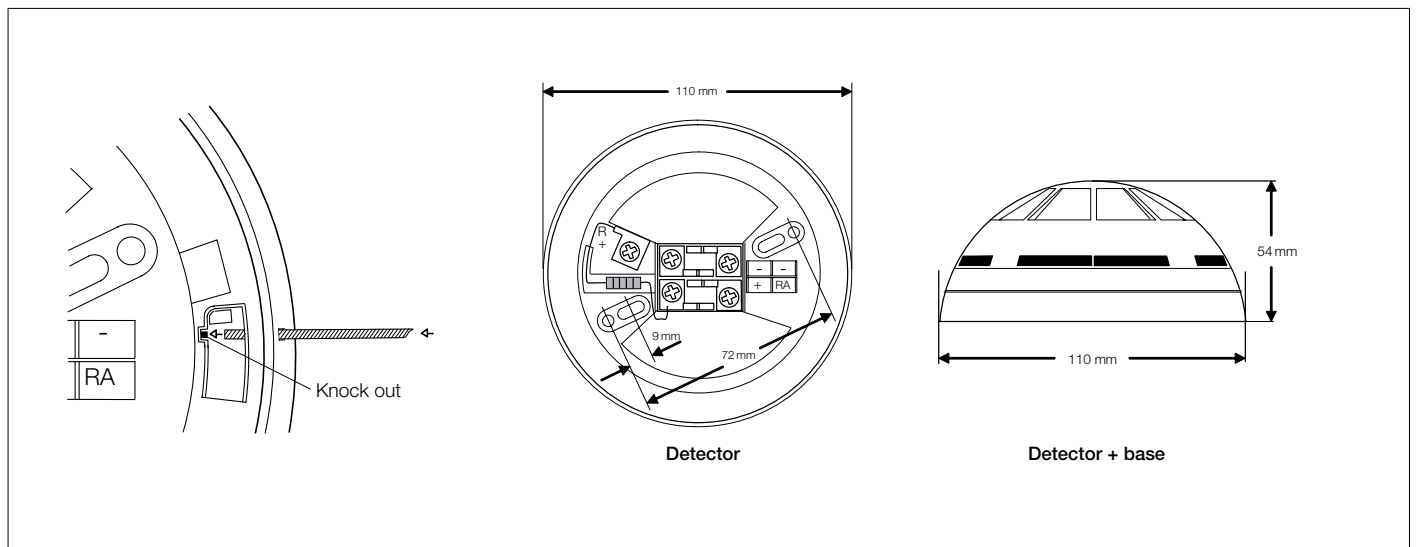
Engineering

The number of detectors and the installation locations result from the engineering specifications for fire detectors VDE 0833 – part 2 and the engineering guidelines compliant to VdS 2095, should there be any insurance related requirements.

Electrical connection - circuit example with 3 detectors



Unlatching the detector | Dimensional drawing



Automatic Fire Detector in Threshold Alarm Technology

Installation

The detector bases are fixed on the ceiling with 2 screws, after the corresponding preparations have been made. The detector is mounted horizontally as standard. The location of the mounting bores can be found in the "Dimensional drawing" section.

During installation, it is important to ensure that the base does not warp when installed on an uneven ceiling, as it may make it difficult or impossible to plug-in the detector. The detector is placed against the base and screwed onto the base in a clockwise direction.

Cable connection

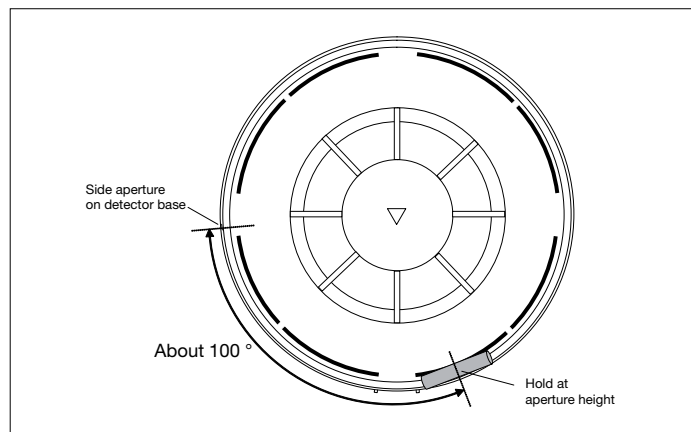
With flush-mounted cabling, it is necessary to ensure that all the required conductors for standard wiring are located on the "R+" terminal side. The incoming and outgoing conductors can be inserted through the same aperture on the socket base (also see the dimensional drawing).

With flush-mounted cabling, it is also advantageous if both cables are inserted on the side of the base, where the terminal "R+" and the terminals for all other standard applications are located.

