KLC 20 (formerly known as KLC 2002)

CE

CE0085BP0001

Technical Information

Wide Band Flame Detector KLC 20
for all kind of oil flames with intermittent burner operations

Short Description

The wide band flame detector KLC 20 is a compact flame detector, which is special designed for blue burning combustion systems. The patented evaluation of the flame signal is based on the flicker frequencies of the flame. A RISC-Processor enables the 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 and all kinds of constant frequency. These fare signals caused by disturbing light sources, e.g. fluorescent tubes or background radiation from hot refractories will be cut off, so that unwanted influences are not possible.

The flame detector is equipped with an optical interface to get online information about monitoring of flame signal and serial number.

Safety Instruction

The KLC 20 is a safety component, so it is absolutely forbidden to open, to manipulate or to 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 works are strictly prohibited!

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

Technical Data

Input:	AC 230/240 V (-15/+10%)
	AC 115 V (optional)
	Frequency 50 – 60 Hz
	DC 24 V (optional)
	Consumption typical 3 – 4 mA
Output:	Switch-On Delay after energizing from safety relevant self check to final operating condition typical 2 sec.
	Switch-On delay after Flame On typical 0.5 sec.
	Switch-Off time after Flame Off <0.5 sec.
	max. switching current 15 mA,
	max. switching power 0,3 W
	max. switching voltage 280V AC / 400V DC
Optical Features:	Spectral range 380 – 1150 nm, Peak wavelength 920 nm
	Flicker frequencies 15 – 400 Hz
Switch on frequency:	52 Hz dominant flicker frequency
Switch off frequency:	15 Hz dominant flicker frequency
	Acceptable loss of flame signal ca. 280 ms
	Disturbing frequency cut off > 35Hz (optionally)
Operating Temperature:	-20 to +60 °C
Humidity:	max. 95%, no condensation permitted
	Optional for higher temperatures
Operating position:	any position
Kind of protection:	IP 41
Protection Class:	II
Protection against electric shock:	DIN EN 60730-2-5 (mounted)
weight:	0.029 kg
max. length of connection cable:	1 m (optional for longer cables)
Certification:	CE0085BP0001 *

* only versions with the function " Disturbing frequency cut off "

Block diagram

|	
1	Sensor
2	Preamplifier
3	Bandpass
4	µC
5	Flamerelay
6	Power supply
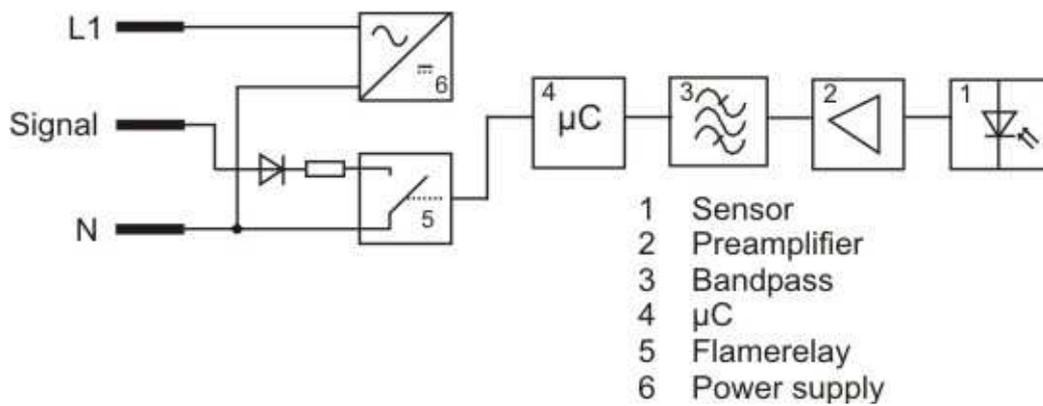
Mounting instructions

The KLC 20 should be mounted close to the flame with straight alignment. The compact flame detector should be mounted with the mounting flange KLC or another suitable holder with Ø14 mm opening. The radial adjustment to the flame is realised with the viewing angle adapter KLC and replaces the mounting flange KLC. Fix the detector with the holder. The best flame signal will be achieved from strong flickering parts of the flame radiation. The angle of view, especially with sight tubes, must be of appropriate dimensions to avoid any reduction of flame radiation. Protect the sensor against other light sources.

