



Flamonitec[®]

BFI AUTOMATION

Technical Information (US)

UV Flame Detector KLC 10

for oil, gas, and dual fuel burners
(intermittent operation)



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 Infrared 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 KLC 10 flame detector is designed in accordance with UL 372 for burner control systems that perform a check to determine if a flame signal is still present after a control shutdown with the flame amplifier still energized.

2 | Safety Instruction

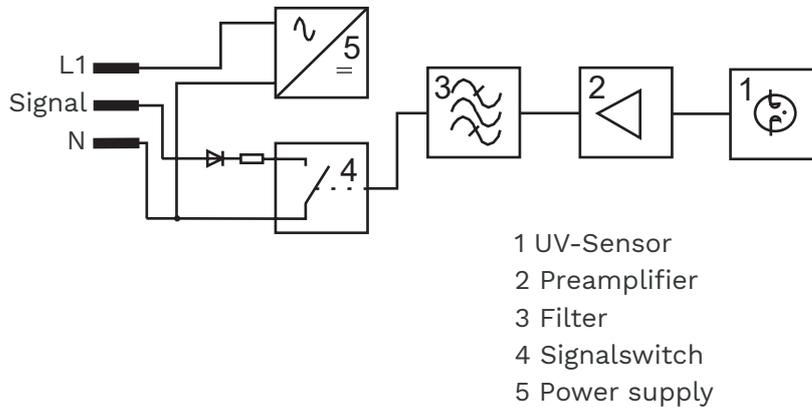
The KLC 10 is a safety component, and repair or adjustment must never be attempted. Replacement of the UV flame detector is recommended in all cases of damage, due to impact shock, excessive moisture, or other problems rendering it inoperable. Repair work must never be attempted and is strictly forbidden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

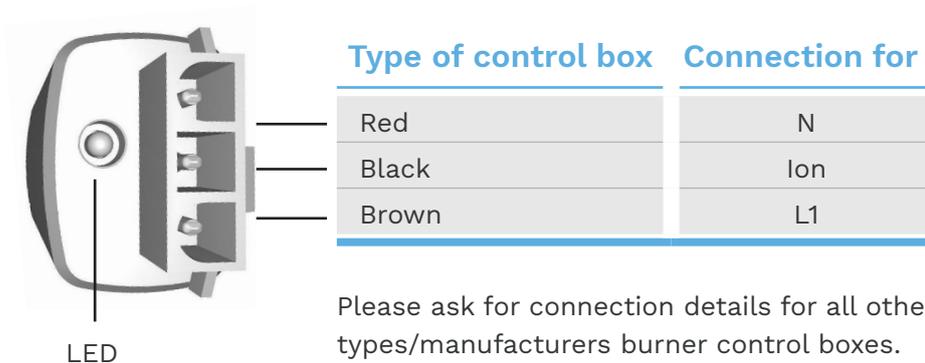
3 | Technical data

| | |
|---------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Input | 120 V AC Frequency 50 to 60 Hz Consumption 5.5 mA |
| 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 280 V AC / 400 V DC |
| Optical Features | Spectral range 185 to 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 | 0 °F to 140 °F (temperatures >125 °F reduces lifetime of the UV-tube) |
| Humidity | max. 95 %, no condensation permitted |
| Operating position | Any position |
| Kind of protection | IP 21 |
| Protection Class | II |
| Weight | 1.02 oz |
| 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 | UL 372 CAN/CSA - C22.2 No. 199 |
| Certification | MH47747 |

4 | Block diagram



5 | Connector diagram KLC 10

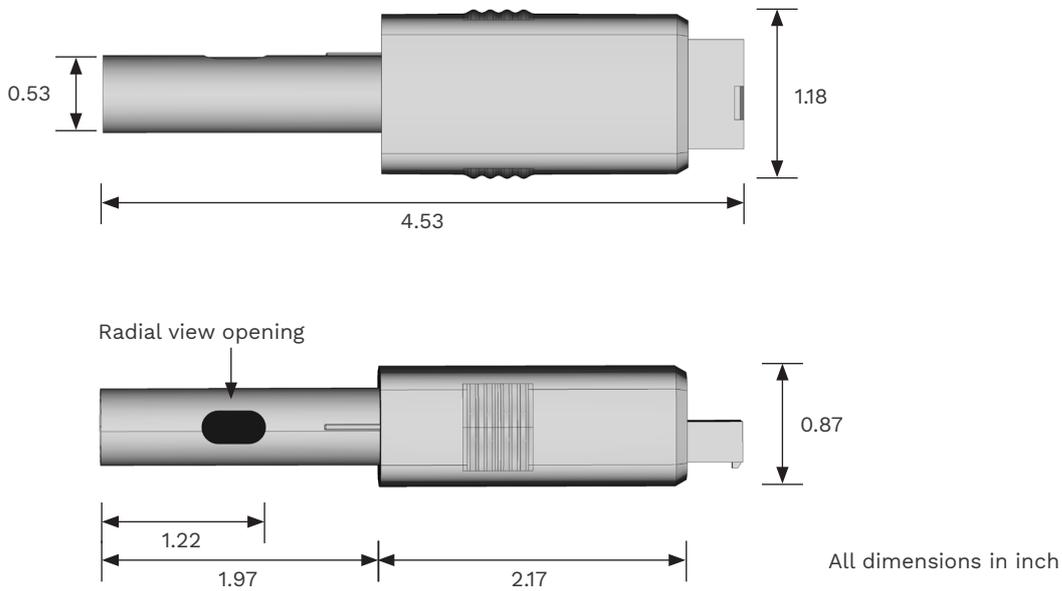


ATTENTION

For safety reasons and within the technical regulations, a controlled 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 UL 372. The Model KLC 10 can only be used with intermittent control boxes which perform this flame check on shut-down. Otherwise use the KLC 11.

