

- **Compact case with integrated flame sensor and switching amplifier**
- **Intensity adjust in multiple steps**
- **Digital circuit design for flame evaluation**
- **Status indication by LEDs**



- **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 F 200 K fulfils 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).

The task of the Compact Flame Detector 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 task, for Power- or Heating Plants, Chemistry Industries which uses fuels like oil, gas, powdered coal or mixed fuel, as well for supervision of wood firing plants.

Design and operation

The Compact Flame Detector integrates the components of flame sensor and switching amplifier in one cylindrically case, the light incidence aperture is positioned in line with the axis. The signal processing is done by the separate layout of two analog / digital channel circuits which operates alternating and in succession for fail safe operation and self check. The safety directed flame notification is given through an isolated SPDT relay contact.

In different versions has the F 200 K1... a 6-stage selector switch for sensitivity adjustment and the F 200 K2... has two external selectable sensitivity ranges, each with a 6-stage selector switch for sensitivity and as well frequency transmission ranges according below mentioned technical specifications. 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 multiple stage selector switch for sensitivity adjustment of the F 200 K2... in two sensitivity ranges and in combination with the variable frequency adjustment allow an optimum adaptation to the flame for supervision. The display- and manual setup switches are covered from the case cap at the rear side.

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

Technical specification

Supply voltage	24 V DC \pm 20%, \leq 4 Watts	
Relay contact output SPDT, isolated	permissible switching voltage permissible current switching	max. 50 V DC min. 6 V AC/DC max. 0,5 A min. 1,0 mA
Frequency range	10 ... 190 Hz (F 200 K1...);	10 / 30 / 45 ... 190 Hz (F 200 K2...)
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	total length: 178 mm;	diameter: 40 mm / 80 mm

Criterion for selection

Type	Range for spectral radiation	Application - Fuel
F 200 K1 UV-1 / F 200 K2 UV-1	260 ... 400 nm	Oil, gas
F 200 K1 UV-2 / F 200 K2 UV-2	210 ... 380 nm	Oil, gas (special gases of refinery- or blast furnaces)
F 200 K1 IR-1 / F 200 K2 IR-1	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.

Order text information

The compact flame detector is delivered with a Coninvers plug. The standard cable length with the Coninvers plug is 3 m. On request also other cable length are available.

Type	Order no.	Type	Order no.
F 200 K1 IR-1	659 R 6001	F 200 K2 IR-1	659 R 6002
F 200 K1 UV-1	659 R 6003	F 200 K2 UV-1	659 R 6004
F 200 K1 UV-2	659 R 6005	F 200 K2 UV-2	659 R 6006
FN 20 Power Supply 24 VDC with relay output	659 R 6010	Coninvers couple connector with 3 m cable	659 R 6112
		Coninvers couple connector with 5 m cable	659 R 6113
		Coninvers couple connector with 10 m cable	659 R 6114



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