

Technical Data Compact Flame Scanner F200K ...



Fig. 1 Compact flame scanner F200K V, F200K Ex-II V

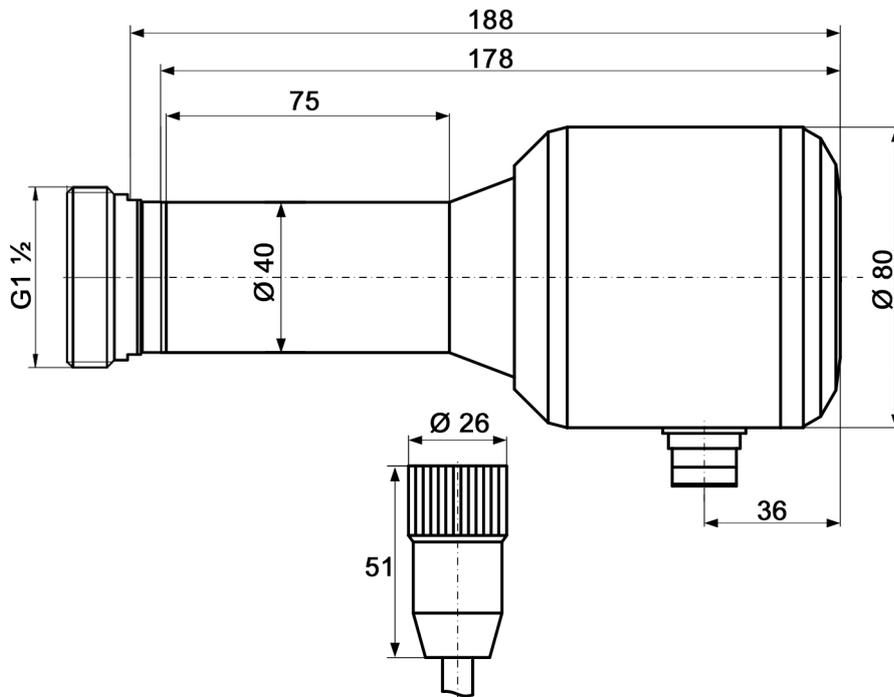


Fig. 2 Dimensional drawing compact flame scanner F200K V, F200K Ex-II V

NOTICE

Delivery without connecting cable!

Connection cable must be ordered separately, see order details.

Technical Data Compact Flame Scanner F200K ...



Fig. 3 Compact flame scanner F200K, F200K Ex-II

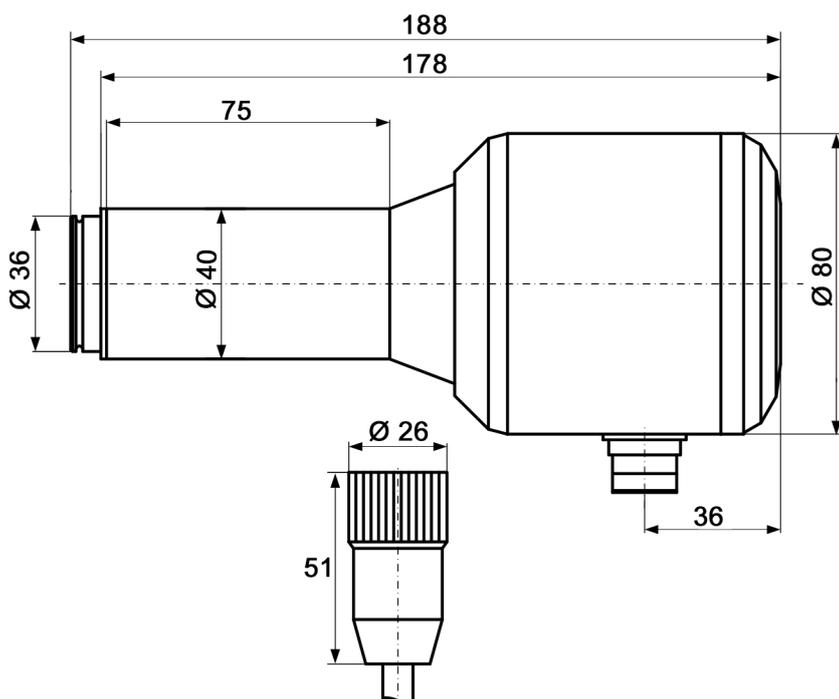


Fig. 4 Dimensional drawing compact flame scanner F200K, F200K Ex-II

NOTICE

Delivery without connecting cable!

