



Flamonitec®

BFI AUTOMATION

Technical Information (US)

Flame Detector KLC 20 / KLC 21

for all kind of flames
(intermittent operation)



1 | Short Description

The flame detector KLC 20 is a compact flame detector, which is specially designed for blue burning combustion systems. The patented evaluation of the flame signal is based on flicker frequencies of the flame. A microprocessor enables evaluation and conversion of the flame signal into digital information to provide an output signal for burner control boxes. All flames will be detected by an automatic sensitivity control. Adjustments during commissioning and maintenance are not necessary!

Due to international standards the flame detector KLC 20 will only detect signals caused by the flicker of the flame and no signal from continuous radiation or any kind of constant frequency. Signals caused by disturbing light sources, such as fluorescent tubes or background radiation from hot refractories will be ignored, so that unwanted influences are not possible.

The KLC 20 is equipped with an optical interface to get realtime information about monitoring of flame signal and serial number.

This technical information provides an overview of the technical data of the KLC 20 and its application as well as ordering data and accessories. Only the original operating instructions for the KLC 20 in the currently valid version are binding.

2 | Safety Instruction

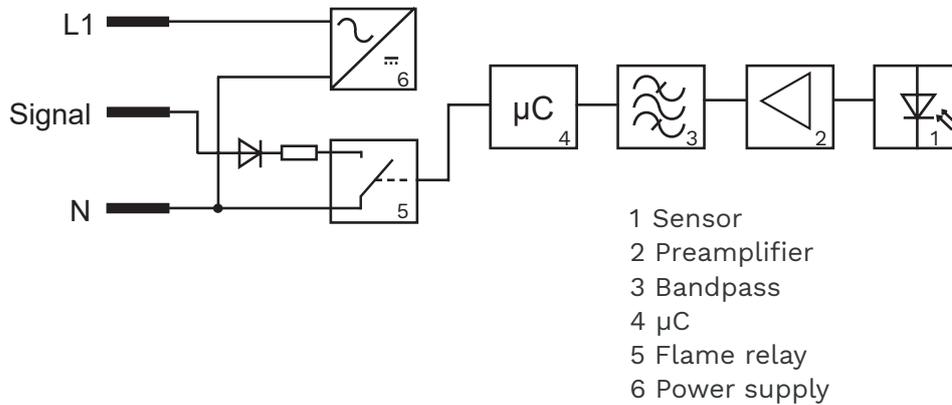
The KLC 20 is a safety component, so it is absolutely forbidden to open, manipulate or misuse this flame detector! Replace the flame detector in case of any damage, fall, shock, moisture, wetness, or influences, which can destroy the flame detector, even though it is not recognizable! Repair of this flame detector is strictly prohibited!

Before working at the flame detector switch off the power supply. Before first commissioning or replacement of the device check the wiring!

3 | Technical Data

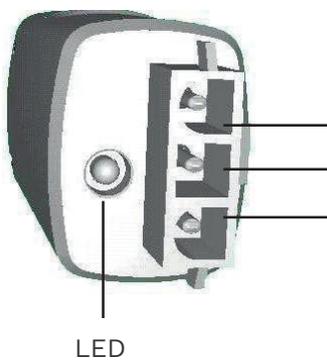
Input	120 V AC Frequency 50 to 60 Hz or AC/DC 24 V (optional)
Consumption	max. 6 mA
Output	Switch-On Delay after energizing from safety relevant self check to final operating condition typical 2 s Switch-On delay after Flame On typical 0.5 s Switch-Off time after Flame Off < 0.6 s max. switching current 15 mA max. switching power 0.3 W max. switching voltage 280 V AC / 400 V DC
Optical Features	Spectral range 380 to 1150 nm Peak wavelength 920 nm Flicker frequencies 15 to 400 Hz
Switch on frequency	52 Hz for oil applications or 25 Hz for gas applications dominant flicker frequency
Switch off frequency	15 Hz dominant flicker frequency Acceptable loss of flame signal ca. 280 ms Disturbing frequency cut off > 35 Hz (optionally)
Operating Temperature	0 °F to 140 °F
Humidity	max. 95 %, no condensation permitted Optional for higher temperatures
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 strength has to 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 20