To avoid any disturbance, do not align the detector direct to the ignition spark. Breakdowns during pre-ventilation procedure may occur. The maximum length of the connection must be in accordance with the technical data. Install the detector connection cable with most possible distance to the ignition cable.

Attention: **For safety reasons and technical regulations a controlled burner shut down of at least once per 24 hours must be guaranteed.**

Mounting flange KLC

The mounting flange KLC serves for to the
admission, attachment and adjustment of the flame detector. Two overall heights with 7 and 13mm are available. By means of an O-ring the mounting flange KLC can be simply sealed to the burner housing.
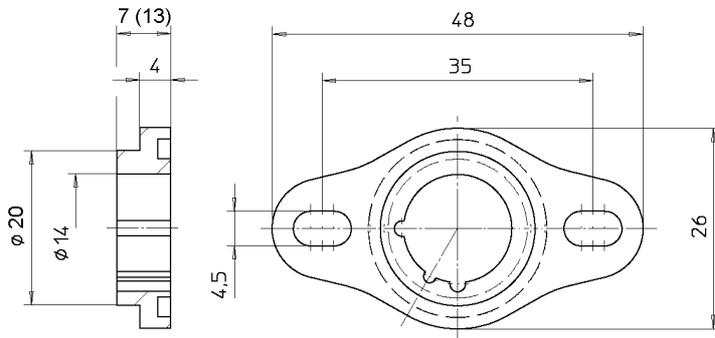
Viewing Angel Adapter KLC for radial adjustment

With the optionally available viewing angle adapter by means of an optimally formed out reflector surface the radial adjustment of the KLC is accomplished 20 to the flame axle. The angle adapter replaces the mounting flange KLC. Separate type of automatic flame guard is not necessary therefore. With maintenance work the reflector surface is to be controlled on possible contamination and if necessary it is to clean with a clean, soft and lint free cloth.
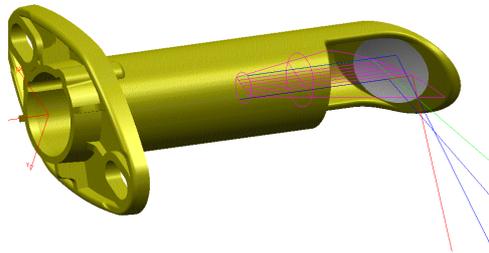
Adapter ADP

The adapter ADP makes it possible to mount the flame guard series KLC with axial adjustment directly to the combustion chamber. The integrated quartz glass is used as pressure barrier and prevents the withdraw of heat gases from the burner. In case of higher temperature at the surface we offer a heat insulating ADP.

Dimensions

Viewing Angel Adapter KLC:

