



Flamnitec[®]

BFI AUTOMATION

Technical information

Compact Flame Detector KHM 20

for industrial oil -, gas- and combustion for intermittent burner operations



1 | Description

The KHM 20 compact flame detector was specially designed for rough, industrial use in single burner systems and can be used in particular in conjunction with freely programmable controls (e.g. PLC). The patented evaluation of the flame signal is carried out via the flicker frequency of the radiation of the upcoming flame. All types of flames are detected by the automatic sensitivity evaluation. Adjustments are not necessary during commissioning or maintenance.

The KHM 20 only evaluates the flickering of the flame to be monitored, uniform light radiation and any constant frequencies do not lead to flame detection. Interfering sources of extraneous light, e.g. from fluorescent tubes or background radiation from glowing brickwork, are blanked out. Interferences or unwanted influences on the flame detection can thus be avoided.

By means of the adapter, which also serves as the interface between the flame detector and the combustion chamber, the KHM 20 can be adapted to special requirements by means of various optionally available glasses, lenses, filters and pinholes. Via the LED display as optical interface, it is possible to read out relevant operating parameters (such as display of the flame modulation, current switching status depending on the flame signal, serial number).

2 | Safety Instruction

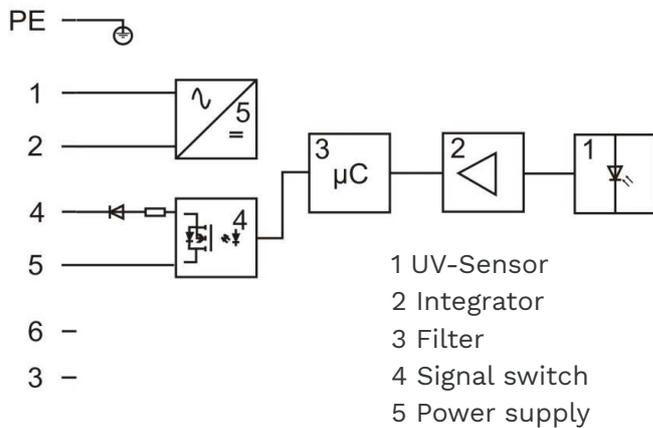
The KHM 20 is a safety component and must therefore not be opened, modified or misused! In the event of a fall, impact, moisture, wetness or other influences that may cause damage to the flame detector, the unit must be replaced even if there is no apparent damage! Repairs are not permitted!

Before starting any work, the system must be disconnected from the power supply. Before initial commissioning or when replacing the unit, the electrical wiring must be checked!

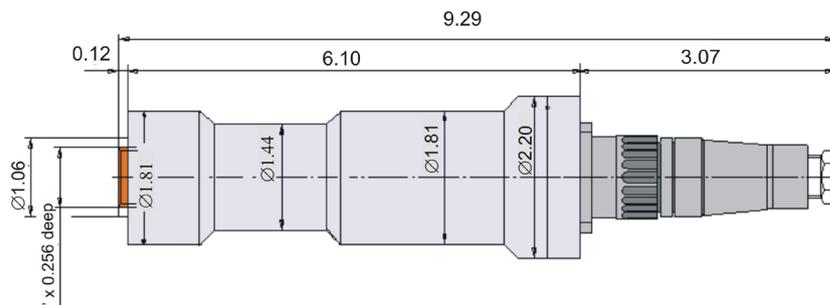
3 | Technical data

Optical features	380 to 1150 nm, max. Sensitivity at 920 nm tolerated flame signal dips ca. 280 ms, Flicker frequency range 15 – 400 Hz Interference frequency suppression
Flame orientation	axial
Input	230 V AC 120 V AC (optional) Nominal frequency 50 - 60 Hz 24 V DC (optional)
Prefuse	max. 1 A
Consumption	max. 5 mA
Operating temperature	-20 °C to +60 °C (< 1 min. by 75 °C)
Operating position	any position
Humidity	max. 95 % r. F., no condensation allowed
Kind of protection	IP 65
Protection class	II at 24 V DC
Cable length	Sufficient dimensioning depending on the cable length the switching voltages/currents specified in the data sheet of the control unit must be complied with by adequate dimensioning in relation to the cable length.
Switching output	Potential free, galvanically isolated max. switching current 25 mA max. switching power 0,6 W max. switching voltage 280V AC / 400 V DC
Switch-On time	25 Hz dominant flicker frequency
Switch-Off time	15 Hz dominant flicker frequency
Reaction time Flame „ON“	0.5 s
Reaction time Flame „OFF“	< 0.5 s
Certification	CE-0085BP5521 UL MH47747

