Technical Data Lambda Probe LS2-KAF

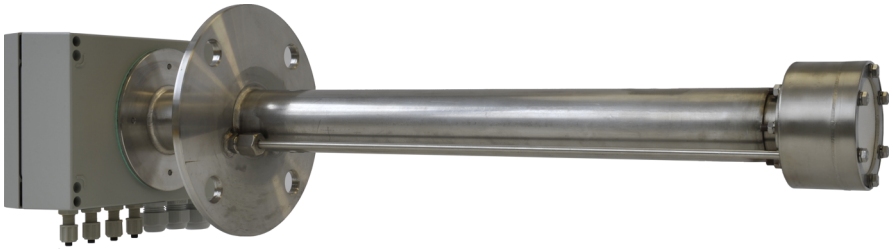

Fig. 1 Lambda Probe LS2-KAF

The hose connections for calibration (air or test gas) for semi-automatic calibration.

Installation depth X	**LS2-KAF**
500 mm | 19.69" in	Type 650R2230/AF
1,000 mm | 39.37" in	Type 650R2231/AF
1,500 mm | 59.06" in	Type 650R2232/AF

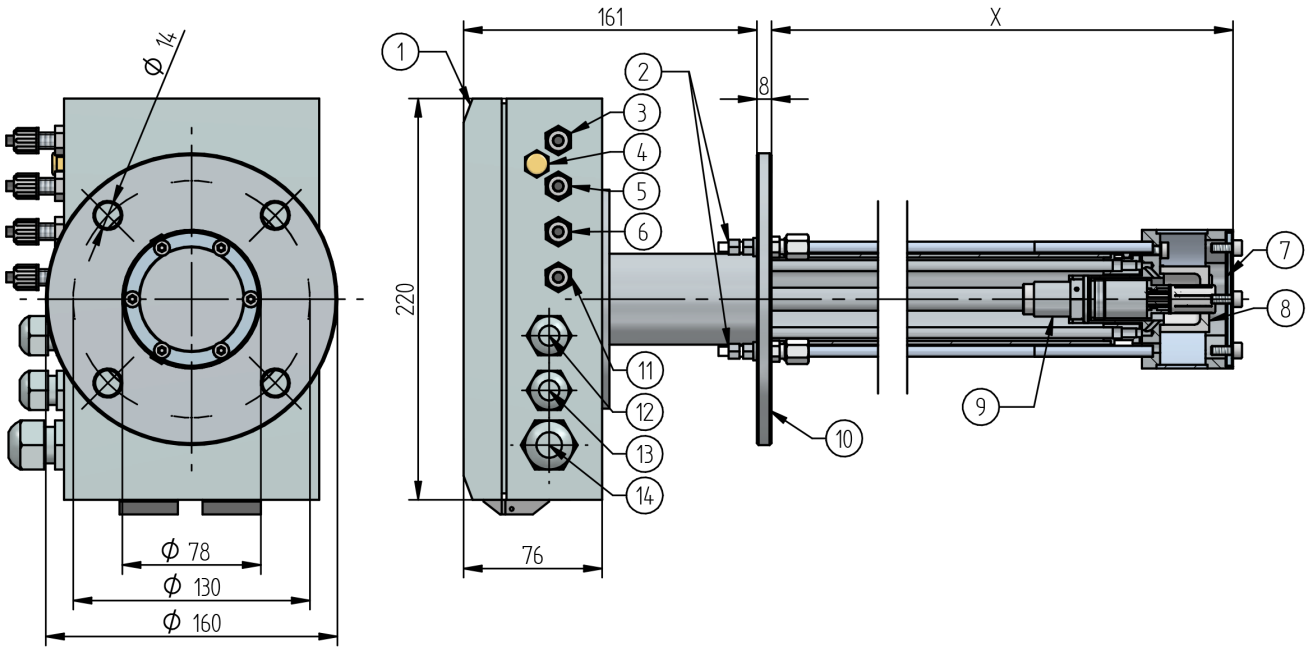

Fig. 2 KAF Probe with purge unit (dimensions in mm)

