Flamonitec®
BFI AUTOMATION

Technical Information
UV Flame Detector KLC 11

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

1 | Description

The KLC 11 is a 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 glowing brick linings or mixing device parts, is not detected.

The flame signal intensity can be easily recognised via an LED as an optical indicator. The KLC 11 can be connected directly to the ionisation or LDR input of the burner control box. It is compatible in its dimensions, connection dimensions and pin assignment with other units from the KLC series. All accessories are therefore identical and reduce the variety of parts in production and service.

The internal increase of the UV tube voltage immediately after applying the supply voltage ensures the safety requirement according to EN298:2012-11 for checking the UV tube for selfignition. A simple conversion from ionisation monitoring to the KLC 11 is therefore also possible with burner control boxes without their own UV input.

This Quick Guide provides an overview of the technical data of the KLC 11, its application, installation and handling, as well as ordering data and accessories.
Binding is solely the original operating instructions of the KLC11 in its currently valid version.
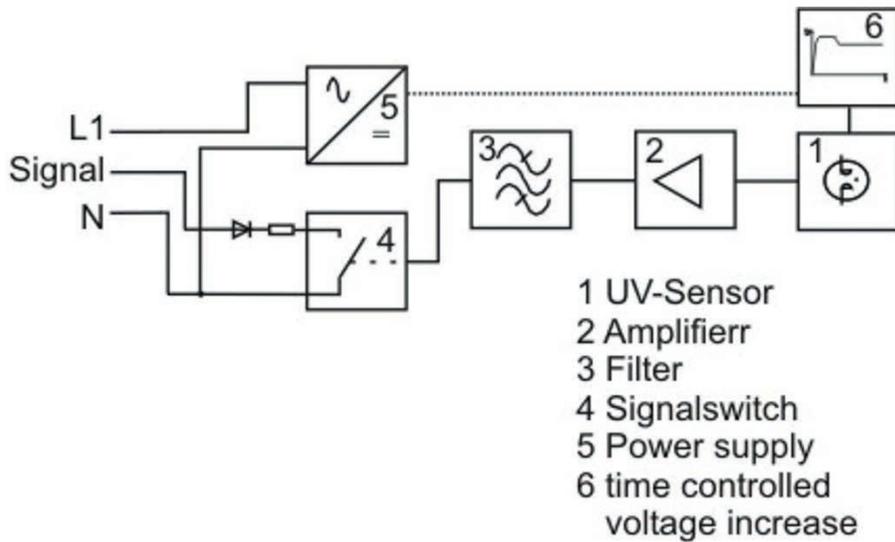
2 | Safety Instruction

The KLC 11 is a safety component, and repair or adjustment must never be attempted. Replacement of the 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 flame detector please ensure the power supply is switched-off.

3 | Technical Data

Input	AC 230 AC (-15/+10 %) AC 120 AC (optional) Frequency 50 – 60 Hz Consumption 6 mA
Restarting time	between burner shut down and renewed burner start-up > 5 s
Output data	Switch-On delay after Flame-On typically 0.5 sec. Switch-Off time after Flame-Off < 0.5 sec.
FET-Output	max. switched current 15 mA max. switched power 0.3 W max. switched voltage 280V AC / 400 V DC
Optical Features	Spektralbereich 185 – 260 nm Tolerierte Flammensignaleinbrüche ca. 200 ms
Adjustment	radial, left optional axial (reduced sensitivity at approx. 40%)
Lifetime of the UV-tube	> 10.000 h
Operating Temperature	-20ºC 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
Contact protection	DIN EN 60730-2-5
Weight	0,026 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
Applied standards	CE-0085BS0448

4 | Block diagram

1 UV-Sensor
2 Amplifierr
3 Filter
4 Signalswitch
5 Power supply
6 time controlled
   voltage increase

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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. The KLC 11 accomplishes an internal increase of the UV tube voltage in each approach independently for the safety check of the UV tube. After the burner shut down and/or before beginning of a new burner start-up 5s is to be switched absolutely at least without voltage supply by a suitable connection wiring of the KLC 11.

If you are unsure about any application using this flame detector, please email, or fax the manufacturers or the authorised distributor.
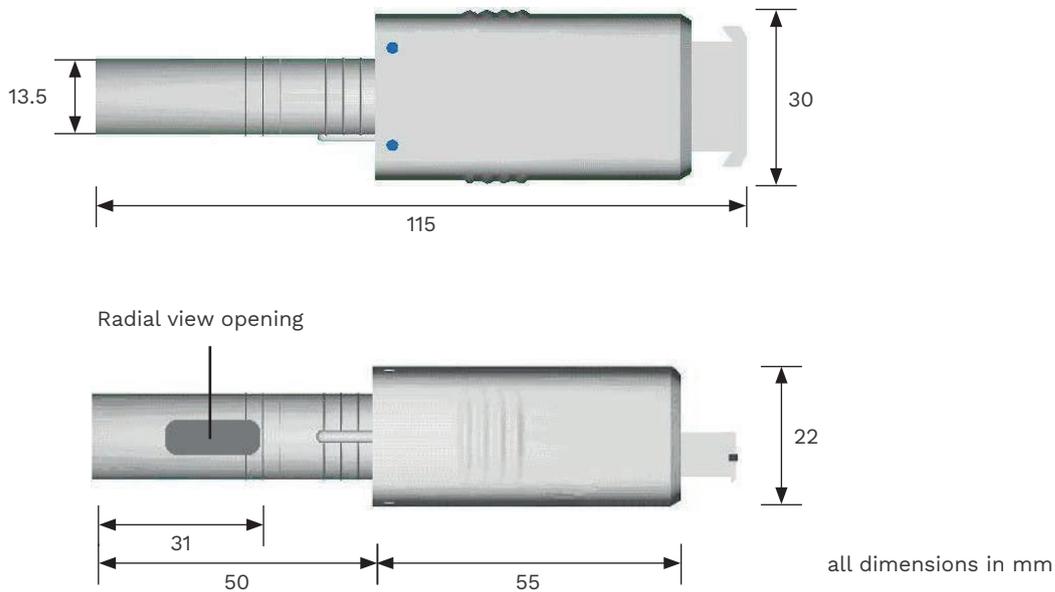
5 | Connector Diagram KLC 11