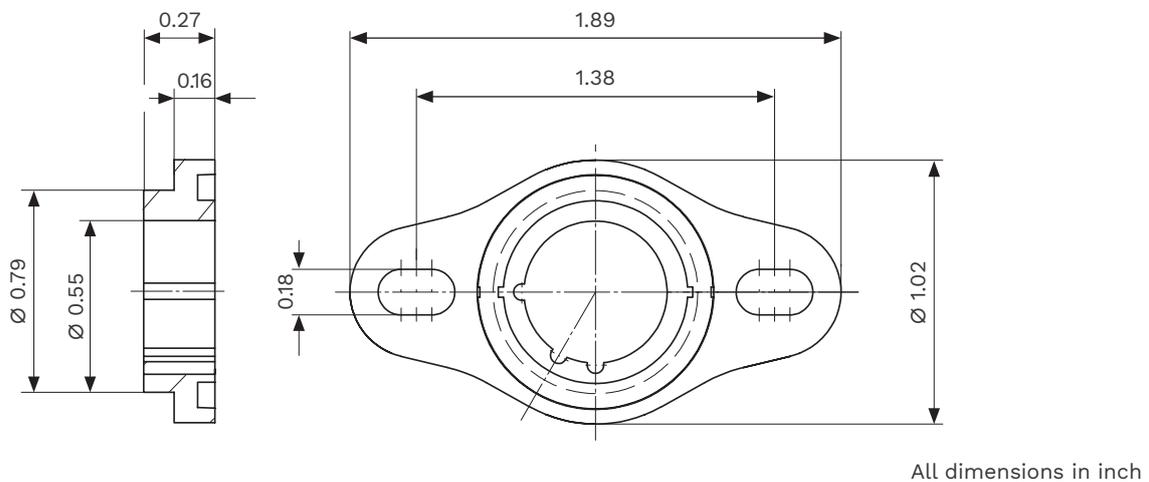
If you are unsure about any application using this flame detector, please email, or call the manufacturers or the authorized distributor.

6 | Dimensions



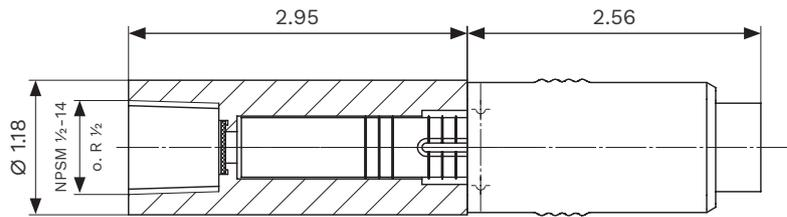
7 | Mounting flange KLC

The mounting flange holds the detector in a suitable position to view the flame. Two overall heights of 0.28 in and 0.52 in 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

Adapter ADP enables installation of 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.



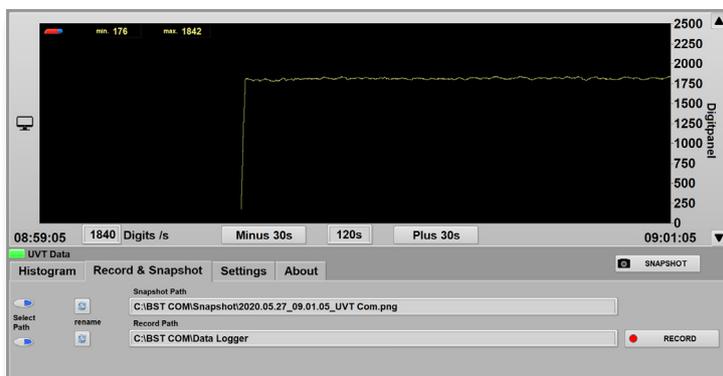
All dimensions in inch

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 operating instructions.



10 | Overview of UV flame detectors and ancillary components available

| Article | Version | Part-No. |
|---------------------------------------------------------|--------------------------------------------------------|--------------|
| UV flame detector KLC 10/120 R | optical direction radial, 120 V AC | 6011-1120-00 |
| UV flame detector KLC 10/120 RS, with high sensitivity | optical direction radial, 120 V AC | 6011-1120-10 |
| UV flame detector KLC 10/120 RA | optical direction radial and axial*, 120 V AC | 6011-1120-03 |
| UV flame detector KLC 10/120 RAS, with high sensitivity | optical direction radial and axial*, 120 V AC | 6011-1120-01 |
| Mounting flange KLC | overall height 0.28 in | 1550-4220-07 |
| Mounting flange KLC | overall height 0.55 in | 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 360 °F, NPSM ½", quartz glass | 6580-2030-00 |
| ADP 20 – UV** | heat-insulated up to 360 °F, NPSM ½"- 14, quartz glass | 6580-2031-00 |
| RMF 1/120 | Relay modul for 120 V AC | 6040-0001-00 |
| Read out unit UVT-com | USB interface and software BST-Com download | 6040-4832-00 |
| Connecting cable KLC | length of 24.5 in | 6060-2225-02 |
| Connecting cable KLC | length of 72 in | 6060-2225-07 |
| Connecting cable KLC | other 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 call the manufacturers or the authorized 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 2023/31

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