# System Overview

# Compact Flame Scanner F200K

Sensors and systems for combustion engineering

**LAMTEC**

# Approvals.

**CE 0085**
Gas Appliances Directive 2009/142/EC, CE0085

**CE 0036**
Pressure Equipment Directive 2014/68/EU, CE0036

**SIL 3**
SIL 3 Confirmation, DIN EN 61508 Parts 2

**Class I, Division 2, Group A, B, C, D,
Hazardous Locations**

EN 60079, Ex Device Group II Device Category 3,
IBExU05ATEX
EX nA nC II T6 X (Zone 2)
- 20 °C $\leqq$ Ta $\leqq$ + 60 °C

EN 60079, EX Device Group II Device Category 2
PTB03 ATEX
II 2 G/D EEx de II C T6 (Zone 1)

# Compact Flame Scanner F200K.

With the F200K, LAMTEC has developed a compact flame scanner that can be used in a number of different areas and for a diverse range of monitoring requirements. With the new generation of flexible compact flame scanners, LAMTEC provides operators of industrial combustion systems and power plants with a state-of-the-art product. As such, the F200K compact flame scanner is capable of tackling monitoring requirements for complex modern burners in a safe, effcient and reliable manner.



**The LAMTEC F200K flame scanner in operation.**



**F200K-FO Fibre Optic implementation**

## Advantages:

- Flame monitoring in a compact design
- Integrated flame sensor and switch amplifier
- Three stages for digital flame frequency evaluation
- Two selectable operating modes
- Available with certification for Ex Zone I and II
- Simple operation and adjustment
- No special tools required for the commissioning process
- -40 °C ... + 75 °C (higher temperatures possible, with cooling air housing)
- IP67

## Applications:

- Combustion systems with and without selection tasks
- Single and multi-fuel burners
- Combustion space monitoring
- Power plants, heating plants, process furnaces, waste combustion-plants, etc.
- Combustion plants with restricted view of the flame

## Fuels:

- Gas
- Oil
- Coal
- Biomass
- Dusty fuels
- Special fuels
- Hydrogen

## F200K-FO with Fibre Optic

- For use on boiler systems with limited view of the flame
- Use at high temperatures in the normal growing range of a flame monitor and up to 350 °C
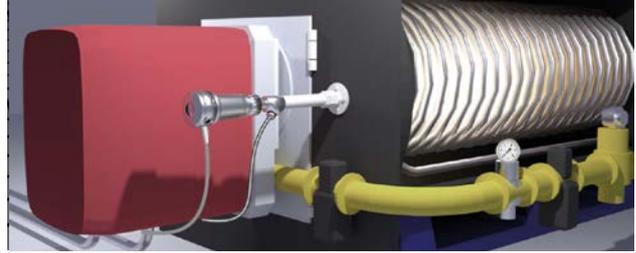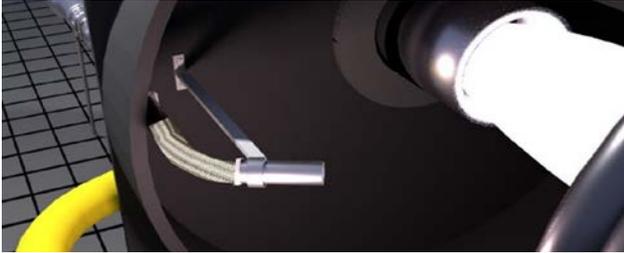
# Product description.

| Typ | Spectrum | Viewing angle | Preferred application / fuels |
|---|---|---|---|
| F200K1 UV-2<br>F200K2 UV-2 (Ex) | 210 ... 380 | ca. 8° | ■ Oil<br>■ Gas<br>■ Special gases such as refinery gases, blast furnace gases and hydrogen<br>■ Special applications in combination with fibre optics |
| F200K1 UV-3<br>F200K2 UV-3 (Ex) | 210 ... 380 | ca. 8° | ■ Special fuels with high intensity and high selection requirements |
| F200K1 IR-1<br>F200K2 IR-1 (Ex) | 1200 ... 2800 | ca. 60° | ■ Oil, gas, wood and coal fired furnaces with a high level of flue-gas recirculation<br>■ Yellowish waste gases without UV radiation or with shielding of the UV spectrum by water vapour and dust |
| F200K1 IR-2<br>F200K2 IR-2 (Ex) | 850 ... 1200 | ca. 50° | |

| Design options | F200K1 | F200K2... (Ex) |
|---|---|---|
| Sensitivity range | One sensitivity range<br>Six stages | Two sensitivity ranges, increased sensitivity in range II, can be switched externally, six stages per range |
| Frequency range | 10 ...190 Hz * | 10/20/30 ... 190 Hz*, can be adjusted on the device |

* Additional versions for lower threshold frequencies also available on request

| Auxiliary energy, input | |
|---|---|
| Supply voltage | 24 VDC ± 20 %, protection rating III |
| Power consumption | 4 W |

Remote range switch-over (F200K2 only), floating contact, can be switched via power supply

### Highlights:

- Two operating modes
- Operating modes can be selected externally
- Operating modes can be switched during operation
- Graduated frequency ranges

# Accessories.

## FN20 power pack

The FN20 power pack enables the F200K compact flame scanner to be connected to a mains AC voltage. It is intended for use with top hat rail assembly but can also be delivered for attachment to a mounting plate upon request.

The FN20 power pack includes an output relay adjusted for connecting the F200K compact flame scanner to 230 V or 115 V mains AC voltage. It must be installed in a way that enables it to attain an IP40 protection rating. The FN20 power pack is also available in an optional IP65 case.



**FN20 for top hat rail assembly FN20 in the connection housing with FSB connector, not shown.**

## Connecting cable

■ Connecting cables are available in 3, 5 and 10 metre lengths.

■ Standard LiYcY cable, temperature range of -40 … +80 °C (inactive) silicone cable, temperature range -40 … +150 °C

■ For special ambient conditions, the silicone cable can also be supplied with a stainless steel metal protected tube

■ IP67



**Connecting cable**

## FG21 + FG24 connection housing

LAMTEC offers two versions of the FG2X connection housing:

■ FG21 with four screwed cable glands

■ FG24 Ex-II for use in explosive environments, with four screwed cable glands

■ ⟨Ex⟩ II 3G EX nA II T4 Gc X.

■ IP66



**FG21**

## FHXX and FVXX adjustable holder

You will find a complete overview of the holders and cooling-air housings (also with extended air outlet) for LAMTEC flame scanners in the document „Flame Monitoring Systems and Accessories" (DLT7673).



**Adjustable holder**

**Fibre Optic**
**Available versions:**

◼ Rigid Protective Housing - FOR

◼ Flexible Protective Housing - FOF

**Available lengths:**

◼ FOR 1.0 m to 10 m / 0.5 m graduation

◼ FOF 1.5 m to 10 m / 0.5 m graduation



**Fibre Optic Systems**

**Flame-scanner testing device**
You can use the FFP30 to test that your flame scanner is working properly. The testing device simulates a variable flame frequency. The testing device is screwed onto the flame scanner, and the IR or UV beam activated via a rocker switch. The F200K must be set to an adequate sensitivity to detect the flame simulation.
It is designed to test all flame scanners from LAMTEC.



**Flame-scanner testing device**

# Notes.