LED
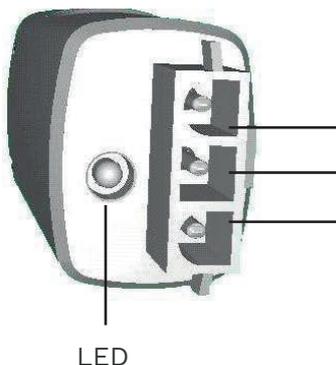
Cable colour		Dungs MPA 22	Connection to
Blue	clamp-no.	12 – 5 N	N
Black	clamp-no.	12 – 3 Ion	Ion
Brown	clamp-no.	6 – 17 L1	L1

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

6 | Dimensions

Radial view opening

all dimensions in mm

6 | 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.
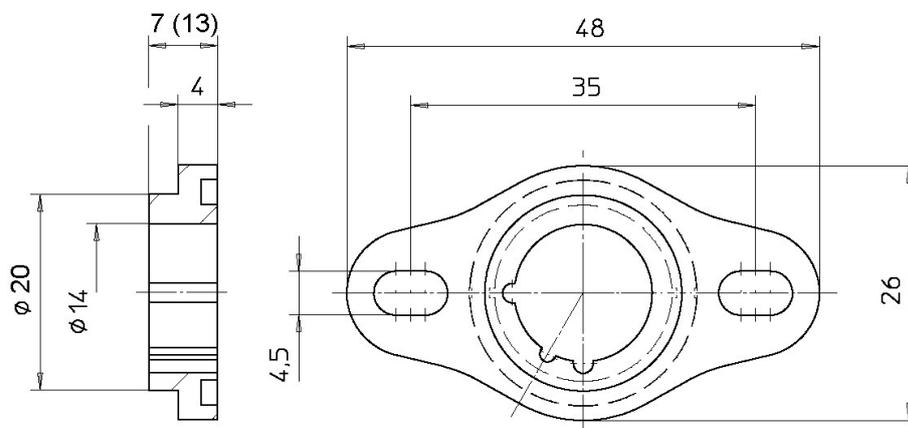
7 | Adapter ADP

The adapter ADP enables to install the flame detector series KLC11 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.
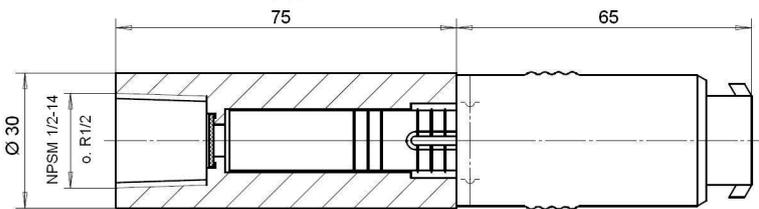
8 | Diagnostic with BST-Com

With the data interface BST-Com, consisting of optical adapter with cable, USB interface (UVT) and software, the pulses, and thus the flame signal strength, can be read out from the KLC11. Further information can be found in the BST-Com manual.
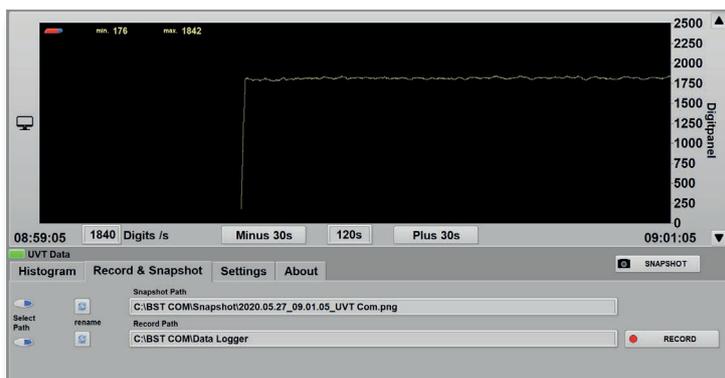
9 | Overview of articles

Article	Version	Part-No.
Flame detector KLC 11/230 R	optical direction radial	6011-1330-02
Flame detector KLC 11/230 RA	optical direction radial and axial**	6011-1330-03
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
Relay Module Flame detector RMF1/230	230 V version	6040-0001-00
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	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%)

Disposalinformation

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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