

IFC 10

Technical Information

UV Flame Detector IFC 10 for oil -, gas – and dual fuel burners for intermittent burner operations



Description

The IFC 10 is a compact UV flame detector, which is specially designed for severe conditions often experienced in industrial applications for single flame combustion. The IFC 10 can be connected directly to the ionisation or LDR input of the control box. The UV sensor ensures that the flame detector does not react to background radiation from hot refractory or from any other infrared light source.

The flame detector IFC 10 has been developed to meet the requirements of European Standards EN298:2012-11 for burner management control units which make a 'no-flame' check after normal burner shut down when the flame amplifier is permanently energised.

With the dioptric holder, which serves also as a connection interface of the flame detector to the combustion chamber, the IFC 10 can be fitted with different glasses and lenses to special requirements. The flame detector is equipped with an optical interface which visibly indicates the flame signal intensity. A simple diagnosis of the flame intensity is directly on the furnace or boiler possible.

This Quick Guide provides an overview of the technical data of the IFC 10, its application, installation and handling, as well as ordering data and accessories.

Binding is solely the original operating instructions of the IFC 10 in its currently valid version.

Safety instruction

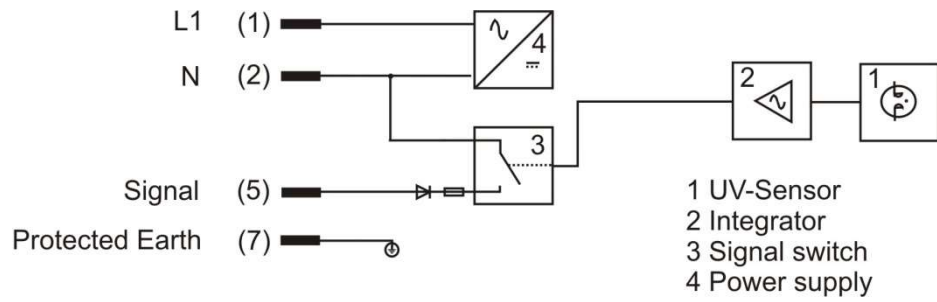
In order to ensure correct operation, the compact flame detector IFC 10 as well as flame amplifiers of all applications have to be tested several times by starting and stopping the burner several times. In all cases the flame detector output has to be switched off reliably in case of an absent flame. This is an indispensable pre-requisite for a safe and correct operation of the device !

For safety reasons and technical regulations a controlled burner shut down of at least once per 24 hours must be guaranteed. Check according to EN 298:2012-11 need to check the UV tube to be used in the burner control to the controlled shut-down on the presence of a flame signal back.