Connection cable must be ordered separately, see order details.

Technical Data Compact Flame Scanner F200K ...



Fig. 5 Compact flame scanner F200K Ex (for Ex zone 1, 21)

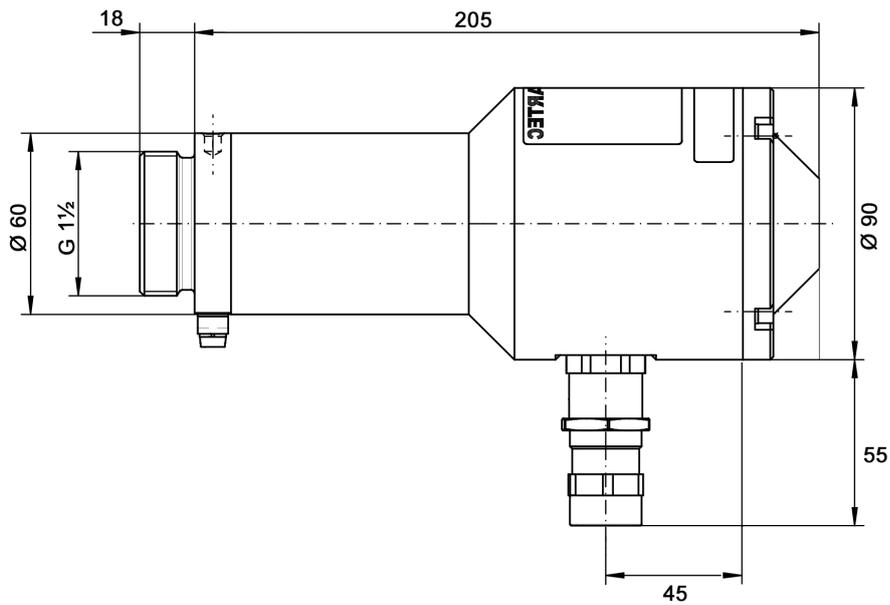


Fig. 6 Dimensional drawing compact flame scanner F200K Ex (for Ex zone 1, 21)

NOTICE

Delivery with connecting cable!

Available lengths 3/5/10 m | 9.84/16.40/32.81 ft, see order details.

Technical Data Compact Flame Scanner F200K ...