When introducing the cable from 2 sides, the location of the base should be selected, so that the breaking points for the cable entry on the base are offset longitudinally to the cable path by 180°. The individual wires can be fed both within the base interior as well as from underneath the base, from one half of the base to the other. Cables up to 2 x 2 x 0.8 mm can be inserted to the base together with the sheath; thicker cables will require removal of the sheath outside the base. If the cable shield (sheath wire) of incoming and outgoing cables is to be looped through, this must be implemented in the base, e.g. using a ferrule or similar device.

Test activation

A test activation can be undertaken by holding a permanent magnet at the smoke inlet aperture level (these are also available on the heat detectors) located at about 100° in a counter-clockwise orientation starting from the rectangular opening on the side of the detector base on the detector.



Inspection/Maintenance

Every detector must be physically activated at least once a year to test its function in accordance with VDE 0833 part 1. A suitable testing aerosol is recommended for activation of smoke detectors; heat detectors should be activated using a heat gun or a hair drier.

Technical Data


Electrical values

| | |
|-------------------------------|---|
| Operating voltage | 10 to 30 V DC |
| Quiescent current consumption | |
| FC650/O | Typ. 90 µA, at typ. 24 V DC line voltage and 25 °C |
| FC650/TMAX-TDIFF | Typ. 90 µA, at typ. 24 V DC line voltage and 25 °C |
| Alarm current | Max. 40 mA, limited by alarm resistor in detector base (do not short-circuit) |

General data

| | |
|-------------------------|---|
| Temperature range | -30 °C to +70 °C |
| Application temperature | Max. 45 °C (FC650/TDIFF) Max. 60 °C (FC650/TMAX) |
| Activation temperature | 57 °C (FC650/TDIFF) 78 °C (FC650/TMAX) |
| Air humidity | Max. 95 % relative (without condensation) |
| Enclosure | IP30 |
| Manufacturing date | Label on detector base |
| Dimensions W x H | |
| Detector | 106 mm x 46 mm |
| Base | 110 mm x 16 mm |
| Detector + Base | 110 mm x 54 mm |
| Weight | Approx. 80 g |
| Colour | White |
| Material | Plastic |
| Approvals | |
| FC650/O | VdS No. G 210145 |
| FC650/TMAX | VdS No. G 210151 |
| FC650/TDIFF | VdS No. G 210151 |
| Applicable standard | |
| FC650/O | EN 54-7 |
| FC650/TMAX | EN 54-5 – class B |
| FC650/TDIFF | EN 54-5 – class A1R |

Specifications according to Building Products Act

| | |
|--|---|
|  0832 | 10 |
| | 0832-CPD-1417 FC650/O |
| | 0832-CPD-1418 FC650/TMAX |
| | 0832-CPD-1418 FC650/TDIFF |
| | EN54-7:2000 + A1:2002 |
| | Smoke detectors - Point detectors using scattered light |
| | EN54-5:2000 + A1:2002 |
| | Heat detectors - Point detectors |

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Data output with FI700/PU

Using the FI700/PU, certain data and values can be read from the detector after the respective detector has been screwed into the base of the FI700/PU. For this purpose, the corresponding detector series must be selected in the first step on the FI700/PU. Then the data can be read. More details can be found on the data sheet of the FI700/PU.

Displayed data in dependence on the device type

| Function/Device | FC650/O | FC650/TMAX | FC650/TDIFF |
|---------------------|---------|------------|-------------|
| Type | FC650/O | FC650/T | FC650/T |
| Quiescent value | x | | |
| Pollution in % | x | | |
| Type of heat sensor | | x | x |
| Firmware | x | x | x |
| Manufacturing date | x | x | x |
| Factory test date | x | x | x |
| LED function | | | |
| Battery state in % | x | x | x |

Ordering Information

| Product photo | Description | Short designation | Order code | bbn 40 16779 EAN | Price group | Weight 1 pcs kg | Pack unit Quantity |
|---|--|-------------------|--------------------|------------------------|-------------|-----------------------|-----------------------|
|  | Optical Smoke Detector VdS No. G 210145 | FC650/O | 2CDG 430 079 R0011 | 86479 4 | P6 | 0.07 | 1 |
|  | Static Heat Detector VdS No. G 210151 | FC650/TMAX | 2CDG 430 081 R0011 | 86477 0 | P6 | 0.07 | 1 |
|  | Thermal ROR Detector VdS No. G 210151 | FC650/TDIFF | 2CDG 430 080 R0011 | 86478 7 | P6 | 0.07 | 1 |
|  | Universal Detector Base for Series FC650 | FC600/BR | 2CDG 430 050 R0011 | 70839 5 | P6 | 0.04 | 1 |
|  | Detector Base 12/24 V for Series FC650 | FC600/BREL | 2CDG 430 051 R0011 | 70840 1 | P6 | 0.06 | 1 |
|  | Test Aerosol for Smoke Detector Testing | FPA03 | GH V902 0012 V0021 | 53444 4 | P6 | 0.3 | 1 |
|  | Programming device for reading data on the FI700 and FC650 detector series | FI700/PU | 2CDG 430 064 R0011 | 69824 5 | P6 | 0.2 | 1 |

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