all dimensions in mm
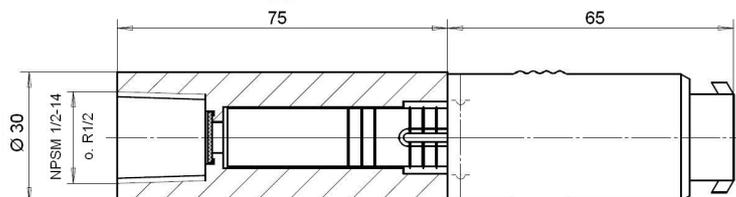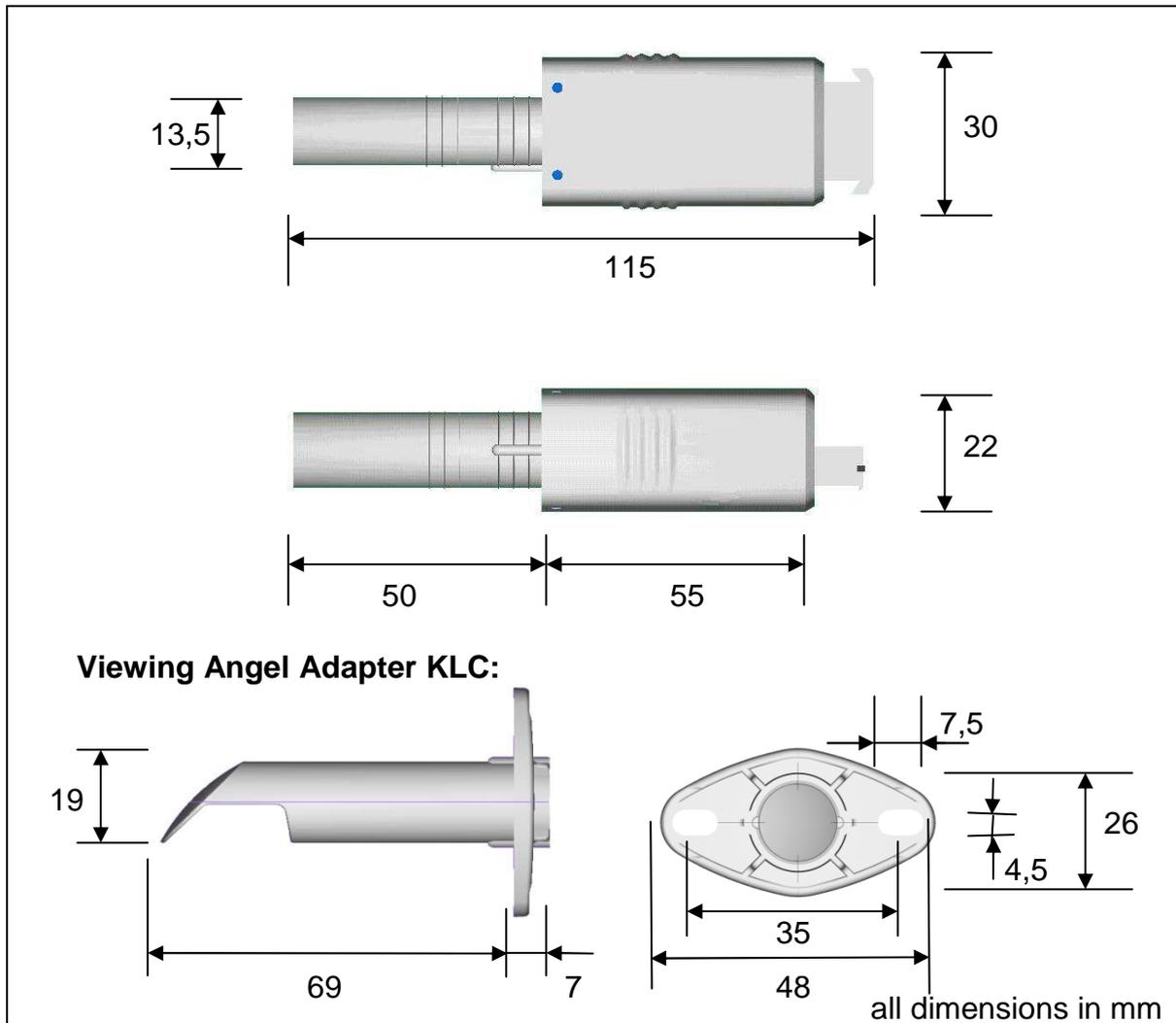
Connector Diagram KLC 20

Control boxes Dungs / Satronic

Type of control box		MPA 22	TF 8..	DKO 9.. DKW 9.. DMO 9..	TMO 720-4
Blue	terminal no.:	**12 – 5 N**	**2**	**2**	**2**
Black	terminal no.:	**12 – 3 Ion**	**1**	**1**	**1**
Brown	terminal no.:	**6 – 17 L1**	**9**	**9**	**9**

LED

Ask for connector details of other burner control boxes.