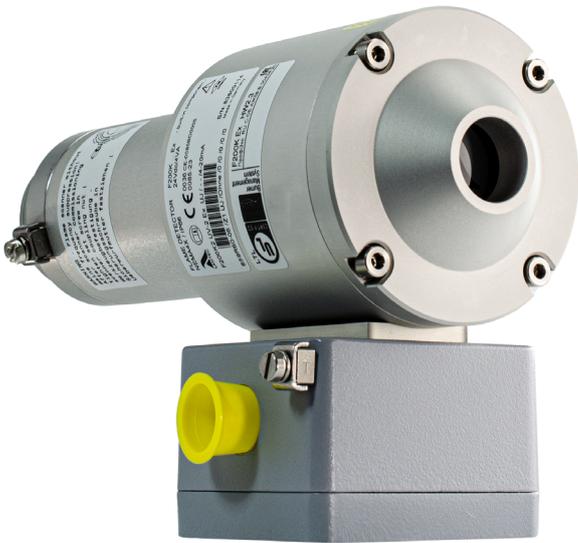


Fig. 7 Compact flame scanner F200K Ex (for Ex-Zone 1, 21), with connection area

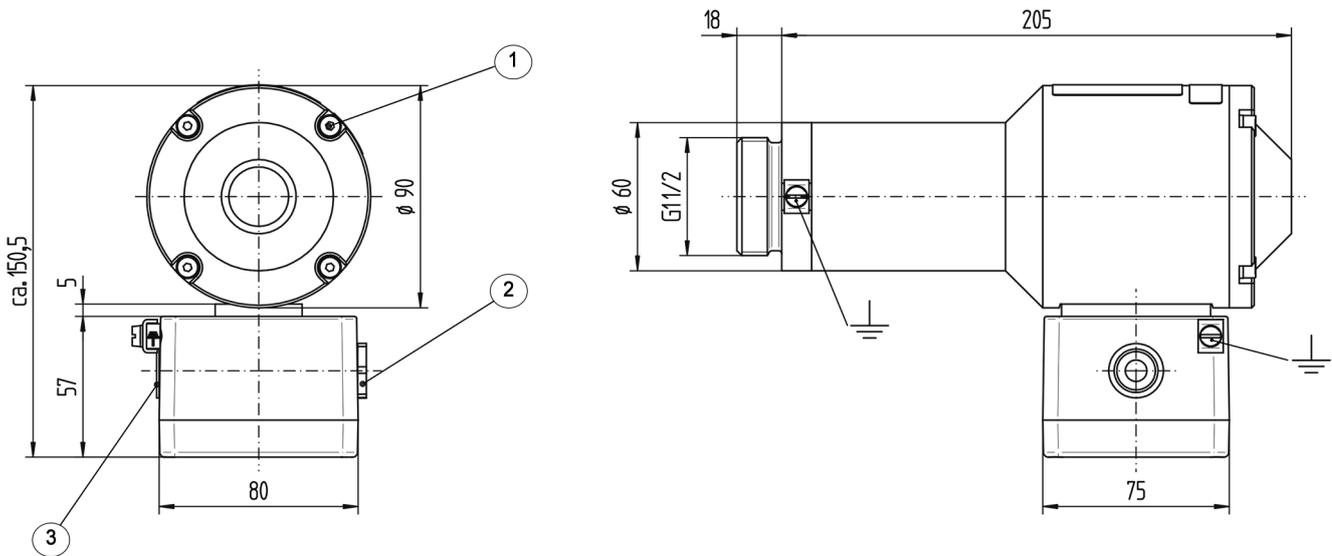


Fig. 8 Dimensional drawing compact flame scanner F200K Ex (for Ex zone 1, 21), with connection area

1	4x cylinder screw SO4762- BM5x25x9
2	Sealing screw M20x1,5 Ex 112G / 1110
3	Standard sealing plug, without explosion protection

NOTICE

Delivery without connecting cable and without screwed cable gland!

The cable and screwed cable gland must be ordered separately.

Technical Data Compact Flame Scanner F200K ...

F200K ... , F200K2 ... , Ex-II (for Ex zone 2, 22)

Dimensions Safe Area and Ex-II

Material	Corrosion-resistant aluminium EN AW 6082 (seawater 2*; atmospheric condition 1*), nickel plated, varnished (F200K Ex-II)
Dimension Version V + S	Total length: 180 mm 7.09" in; Diameter: 40/80 mm 1.57/3.15" in with male thread G 1 ½, length 10 mm 0.4" in / S (Ø 36)
Weight	0,60 kg 1.32 lb
Tightening torque for brackets FV...	Hand-tight approx. 5 Nm

* Comparative evaluation from 1 (very good) to 6 (unsuitable)

F200K, F200K2 Ex (for Ex zone 1, 21)

Dimension

Material	Corrosion-resistant aluminium EN AW 6082 (seawater 2*; atmospheric condition 1*), anodised
Dimension	Total length: 216 mm 8.5" in Diameter: 60/90 mm 2.36"/3.54" in
Weight	2 kg 4.4 lb
Tightening torque for brackets FV...	Hand-tight approx. 5 Nm

* Comparative evaluation from 1 (very good) to 6 (unsuitable)

Technical Data Compact Flame Scanner F200K ...