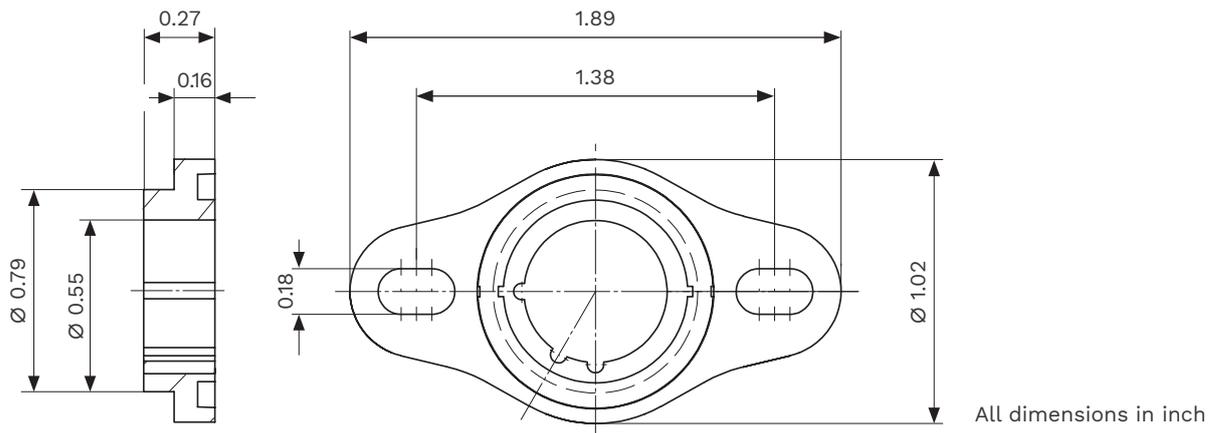
Type of control box Dungs / Satronic / Lamtec



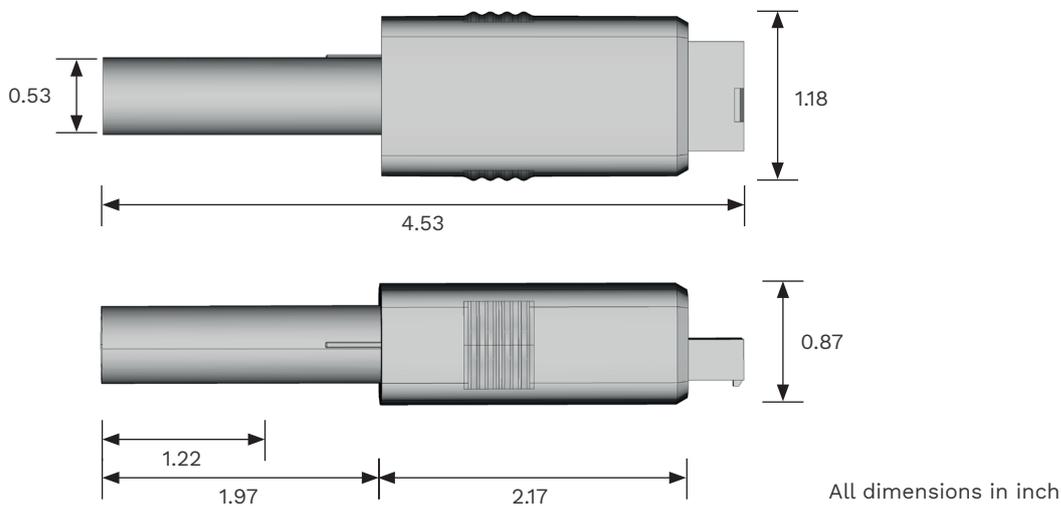
Type of control box Wire colour	MPA22	BT300	DKO 9.. DKW 9.. DMO 9..	TMO 720-4
Blue terminal no.:	12 – 5 N	LDR-	2	2
Black terminal no.:	12 – 3 Ion	LDR+	1	1
Brown terminal no.:	6 – 17 L1	L	9	9

