



# Flamonitec®

BFI AUTOMATION

## Technical Information

# UV Flame Detector KLC 10

for oil -, gas- and dual fuel burners for intermittent burner operations



## 1 | Description

The KLC 10 is a UV flame detector, which has been developed for single flame combustion which produces little light or radiation in the visible spectrum and has very low flame modulation/flicker frequency. The design of the UV sensor ensures that the flame detector does not react to background radiation from hot refractory or from any other Infra-red light source.

The UV flame detector is equipped with an optical interface which visibly indicates the flame signal intensity. The KLC 10 can be connected directly to the ionisation or LDR input of the control box. It is compatible in its physical dimensions and connection capability to other series KLC flame detectors. All KLC accessories are identical and therefore this reduces the variety of components used in production and makes it simpler for field application and service.

The UV flame detector KLC 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.

## 2 | Safety Instruction

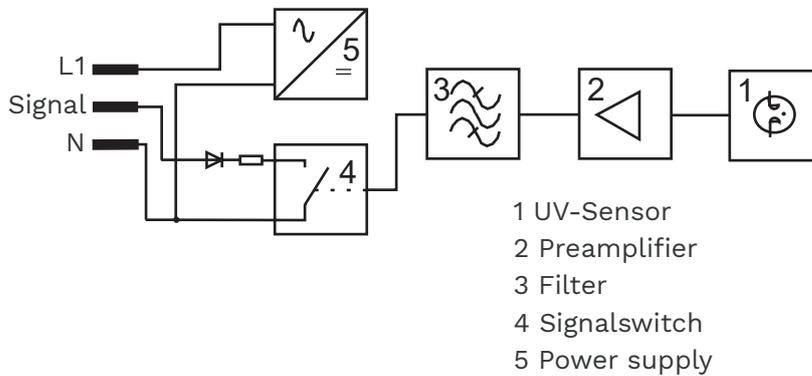
The KLC 10 is a safety component, and repair or adjustment must never be attempted. Replacement of the UV flame detector is recommended in all cases of damage, due to impact shock, excessive moisture, or other problems rendering it inoperable. Repair work must never be attempted and is strictly forbidden by the relevant European Standards.

**Prior to commissioning the unit; please carefully check that the wiring connections have been made correctly. Also, before removing or checking the UV flame detector please ensure the power supply is switched-off.**

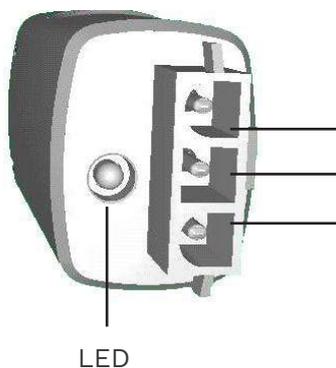
### 3 | Technical data

Input	AC 230 V ~ (-15/+10 %) AC 120 V ~ (optional) Frequency 50 – 60 Hz Consumption max. 4.0 mA
FET-Output	Switch-On delay after Flame-On typically 0.5 sec. Switch-Off time after Flame-Off < 0.5 sec. max. switched current 15 mA max. switched power 0.3 W max. switched voltage 280V AC / 400 V DC
Optical Features	Spectral range 185 – 260 nm
Acceptable loss of flame signal	ca. 200 ms
Adjustment	radial, left optional axial (reduced sensitivity at approx. 40%)
Lifetime of the UV-tube	> 10,000 h
Operating Temperature	-20°C to +60°C (temperatures >50°C reduces the lifetime of the UV-tube)
Humidity	max. 95%, no condensation permitted
Operating position	Any position
Kind of protection	IP 21
Protection Class	II
Weight	0.029 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-0085BS0448