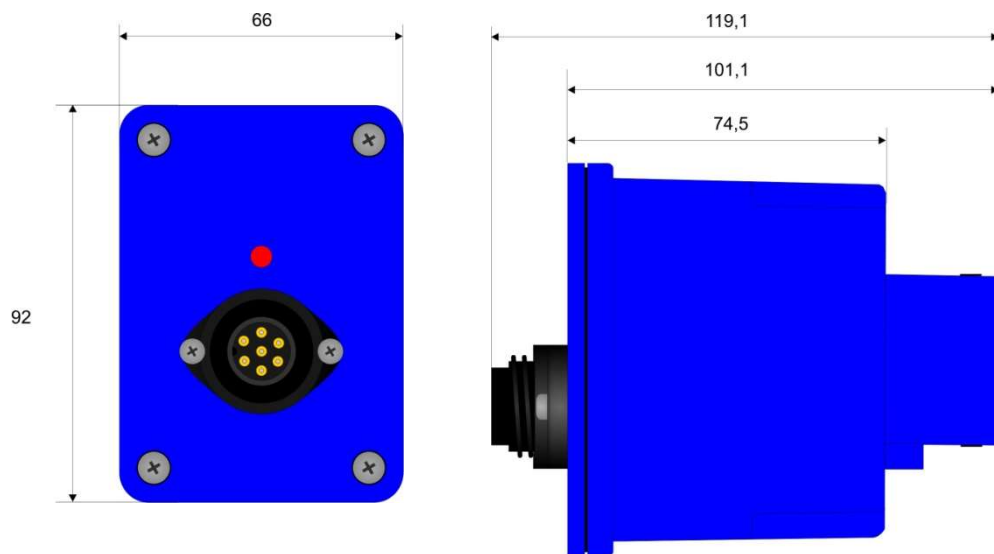
Technical data

| | |
|----------------------------------|---|
| Input: | AC 230 V ~ (-15/+10 %), optionally 120 V AC |
| Frequency | 50 – 60 Hz |
| Consumption | 5.5 mA |
| Optical Features: | Spectral range 185 – 260 nm |
| FET-Output: | Switch-On delay after Flame-On typically 0.5 s Switch-Off time after Flame-Off < 0.5 s max. switched current 15 mA max. switched power 0.3 W max. switched voltage 280V AC / 400 V DC |
| Acceptable loss of flame signal: | ca. 200 ms |
| Adjustment: | axial |
| Lifetime of the UV-tube: | > 10.000 h |
| Restart time: | > 5 s between controlled shutdown and renewed heat request |
| Operating Temperature: | -20°C to +60°C (temperatures >50°C reduces the lifetime of the UV-tube) |
| Humidity | max. 95% relative humidity, non-condensing |
| Operating position: | any position |
| Kind of protection: | IP 65 |
| Protection Class: | I |
| Weight: | 0.52 kg |
| Max. length of Connection cable: | The size of the cable is determined by the cable/conduit length while also considering the bias-reducing potential allowable which is normally indicated in the data sheet of the burner control or system. The signal must be maintained at the correct level. |
| Applied standards | EN298:2012-11 EU/2016/426 |
| Certification: | CE-0085CN0133 |

Block diagram IFC 10

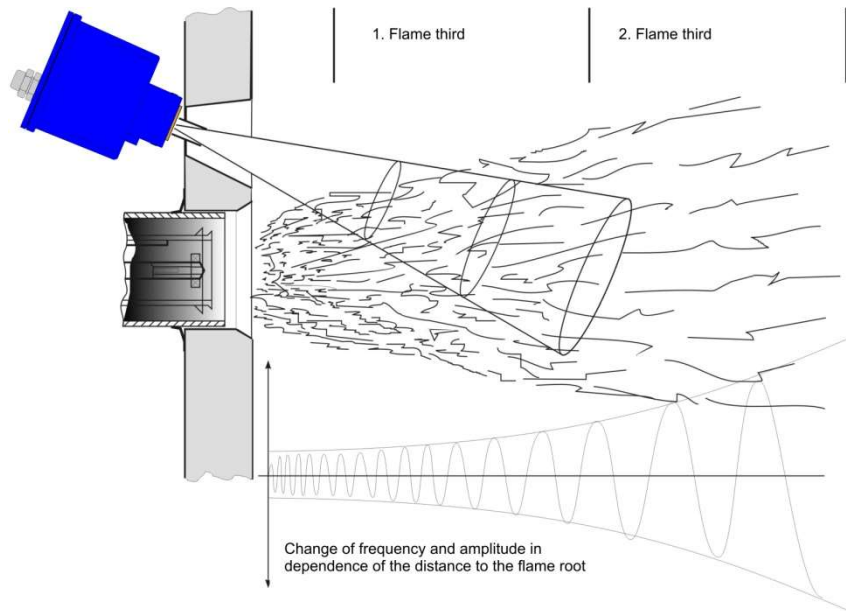


Dimensions IFC 10



All dimensions in [mm]

Alignment of IFC 10



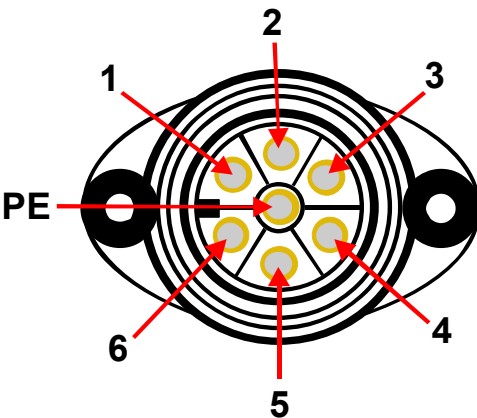
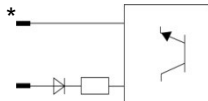
Usage of glasses and lenses

Depending on the distance and view angle to the flame, the diopter lens to be used when needed. If pressure prevailing in the combustion chamber, a diopter with quartz glass is recommended.

Purge air connection

If the sensor temperature may rise due to high combustion chamber temperatures above 60° C, a purge air connection in order to limit the temperature sensor to provide a maximum of 60° C is essential. The dimensioning of the scavenging air is dependent on the parameters of the furnace back pressure, and the pending purge air pressure and temperatures. Purge air connections are available as the diameters ¼" and ½" optionally. The air connection is combined with the diopter. Depending on the application again lenses and glasses are available. This eliminates the normal diopter.