6 | Mounting flange KLC

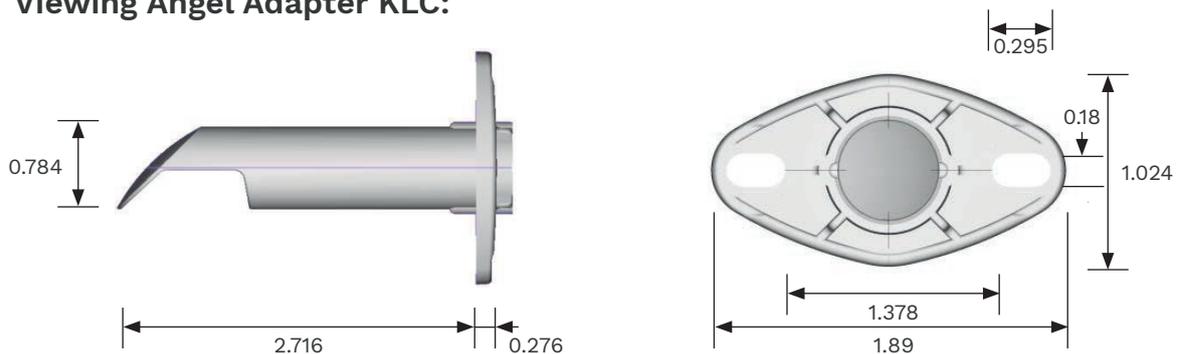
The mounting flange holds the detector in a suitable position to view the flame. Two overall heights of 0.28 in and 0.52 in are available. An O-ring seal is available which will give the mounting flange an air tight seal to the burner housing if required.



7 | Dimensions

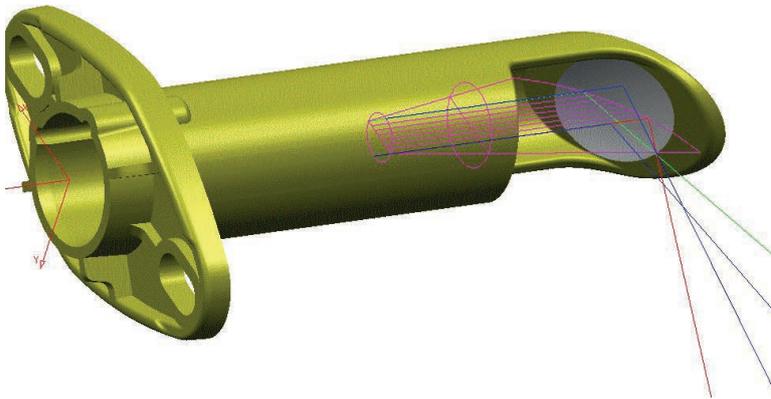


Viewing Angel Adapter KLC:



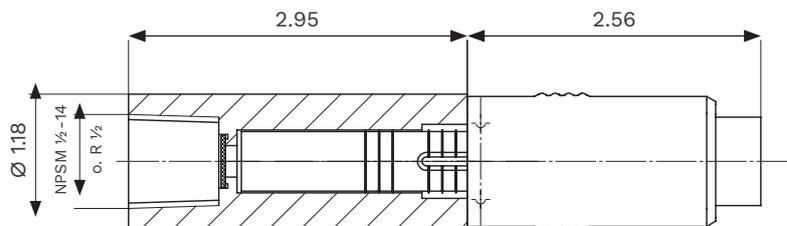
8 | Viewing Angle Adapter KLC for radial adjustment

Axial/radial position mounting adjustment is possible using Angle Adapter KLC in place of the Mounting Flange KLC. The reflective surface may need occasional cleaning as necessary using a clean, soft, and lintfree cloth. Available in two styles: Standard could be scratched from handling, cleaning, and use while the optional version having a stainless steel mirror is resistant to scratches.