General technical data F200K for all variants/versions

Input parameters	
Auxiliary power	
Power supply voltage ¹	24 VDC ± 20 %, protection class III
Power consumption	≤ 4 W ≤ 380 mA (100 ms peak)
Switch ON current	28,8 V ≤ 750 mA (100 ms peak)
Response sensitivity	25 m VAC
Input switching current	approx. 10 mA
Vibration fatigue limit according to GL2003-12/ V1-7-2	4 g
¹ The product must not be transported, stored or operated outside the specified range. All promises regarding safety-relevant functions otherwise lose their validity.	
Output Data	
Output contact flame signal	
Permissible switching voltage ¹	change-over contact (floating) max. 50 VDC, protection class II (250 VAC by main supply FN 20) min. 6 VAC/DC
Permissible switching current	max. 0,5 A at < 60 °C +140 °F ² 0,4 A at < 75 °C +167 °F ² min. 1 mA ²
Switching capacity	min. 0,1 W max. 30 W
Internal fuses	2,5 A slow IEC or 3,5 A slow UL
Safety time 'FFDT'	t _{Voff} ≤ 1 s or ≤ 2 ... 4 s, (5 s on request) factory setting
Start-up delay	t _{Von} ≈ FFDT as of HW 2.3 applies to FFDT 3 s t _{Von} ≈ 2 s
Measuring output for intensity	
Output continuous current	4 (0) ... 20 mA, there is no insulation of potential towards the supply voltage
Maximum working resistance	200 Ω
Floating DC voltage	6,6 V
Basic error	±2 %

¹ The product must not be transported, stored or operated outside the specified range.
If it is, any guarantees with regard to safety-related functions lose their validity.

² Please note: Gold-plated relay contacts

The maximum load for inductive/capacitive loads (recurring current peaks during switching) is 100 mA. If this is exceeded, even briefly (current peaks), the specified minimum value of 10 mA can no longer be guaranteed. Provide external spark suppression.

Technical Data Compact Flame Scanner F200K ...

Spectral radiation range and sight angle

- F200K1 UV-2 and F200K2 UV-2(Ex)	210 ... 380 nm ca. 8°
- F200K2 UV-6 (Ex-II)	215 ... 360 nm ca. 10°
- F200K1 IR-2 and F200K2 IR-2(Ex)	850 ... 1200 nm ca. 50°
- F200K1 IR-1 and F200K2 IR-1(Ex)	1200 ... 2800 nm ca. 60°

³ The real viewing angle depends on the building conditions at install site.

NOTICE

Range remote switch-over (F200K2 only) floating-contact, can be controlled by means of the supply voltage.

Cable length

Maximum extension via the connection cable 3 m 9,84 ft addition, at a supply voltage 20,5 V	Wire 0.5 mm ² 20 AWG → length: 50 m 164 ft Wire 1.0 mm ² 18 AWG → length: 100 m 328 ft Wire 2.5 mm ² 14 AWG → length: 250 m 820 ft
Deviating cable lengths p. ex. (main criteria is the compliance to limitations of the supply voltage the compact flame scanner and thus the loss of voltage on the supply line)	Length: 150 m 492 ft Wire: 0,5 mm ² 20 AWG 150 : 0.5 x 0.0131 + 19.2 = 23,13 V The supply voltage must be > 23,13 V.

NOTICE

Only a cross-section of 0.5 mm² | 20 AWG is possible for the **F200K Ex**.

Technical load capacity

Operating mode	DB – continuous operation Intermittent operation 72 h Operation according to TRD604
Creepage distances and clearances	IEC 60730-1, ÜK III, VG 2
Interference susceptibility	IEC 60730-1, EN 61000-4
Emitted interference	DIN EN 55022, Class B

Technical Data Compact Flame Scanner F200K ...