## 4 | Block diagram



## 5 | Connector diagram KLC 10



Type of control box	Connection for
Blue	N
Black	Ion
Brown	L1

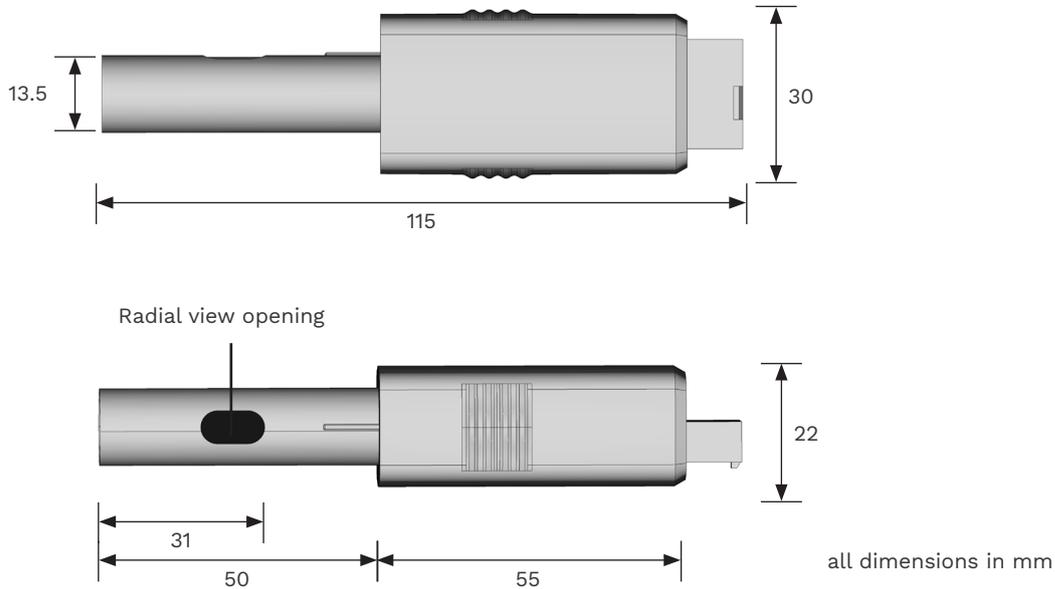
Please ask for connection details for all other types/manufacturers burner control boxes.

### ATTENTION

For safety reasons and within the technical regulations, a controlled burner shut-down of the burner must occur and be guaranteed to happen at least once in every 24 hours of operation. With the Model KLC 10 it is mandatory that the control box Unit or Burner Management System is of the type which performs a flame check for 'no flame presence' on burner shut down. Such that both the burner is checked for possible 'after burn' and that the UV tube itself is checked for soundness in accordance with the European Standard EN298:2012-11. The Model KLC 10 can only be used with intermittent control boxes which perform this flame check on shut-down. Otherwise use the model KLC 11.

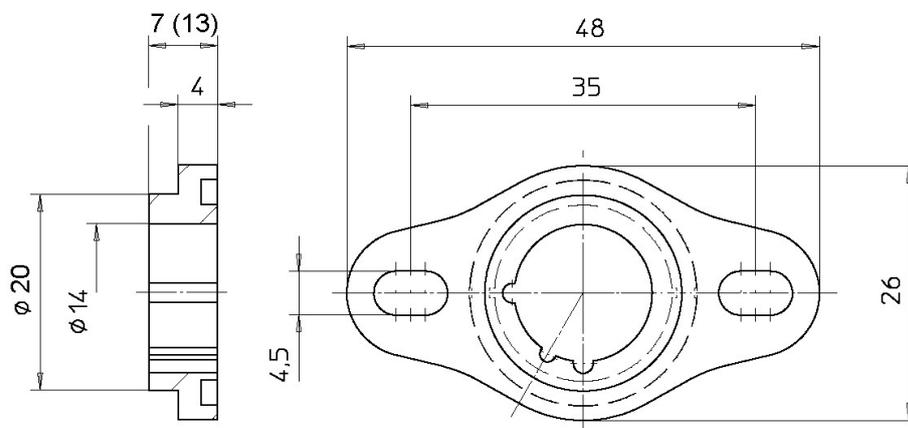
If you are unsure about any application using this flame detector, please email, or fax the manufacturers or the authorised distributor.