9 | Adapter ADP

The adapter ADP makes it possible to mount the flame detector series KLC with axial adjustment directly to the combustion chamber. The integrated quartz glass prevents the withdraw of heat gases from the burner. In case of higher temperature at the surface the ADP is heat insulated up 360 °F.



All dimensions in inch

10 | Function Disturbing frequency cut off

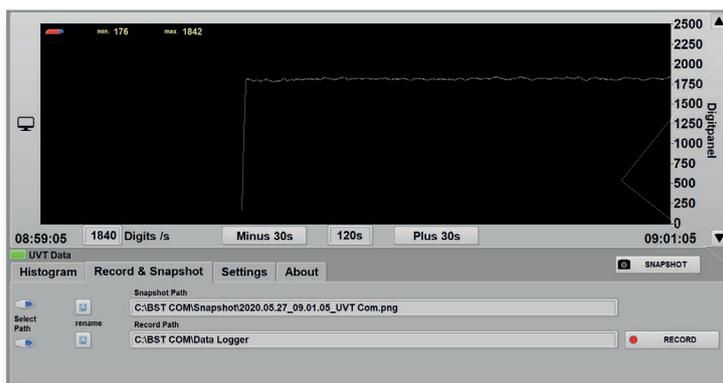
The KLC 20 is optionally optionally available with disturbing frequency cut off function. With this option the KLC 20 detects only real flames, which are characterized by unsteady changing flicker frequencies. Constant light and every constant frequency such as from fluorescent tube or other electrical lamp, are cut off and won't lead to a permanent flame detection. In this case the KLC 20 will switch the output but after a period of about 5 seconds the KLC 20 will switch the output off again. During revision it has to be kept in mind that this property is intended and no malfunction.

11 | Diagnostic with BST-com

The UVT-com read out unit, consists of an optical adapter with cable, USB interface and software BST-Com. The following information can be displayed from the KLC 20:

- Impulses
- Serial Number
- Version / Edition
- present flicker frequency

For connection, place the optical adapter to the opening at the LED. Via the connection cable and the interface the aforementioned information will be transferred to a Laptop or PC by using the special software. Further information is available in the manual KLC-com.



12 | Overview of articles

Article	Version	Part-No.
Flame detector KLC 20 / 120, 25/15Hz, DFC	Axial, with disturbing frequency cut off, for gas, 120 V AC	6011-1423-03
Flame detector KLC 20 / 120, 52/15Hz, DFC	Axial, with disturbing frequency cut off, for oil, 120 V AC	6011-1426-00
Flame detector KLC 20 / 24, 25/15Hz, DFC	Axial, with disturbing frequency cut off, for gas, 24 V AC/DC	6011-1413-00
Flame detector KLC 20 / 24, 52/15Hz, DFC	Axial, with disturbing frequency cut off, for oil, 24 V AC/DC	6011-1416-00
Mounting flange KLC	overall height 0.28 in	1550-4220-07
Mounting flange KLC	overall height 0.52 in	1550-4220-13
Angle adapter KLC, standard mirror	Accessories for radial mounting applications	1550-4225-10
Angle adapter KLC, stainless steel mirror	Accessories for radial mounting applications	1550-4225-20
ADP 20 – UV, heat insulated, NPSM ½"-14	Adapter for direct mounting applications, heat-insulated up to 360 °F	6580-2031-00
Connecting cable KLC	length 24.5 in	6060-2225-02
Connecting cable KLC	length 72.0 in	6060-2225-07
Connecting cable KLC	other length on request	-
Read out unit KLC-Com	optical adapter, USB-interface	6040-4832-00
BFI-Com Software for KLC and IFx	via download	9030-2000-05
RMF 1 / 120	Relais modul for 120 V AC	6040-0001-00
RMF 1 / 24	Relais modul for 24 V DC	6040-0001-20



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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 2024/18

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