Climatical conditions

Operating class temperature F200K

Sensor	IR-1	IR-2	UV-6, UV-2
-40 °C -40 °F */**	x	x	x
-20 °C -4 °F	x	x	x
+60 °C +140 °F	x	x	x
+75 °C +167 °F*		x	x

* for F200K ... Ex ... (see Ex approval)

** not valid for FFDT > 3 s

Operating Condition

Relative humidity	0 ... 95 % non-condensing
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Environmental Conditions

Operation	permissible temperature range	- 40 ... +75 °C -40 °F ... +167 °F
Transport	permissible temperature range	- 40 ... +75 °C -40 °F ... +167 °F (type IR-1 +65 °C +149 °F) (storage in closed cargo holds)
Storage	permissible temperature range	- 40 ... +75 °C -40 °F ... +167 °F (type IR-1 +65 °C +149 °F) (storage in closed spaces)
Degree of protection	DIN EN 60529:2000	IP66/67, IP66 (at F200K Ex), NEMA 4X in closed condition

Technical Data Compact Flame Scanner F200K ...

Application in hazardous areas Ex zone 2, 22		F200K Ex-II
Device group/category of hazardous area	[Ex] II 3G, Zone 2, [Ex] II 3D, Zone 22	
Certificate	IECEX IBE 15.0012X Class I Division 2 File-No. E488138	
Marking	Ex ec nC IIC T6...T5 Gc X Ex tc IIIC T90°C Dc X CI I Div2 Gr A ... D T5	
Standards	IEC 60079-0, EN 60079-0 ANSI/ISA-12.12.01, CAN/CSA C22.2 No. 213	
Operating temperature range		
Ambient temperature	explosive gas atmospheres T5 -40°C -40 °F ... Ta ... +75°C +157 °F T6 -40°C -40 °F ... Ta ... +65°C +149 °F explosive dust atmospheres T90°C 194 °F -40°C -40 °F ... Ta ... +75°C +157 °F	
Additional Information	Follow the section "Special Points to Note When Using the Device in Explosion-proof Areas".	
Application in hazardous areas Ex Zone 1, 21		F200K Ex
Device group/category of hazardous area	[Ex] II 2G, Zone 1, [Ex] II 2D, Zone 21	
Certificate	IECEX EPS 14.0042X, EPS 14 ATEX 1 696 X	
Marking	ATEX	 II 2G Ex db IIC T6...T5 Gb (F200K Ex with fixed cable)  II 2G Ex db eb IIC T6...T5 Gb (F200K Ex with connection area)  II 2D Ex tb IIIC T80°C, T95°C Db
	IECEX	Ex db IIC T6, T5 Gb (F200K Ex with fixed cable) Ex db eb IIC T6, T5 Gb (F200K Ex with connection area) Ex tb IIIC T80°C, T95°C Db
Standards	IEC 60079-0 , EN 60079-0	
Operating Temperature range		
Ambient temperature	T5 -40 °C -40 °F ... Ta ... +75 °C +157 °F (UV version) T6 -40 °C -40 °F ... Ta ... +65 °C +149 °F (UV version) T6 -40 °C -40 °F ... Ta ... +60 °C +140 °F (IR Version)	
Additional information	Follow the section 'Special Points to note when using the device in explosion-proof areas'.	

Technical Data Compact Flame Scanner F200K ...

Order Information

NOTICE

All options marked with * correspond to the standard selection.

Description/Type	Order no.
Compact Flame Monitoring F200K, power supply voltage 24 VDC/4 W, IP66/IP67, SIL3	659R60...
A10 - SPECTRUM	Selection
TYP 1 UV-2 ¹⁾	UV-SPECTRAL RANGE 210 ... 380 nm 05
TYP 2 UV-2	UV-SPECTRAL RANGE 210 ... 380 nm 06*
TYP 2 UV-2- 3s	UV-SPECTRAL RANGE 210 ... 380 nm 22
TYP 2 UV-6	UV-SPECTRAL RANGE 215...360 nm 07
TYP 2 UV-6 3s	UV-SPECTRAL RANGE 215...360 nm 26
TYP 1 IR-1 ¹⁾	IR-SPECTRAL RANGE 1.200 ... 2.800 nm 01
TYP 2 IR-1	IR-SPECTRAL RANGE 1.200 ... 2.800 nm 02
TYP 2 IR-2 (COMBUSTION CHAMBER MONITORING)	IR-SPECTRAL RANGE 850 ... 1.200 nm 00
TYP 2 IR-2 4s (COMBUSTION CHAMBER MONITORING)	IR-SPECTRAL RANGE 850 ... 1.200 nm 08

