Flamonitec®
BFI AUTOMATION

Technical Information (US)
UV Flame Detector KLC 11

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

Flamonitec®
BFI AUTOMATION
KLC 11/120
Part-No: 612245021000
120 V AC / 50-60 Hz
SNR: 01 22 34567
Made in Germany
c ℜ us
MH47747

1 | Description

The KLC 11 is a compact UV flame detector specially designed for single burner furnaces that produce almost no radiation in the visible light spectrum or operate with very low flame modulation. The UV tube used ensures that background radiation, e.g. from hot refractory or mixing device parts, are not detected.

The internal increase of the UV tube voltage immediately after applying the supply voltage ensures the safety requirement according to the relevant standards for checking the UV tube for burnout. A simple conversion from ionization monitoring to the KLC 11 is therefore also possible with burner controls without an own UV-cell input.

The UV flame detector is equipped with an optical interface which visibly indicates the flame signal intensity. The KLC 11 can be connected directly to the ionization 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 11 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 11 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.
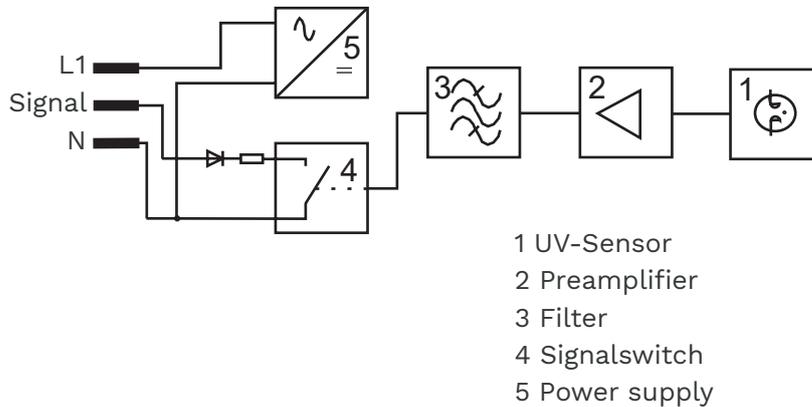
> **NOTICE**
>
> **This Technical Information provides an overview of the technical data of the KLC 11, its application, installation and handling as well as ordering data and accessories.
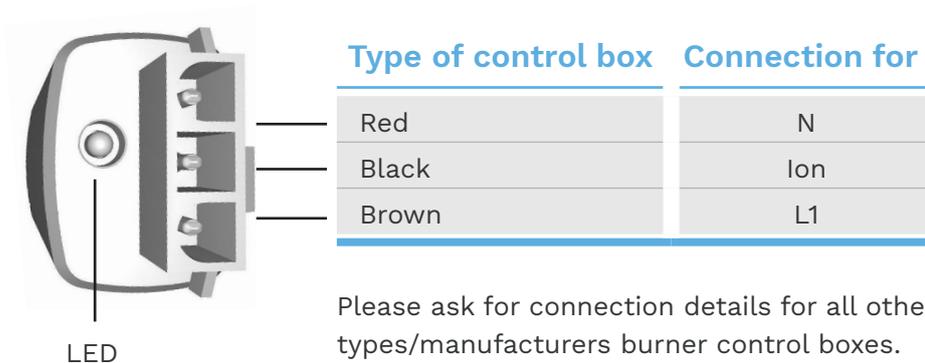> Only the original operating instructions of the KLC 11 in its currently version are valid.**

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
Restart time	Between burner shutdown and renewed heat request > 5s
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

1 UV-Sensor
2 Preamplifier
3 Filter
4 Signalswitch
5 Power supply

5 | Connector Diagram KLC 11

LED

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

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

NOTICE

For safety reasons, there must be at least one control shutdown per 24 hours. During start-up, the KLC 11 independently carries out an internal voltage increase to test the UV tube. After the end of the heat requirement, the KLC 11 must be de-energized for > 5 s by means of suitable connection wiring. The voltage should only be switched on at the time of the heat requirement and absolutely before the external light check. If the KLC 11 is permanently live, an burner control must be used to check to determine whether a flame signal is present after a control shutdown.

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

6 | Dimensions

0.53

1.18

4.53

Radial view opening

0.87

1.22

1.97

2.17

All dimensions in inch
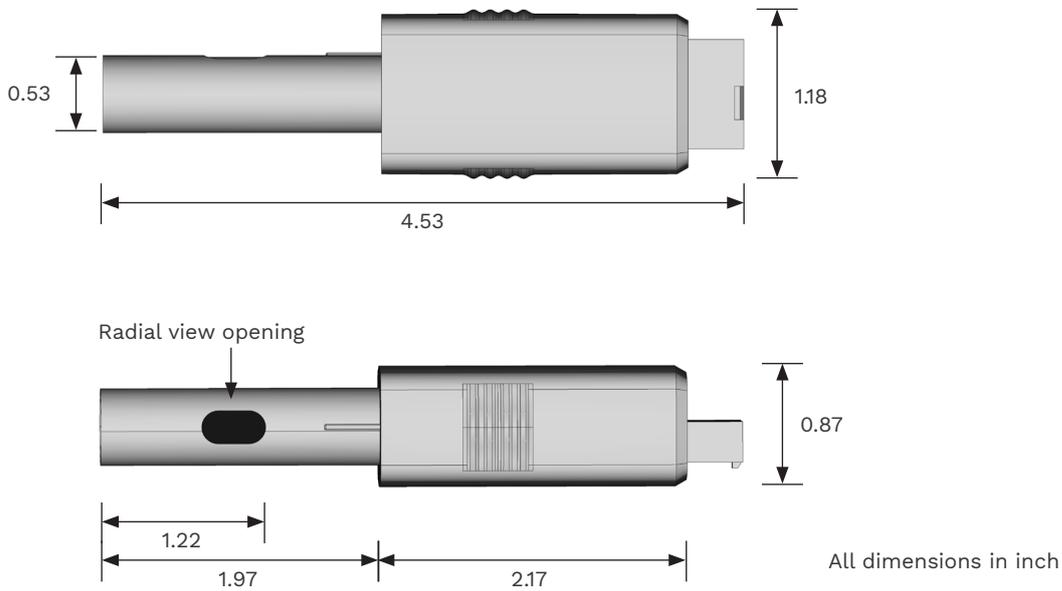
7 | Mounting flange KLC