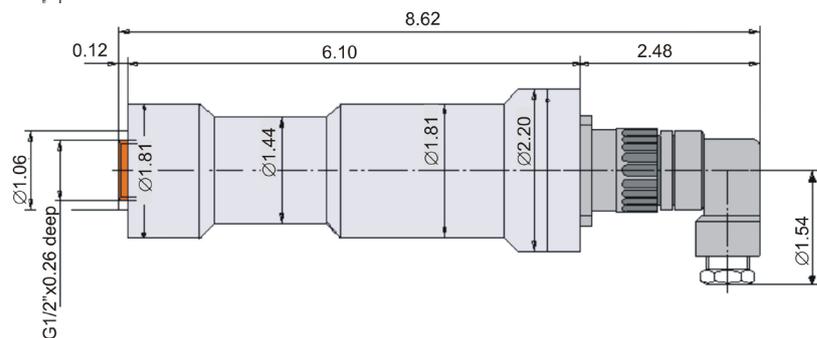
4 | Block diagram



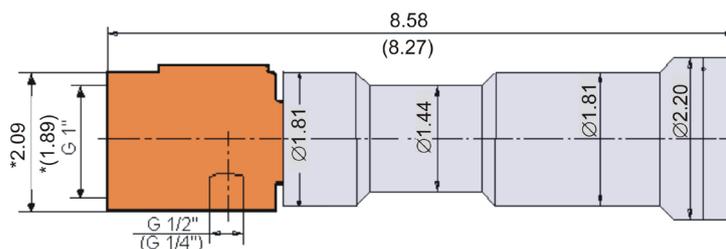
5 | Dimensions



Dimensions with straight plug



Dimensions with angle plug



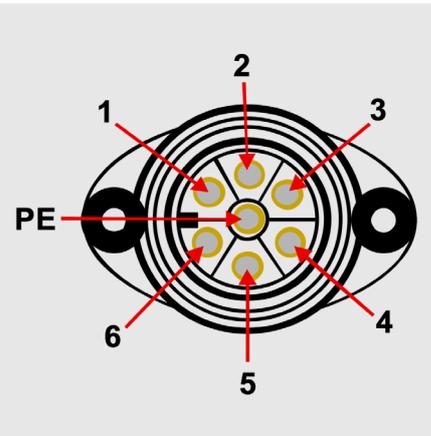
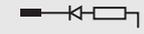
Dimensions with purge air inlet 1/2" (1/4")

The respective plug dimensions are pictured in the above drawings.

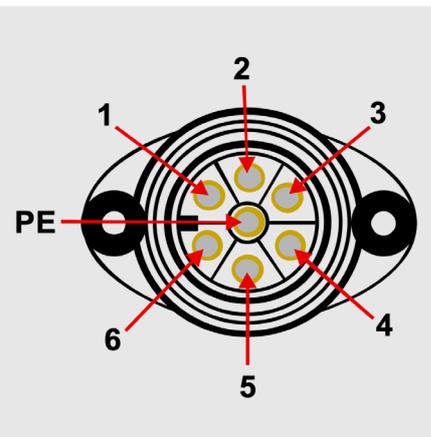
All dimensions in inch

6 | Connection diagram KHM 20/230/24

Connection diagram and pin assignment KHM 20/230

Allocation socket/plug-in	PIN	Internal connection diagram AC/DC	Cable No	Connection for ionisation output
	1	L	1	L
	2	N	2	N
	3	free	-	free
	4		3	ION
	5		4	free
	6	free	-	free
	PE	PE	Green/ Yellow	PE

Connection diagram and pin assignment KHM 20/24

Allocation socket/plug-in	PIN	Internal connection diagram AC/DC	Cable No	Connection for ionisation output
	1		1	free
	2		2	ION
	3	free	-	free
	4	+24V DC	3	24V DC
	5	0 V	4	N
	6	free	-	free
	PE	PE	Green/ Yellow	PE

8 | 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 out of the KHM 20:

- Impulses
- Serial Number
- Version / Edition
- Flicker frequency flame level

To connect, place the optical adapter over the LED opening. The information mentioned above will be downloaded via the connection cable and the interface to a Laptop or PC by using the special software proved. Further information is available in the manual KLC com.



9 | Overview of the flame detectors KHM 20 and available additional components

Article	Type	Part-No
Flame Detector KHM 20 / 230 for Ionisation	230 V AC	611332110100
Flame Detector KHM 20 / 230 for SPS-System	230 V AC	611332110111
Flame Detector KHM 20 / 120 for Ionisation	120 V AC	611332110200
Flame Detector KHM 20 / 120 for SPS-System	120 V AC	611332110211
Flame Detector KHM 20 / 24 for Ionisation	120 V AC	611332110300
Flame Detector KHM 20 / 24 for SPS-System	120 V AC	611332110311
Adapter ½" for KHM with nut and gasket	Edelstahl	114030110000
Adapter ½" for KHM with special glass, nut and gasket	Edelstahl	114030111000
Adapter 1" for KHM with purge air connector ½", with nut and gasket	Aluminium	465301000100
Adapter 1" for KHM with purge air connector ½", with special glass, nut and gasket	Aluminium	465301110100
Adapter 1" for KHM with purge air connector 1/4", with nut and gasket	Aluminium	465301000200
Adapter 1" for KHM with purge air connector 1/4", special glass, nut and gasket	Aluminium	465301110200
Angle plug KHM	-	165303041000
Connection cable BK06 with female angle jack, 1.2m length with angle adapter	1.2	561984840093
Connection cable BK06 with female angle jack, 1.8m length with angle adapter	1.8	561984840094
Connection cable BK06 with female angle jack, 3.0m length with angle adapter	3.0	561984840096
Read out unit KLCcom, Optoadapter, Interface (USB), Software		731000080980

If you are unsure about the use of this flame detector, please contact the manufacturer or authorised distributor by e-mail or telephone.



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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.
We reserve the right to make technical changes. | © BFI Automation Mindermann GmbH 2023/29

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