¹⁾ not suitable for Ex zone 1, 21 and 2, 22

A20 - HOUSING	Selection
HOUSING STANDARD, IP67, NEMA 4X Suitable bracket FH30-00, FH30-10, FH40-10	0
GEHÄUSE WITH SCREW FASTENING, IP67, NEMA 4X Suitable bracket FV30-00, FV30-10, FV40-10	V*
HOUSING FOR FIBER OPTIC, IP67, NEMA 4X WITH SCREW FASTENING Suitable bracket FV30-FO	FO
HOUSING IR FÜR Ex-ZONE 1 in acc. to ATEX and IECEx, IP66, NEMA 4X Suitable bracket FV30-00, FV30-10, FV40-10	Z1 IR
HOUSING UV FÜR Ex-ZONE 1 in acc. to ATEX and IECEx, IP66, NEMA 4X Suitable bracket FV30-00, FV30-10, FV40-10	Z1 UV
HOUSING FÜR Ex-ZONE 2 in acc. to ATEX and IECEx, IP 67, NEMA 4X Suitable bracket FH30-00, FH30-10, FH40-10	Z2
HOUSING FÜR Ex-ZONE 2 in acc. to ATEX and IECEx, IP 67, NEMA 4X MIT SCHRAUBBEFESTIGUNG Suitable bracket FV30-00, FV30-10, FV40-10	Z2/V
HOUSING FÜR FASEROPTIK FÜR Ex-ZONE 2 nach ATEX und IECEx, IP67, NEMA 4X WITH SCREW FASTENING Suitable bracket FV30-FO	Z2 FO

A 30 – MAINS FREQUENCY	Selection
MAINS FREQUENCY 50 Hz	0
MAINS FREQUENCY 60 Hz	60Hz
WITHOUT MAINS FREQUENCY SUPPRESSION Standard for housing with threaded connection!	OHNE

Technical Data Compact Flame Scanner F200K ...

A 40 – CURRENT OUTPUT	Selection
CURRENT OUTPUT 4 ... 20 mA	0*
CURRENT OUTPUT 0 ... 20 mA	0mA

A 50 – LED DISPLAY / SIGNAL OUTPUT 0/4... 20 mA	Selection
STANDARD	0*
EXTENDED DISPLAY RANGE	A

A 60 – CABLE LENGTH FOR TYPE EX-AREA 1	Selection
WITHOUT CONNECTING CABLE	0*
CONNECTING CABLE, length 3 m 9.84 ft, only Ex1	3m
CONNECTING CABLE, length 5 m 16.40 ft, only Ex1	5m
CONNECTING CABLE, length 10 m 32.81 ft, only Ex1	10m

Connecting cable

Separate standard connecting cable with cable connector for F200K

(not suitable for F200K Ex with connection area housing)

Description/Type	Order no.
Connecting cable, length 10 m 32.81 ft	659R6114
Connecting cable, length 15 m 49.21 ft	659R6115
Connecting cable, length 50 m 164.04 ft	659R6150
Connecting cable, silicone, length 10 m 32.81 ft	659R6114/SI
Connecting cable, silicone, length 15 m 49.21 ft	659R6115/SI
Connecting cable, silicone, length 50 m 164.04 ft	659R6150/SI
Connecting cable, silicone, UL compliant Div2 Listed Connecting cable, length 10 m 32.81 ft	659R6114/D2L
Connecting cable, silicone, UL compliant Div2 Listed Connecting cable, length 15 m 49.21 ft	659R6115/D2L
Connecting cable, silicone, UL compliant Div2 Listed Connecting cable, length 50 m 164.04 ft	659R6150/D2L
further lengths available on request	

Approvals



The information in this publication is subject to technical changes.



LAMTEC GmbH & Co. KG

Josef-Reiert-Straße 26
69190 Walldorf
GERMANY

Telefon: +49 (0) 6227 6052-0
Telefax: +49 (0) 6227 6052-57

info@lamtec.de
www.lamtec.de