The mounting flange holds the detector in a suitable position to view the flame. Two over-all 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.

0.27

0.16

1.89

1.38

Ø 0.79

Ø 0.55

0.18

Ø 1.02

All dimensions in inch
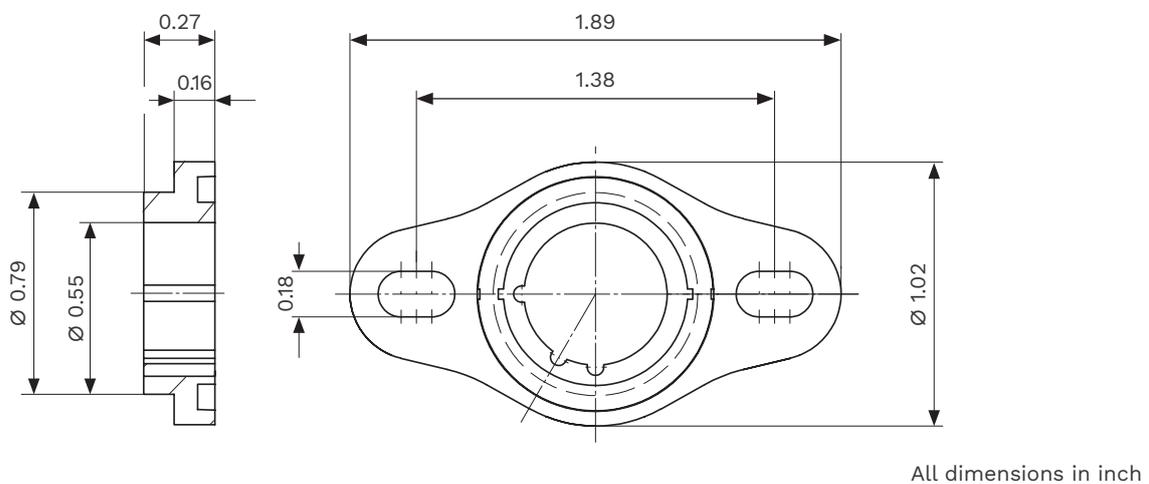
8 | Adapter ADP

Adapter ADP enables installation of the UV flame detector series KLC 11 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.
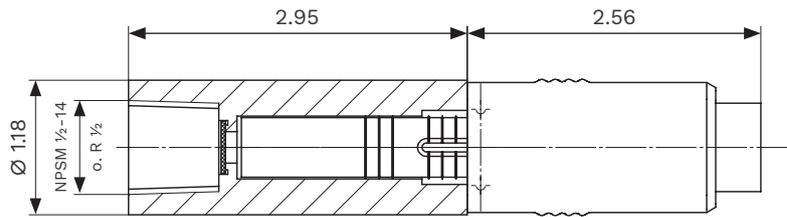

All dimensions in inch

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 11:
• 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.
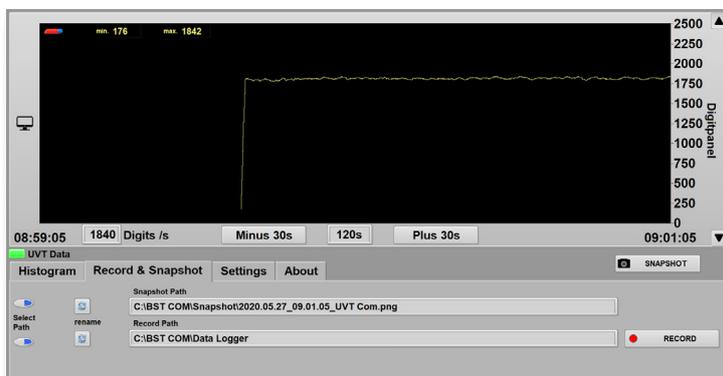
10 | Overview of articles

Article	Version	Part-No.
Flame detector KLC 11/120 R	optical direction radial	6011-1320-00
Flame detector KLC 11/120 RA	optical direction radial and axial**	6011-1320-01
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 180°C, R ½", quartz glass	6580-2030-00
Relay Module Flame detector RMF1/230	230 V version	6040-0001-00
Connecting cable KLC	length of 23.6 in	6060-2220-06
Connecting cable KLC	length of 39.3 in	6060-2220-10
Connecting cable KLC	length of 78.7 in	6060-2220-20
Connecting cable KLC	special lengths	on request
Read out unit UVT-Com	Opto-adapter, USB interface	6040-4832-00
Software BST-Com	via Download	9030-2000-05

* only for UV flame detector with an axial orientation
**(reduced sensitivity at approx. 40%)

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.

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