Connection diagram IFC 10

| Occupancy male and female plug | PIN | Internal connection AC/DC | Cable number | Connection for ionization output / LDR |
|--|-----|--|----------------|--|
|  | 1 | L | 1 | L |
| | 2 | N* | 2 | N |
| | 3 | NC | - | - |
| | 4 | NC | 3 | - |
| | 5 |  | 4 | ION/LDR |
| | 6 | NC | - | - |
| | PE | PE | Green / yellow | PE |

*internally

Connection to BMS

| | | Control unit | |
|--------------|---------|----------------------------------|--------------------|
| Cable color | general | Dungs MPA 22 - connection number | More BMS on demand |
| grey | N | 12 – 5 N | |
| black | signal | 12 – 3 Ion | |
| brown | L1 | 6 – 17 L1 | |
| green-yellow | PE | protected earth | |

Functional description IFC 10

The IFC 10 is a compact UV flame detector, which is specially designed for severe conditions often experienced in industrial applications for single flame combustion. The IFC 10 can be connected directly to the ionisation or LDR input of the control box. The UV sensor ensures that the flame detector does not react to background radiation from hot refractory or from any other infrared light source.

The flame detector IFC 10 has been developed to meet the requirements of European Standards EN298:2012-11, as well as UL 372-2 and CSA C22.2 for burner management control units which make a 'no-flame' check after normal burner shut down when the flame amplifier is permanently energised.

With the adapter, which serves also as a connection interface of the flame detector to the combustion chamber, the IFC 10 can be fitted with different glasses and lenses to special requirements. The flame detector is equipped with an optical interface which visibly indicates the flame signal intensity. A simple diagnosis of the flame intensity is directly on the furnace or boiler possible.

Relay module 1 for flame detectors RMF1

The compact flame detector IFC 10 is a low power signal output equipped to simulate ionization or LDR signal. If a relay switch contact is required, the use of RMF 1 is recommended. The RMF 1 has an electrically isolated changeover contact with a maximum switching voltage of 250 V AC, a maximum switching current of 1 A and a maximum rating of 250 VA. More information can be found in BA RMF1 EN in its current version.

Operating indicator LED

Via the built-in LED the flame detector is indicating the following operating conditions:

| LED | Meaning |
|----------|--|
| off | IFC 10 is without connection or there is no detected flame |
| Blinking | Flame is detected The blinking of the LED represents the flame signal intensity Increasing blinking = higher intensity |
| on | The flame is detected with highest intensity |

Order data

The compact flame detector IFC 10 is available from BST Solutions GmbH under the following order data:

| Item | Version | Order No.: |
|-----------------------------|----------|--------------|
| Flame detector IFC10/230 | 230 V AC | 611181031000 |
| Flame detector IFC10/120 | 120 V AC | 611281031000 |

Following accessories are offered by BST Solutions :

| Artikel | Ausführung | Artikelnummer |
|---|------------|---------------|
| UV-tube kit for IFC | | 5010-0050-12 |
| Adapter ½" with nut and gasket | | 114030110000 |
| Adapter ½" with UV-quartz glass plate, nut and gasket | | 114030112000 |
| Adapter ½" with UV-quartz glass lense, nut and gasket | | 114030122000 |
| Adapter 1" with purge air connector ½", nut and gasket | | 46530100010 |
| Adapter 1" with purge air connector ½", UV-quartz glass plate, nut and gasket | | 46530112010 |
| Adapter 1" with purge air connector ½", UV-quartz glass lense, nut and gasket | | 46530122010 |
| Adapter 1" with purge air connector ¼", nut and gasket | | 46530100020 |
| Adapter 1" with purge air connector ¼", UV-quartz glass plate, nut and gasket | | 46530112020 |
| Adapter 1" with purge air connector ¼", UV-quartz glass lense, nut and gasket | | 46530122020 |
| Relay module for flame detectors RMF1/230 | | 640480002000 |

| | | |
|--|---|--------------|
| Relay module for flame detectors RMF-R1/230 | with additional re- sistor output (20 kΩ) | 640480002001 |
| Relay module for flame detectors RMF1/120 | | 640480002100 |
| Relay module for flame detectors RMF1-R/120 | with additional re- sistor output (20 kΩ) | 640480002101 |
| Connection cable BK03, 1.8 m | | 561984740094 |
| Connection cable BK03, 3.0 m | | 561984740096 |
| female right-angled plug | | 165303041000 |

Disposal information

The flame detector is equipped with electrical and electronic components and must be disposed separately from household waste. Please follow your local authority regulations for electrical component waste disposal.