## 6 | Dimensions



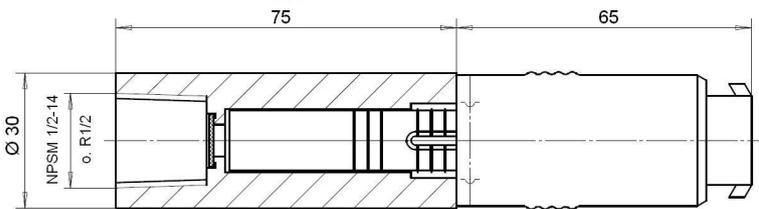
## 7 | Mounting flange KLC

The mounting flange allows the detector to be held and adjusted in a suitable position to view the flame. Two overall widths of 7mm and 13mm are available. An O-ring seal is available which will give the mounting flange an air tight seal to the burner housing if required.



## 8 | Adapter ADP

The adapter ADP enables to install the UV flame detector series KLC 10 with optional axial direction directly at a combustion chamber. A quartz glass serves as a barrier and prevents the flow of heating gas from the combustion chamber. For the use of flame detector KLC at high ambient temperatures, a variant model of heat-insulating materials reduces the transition temperature.

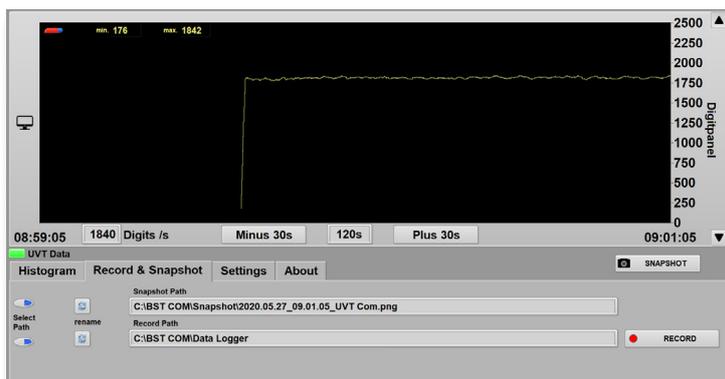


## 9 | Diagnostic with UVT-Com

The UVT-Com readout unit consists of an optical adapter with cable, USB interface and software BST-Com. The following information can be read out of the KLC 10:

- the current pulses of the UV tube

For this purpose, the USB optoadapter UVT-Com must be inserted into the recess of the LED. Via the connection cable and the interface, the data can be transferred with the corresponding BST-Com software to a laptop or PC. Further information can be found in the BST-Com



## 10 | Overview of UV flame detectors and ancillary components available

Article	Version	Part-No.
Flame detector KLC 10/230 R	optical direction radial	6011-1130-05
Flame detector KLC 10/230 RS, with high sensitivity	optical direction radial	6011-1130-08
Flame detector KLC 10/230 RA	optical direction radial and axial*	6011-1130-06
Flame detector KLC 10/230 RAS, with high sensitivity	optical direction radial and axial*	6011-1130-07
Mounting flange KLC	overall height 7 mm	1550-4220-07
Mounting flange KLC	overall height 13 mm	1550-4220-13
Angle adapter KLC** standard mirror	Accessory for radial mounting applications	1550-4225-10
Angle adapter KLC**, stainless steel mirror	Accessory for radial mounting applications	1550-4225-20
ADP 10 – UV**	heat-insulated up to 180 °C R ½", quartz glass	6580-2030-00
ADP 20 – UV**	heat-insulated up to 180 °C, NPSM ½"-14, quartz glass	6580-2031-00
Relay Module Flame detector RMF1/230	230 V version	6040-0001-00
Read out unit UVT-com	USB interface and software BST-Com download	6040-4832-00
Connecting cable KLC	length of 350 mm	6060-2220-03
Connecting cable KLC	length of 600 mm	6060-2220-06
Connecting cable KLC	length of 1000 mm	6060-2220-10
Connecting cable KLC	length of 2000 mm	6060-2220-20
Connecting cable KLC	length of 3000 mm	6060-2220-30
Connecting cable KLC	special lengths	on request

\*reduced sensitivity at approx. 40%

\*\*only for flame detector with an axial orientation

If you are unsure about any application using this flame detector, please email, or fax the manufacturers or the authorised distributor.



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## Disposal information

The flame detector is equipped with electrical and electronic components and must be disposed separate from household waste. Follow the local and actual regulations for waste disposal.



All data are without guarantee and refer to the product group. Product specific information is contained in the operating instructions. We reserve the right to make technical changes. | © BFI Automation Mindermann GmbH 2024/1

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