Operating Indicator LED

Via the built-in LED the flame detector KLC 20 is indicating the following operating conditions:

LED is OFF: KLC is not active
LED is blinking: KLC is active, safety test finished, no flame detected
LED is ON: KLC is active, safety test finished, flame detected

Function Disturbing frequency cut off

The KLC 20 is optionally available with the function disturbing frequency cut off. With this option the KLC 20 detects only real flames, which are characterized by unsteady changing flicker frequencies. Constant light and every constant frequency e.g. 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 a first but after a period of about 9 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.

Commissioning and Maintenance

The installation and commissioning has to be done by qualified personnel only. Before energizing check the cabling and wiring in accordance to the diagram. To maintain the detector just keep the sight glass clean by using a dry cloth. Do not use any kind of cleaning sprays or liquids. Use only the ribbed area to pull out or plug in the flame detector to the mounting flange. A simple test of the switch on and off function is to use a normal AC light source. The standard version will switch the flame relay and the red LED shines permanently. With the optional version "disturbing cut off function" the relay will be interrupted after about 9 seconds and the red LED blinks. The detector KLC 20 is a self-checking device, further tests are not necessary at any time.

Important note: By the safety function of the disturbing frequency cut off, a flame simulation is not possible by means of a simple art source of light. If a flame simulation, e.g. during the final inspection of the burner without a real flame, is needed, a source of light with a modulating frequency between 60 and 150 cycles per second or the flame simulation device TG10 is to be used.

Diagnostic with KLC com

With the data interface KLC com, consisting of optical adapter with cable, interface (USB) and software, the following information can be read 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 a.m. information will be transferred to a Laptop or PC by using the special software. Further information is available in the manual KLC com.
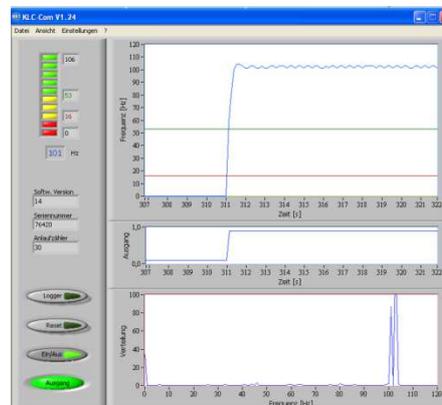
Overview of articles

Article	Version	Part-No.
Flame detector KLC 20/230	Axial, with disturbing frequency cut off	611120110105
Flame detector KLC 20/230	Axial, with disturbing frequency cut off and optical IR – Filter	611120112105
Flame detector KLC 20/230	Axial, without disturbing frequency cut off*	611120210105
Flame detector KLC 20/120	Axial, with disturbing frequency cut off	611220110105
Flame detector KLC 20/120	Axial, without disturbing frequency cut off	611220210105
Flame detector KLC 20/24	Axial, with disturbing frequency cut off	611320110105
Flame detector KLC 20/24	Axial, with disturbing frequency cut off and optical IR – Filter	611320112105
Flame detector KLC 20/24	Axial, without disturbing frequency cut off	611320210105
Mounting flange KLC	overall height 7 mm	665001010000
Mounting flange KLC	overall height 13 mm	665002010000
Viewing angle adapter KLC	Accessories for radial mounting applications	615001020000
ADP 11 - UV	Adapter for direct mounting applications	575010512210
ADP 21 - UV	Adapter for direct mounting applications, heat insulating	575010512230
Connecting cable KLC	length 300mm	661030040100
Connecting cable KLC	length 350mm	661035040100
Connecting cable KLC	length 600mm	661060040100
Connecting cable KLC	length 1000mm	661100040100
Connecting cable KLC	length 2000mm	661200040100
Connecting cable KLC	On request	
Data interface KLC-Com, USB	optical adapter, USB-interface, Software	731000080980
Flame simulation device TG 10		730061010900

* Versions without disturbing frequency cut off are not permissible for gas applications

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.

UK Authorised Distributor:

HeatSol Technology Limited
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Buckholt Drive
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Worcester WR4 9ND
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