

TÜV- approved

CE 0085 BO 0005

- Compact case with integrated flame sensor and dual amplifier for fail safe operation
- Intensity adjust in multiple steps
- Digital circuit design for flame evaluation
- Status indication by LEDs



Gerätegruppe: II
Geräteklasse: 3G
Gerätebezeichnung: EEx nC II T6 X
 $-20^{\circ}\text{C} \leq T_a \leq 60^{\circ}\text{C}$

- 24 V DC operating voltage
- Two electronic channel system for fail safe operation and supervision
- LED bar flame intensity indication and 4 (0) ... 20 mA analog output
- LED bar trend indication selectable for an optimum adjustment to the flame direction

Application

The Compact Flame Detector is a safety device and comply to DIN EN 230 for oil operation, DIN EN 298 for gas operation and to the additional requirements of DIN VDE 0116. Furthermore the basic requirements for safety function equipment of guideline 97/23/EG (Pressure Device Guideline) and meets as well the guideline 90/396/EWG (Gas Device Guideline) are fulfilled.

The Compact Flame Detector's task is the supervision of the flame, independent from the conditions inside the firing chamber (i.e. glowing bricks or - chamber lining) and when a flame out is detected, to give the signal to shut off the fuel flow.

The Compact Flame Detector is mainly used for furnaces without a complex flame selection demands, for Power- or Heating Plants, Chemistry Industries which uses fuels like oil, gas, powdered coal or mixed fuel.

Design and operation

The Compact Flame Detector integrates the components of flame sensor and switching amplifier in one cylindrical case, the light incidence aperture is positioned in line with the axis.

The F 200 K2... Ex has two external selectable sensitivity ranges, each with a 6-position selector switch for sensitivity and as well frequency transmission ranges according below mentioned technical specifications. This allows an optimum of adaptation to the flame supervision. Cut out filtering for the line frequency and its harmonics is provided.

The standard version is intended for 50 Hz line frequency, on request also manufacturing and delivery for 60 Hz applications is possible. The display- and manual setup switches are covered from the case cap at the rear side.

Beside the LED bar graph display for intensity one additional analog output with 4 (0) ... 20 mA for the flame intensity and the flame condition is available. The LED bar graph display can be used as a help function for adjustment and sensor positioning, enabled by an internal switch. The direct measurement of the flame intensity is provided through test points.

Criterion for selection

Type	Range for spectral radiation	Application - Fuel
F 200 K2 UV-1 Ex-II	260 ... 400 nm	Oil, gas
F 200 K2 UV-2 Ex-II	210 ... 380 nm	Oil, gas (special gases of refinery- or blast furnaces)
F 200 K2 IR-1 Ex-II	1200 ... 2800 nm	Oil, gas, coal, firing with high flue gas recirculation, waste gases with yellow colour without UV-radiation respectively with absorption of the UV-radiation by vapor or dust etc.

Technical specification

Supply voltage	24 V DC \pm 20%, \leq 4 Watts	
Relay contact closure	permissible voltage	50 V DC max. 6 V AC/DC min.
SPDT, isolated	permissible current	0,5 A max. 1,0 mA min.
Frequency range	10 / 30 / 45 ... 190 Hz	
Safety time 'operation'	$t \leq$ 1 sec. (standard),	$t \leq$ 3 sec. (on request, factory setting)
Operating condition	for continuous operation	
Protection class	IP 67	
Operating temperature	- 20 ... + 60°C	
Weight	0,6 kg	
Dimension	190 mm; total length	diameter: 40 mm / 80 mm
Connection dimension	1" pipe thread DIN ISO 228/1	

Special notes for Ex- protection

1. The F 200 K is to install exclusively with the adjustable mounting accessory FS 19-10, FV 19-10, FS 20-10, FV 20-10 or with the air cooled case type FS 50, respectively with the type FS 51.
2. For cable extensions are to use only the types prescribed by the manufacturer.
3. The establishments are to be considered in particular according EN 60079-14 section 12.2 (cable and grounding).
4. The cable connections of F 200 K ... Ex are to be disconnected only in the currentless condition.
5. The protection type IP67 with opened case cap is not observed, to open only for maintenance / commissioning.
6. The declared rated supply voltage limitation (ie. by Zener Barrier) has to be done in the power supply circuit.

Order text information

The compact flame detector F 200 K2 ... Ex-II (II 3G EEx nC II T6 X) is delivered with a standard 3 m cable length. For the electrical connection of F 200 K ... Ex the junction box FG 24 Ex (EEx e IIC T6, SIRA99ATEX3173) is useable.

Type	Order no.	Type	Order no.
F 200 K2 IR-1 Ex-II	659 R 6002/Z2	FN 20 (Power Supply with relay output)	659 R 6010
F 200 K2 UV-1 Ex-II	659 R 6004/Z2	FG 24 Ex (Junction box)	659 R 0111
F 200 K2 UV-2 Ex-II	659 R 6006/Z2		



**LAMTEC Meß- und Regeltechnik
für Feuerungen GmbH & Co KG**
Impexstraße 5
D-69190 Walldorf
Telefon (+49) 0 62 27 / 60 52-0
Telefax (+49) 0 62 27 / 60 52-57
Internet <http://www.lamtec.de>
E- Mail: info@lamtec.de

LAMTEC Leipzig GmbH & Co KG

Schlesierstraße 55
D-04299 Leipzig
Telefon (+49) 03 41 / 86 32 94 00
Telefax (+49) 03 41 / 86 32 94 10