No.	Description
1	Probe connection box (PCB)
2	Hose connection 4/6 mm | 0.16/0.24" in ’Purge filter outside’ from solenoid valve unit – Instrument air (pre-pressure 6 bar)
3	Hose connection 4/6 mm | 0.16/0.24" in ’calibration gas’ (pre-pressure 0.3 bar) Instrument air for offset calibration or test gas (example 2 Vol.% O_2 in N_2)
4	Outlet of reference air
5	Hose connection 4/6 mm | 0.16/0.24" in ’reference air’ from solenoid valve unit – Instrument air (pre-pressure 0.3 bar) – Air consumption approx. 10 l/h
6	Hose connection 4/6 mm | 0.16/0.24" in ’purge filter internal side’ from solenoid valve unit – Instrument air (pre-pressure 3 bar)
7	Filter mesh
8	Filter resolution 20 µm
9	Sensor
10	Flange DN65PN6 with deviating tube diameter DN80 (deviant flange thickness 8 mm)
11	Hose connection 4/6 mm | 0.16/0.24" in ’pressure sensor’ from solenoid valve unit
12	Cable gland input M16 – reserve
13	Cable gland input M16 – probe heating
14	Cable gland input M20 – absolute pressure sensor, differential pressure sensor probe signals

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Characteristics	
Measuring range	**O_2:** 0 ... 21 % O_2
Measurement accuracy	**O_2:** ± 5 % of measured value - not better than ± 0,3 Vol.%
Sensor signal	**O_2:** -30 ... +150 mV
Response time	**O_2: t_{60}:** ≤ 10 s
Relaxation time (measurement readiness after overload)	**O_2:** t_{90}: < 8 s
Offset to environment	**O_2:** < 0.3 vol. %
Repeating precision	**O_2:** < 0.1 % deviation from measured value
Drift	**O_2:** < 1.7 % from measured value (after 1000 h of operation in EL light fuel oil and 1004 switching cycles ON/OFF)
Cross sensitivity**	**O_2:** to SO_2, NH_3, NO, propane and aromatic hydrocarbons
Heating consumption	10 ... 25 W (at T_{gas} 350 °C | 662 °F approx. 18 W) (according to design, measuring gas temperature, and measuring speed)
Durability	≥ 2 years by using fuel and natural gas
Weight	6.5 kg at 500 mm length | 14.33 lb at 19.69" in length
Material of probe housing	1.4571
Material of connection housing	EN AC-44300
Material of connecting line	Nickel-plated copper strand FEP insulation
Operating temperature of measuring cell (sensor) on 13 V heating voltage to air (20 °C | 68 °F)	650 °C | 1,202 °F
Measurement principle	Zirconium dioxide cell (ZrO_2) potentiometric (voltage probe)
Heating-up time	20 min. up to operating temperature

* Information according to EN 16340:2014 D

** O_2: Information assumes an operating gas composition of 5 vol. % O_2, rest is N_2

Operating condition	
Mounting / measuring gas extraction device	Directly in exhaust gas channel / in situ
Seal tightness	q_L ≤ 100 cm^3/h*
Mounting position	Horizontal to vertical
Permissible fuels	Gaseous hydrocarbons, light fuel oil, lignite and coal, wood. Direct measurements in fuel gases are not possible
Ideal measuring gas speed	1 m/s ≤ X ≤ 16 m/s (Higher measuring gas speed increases the measurement error. Measured at measuring gas temperature 25 °C | 77 °F. In case of smaller measuring gas temperatures it might be necessary to protect the probe from the incident flow.)
Reference air supply	Via reference pump 657R1060 (option LT2) alternative via instrument air on site 0,3 bar max. 100 l/h
Flange adapter	DN65 PN6 with deviating tube diameter DN80 flange type 655R0179 / 655R0180

* According to DIN V 18160-1:2006-01, seal tightness towards environment through housing and fastening.

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Environmental conditions		
Probe head	permissible flue gas temperature	≤ 450 °C | 842 °F
Operation	permissible temperature	< 100 °C | 212 °F at the cable gland < 100 °C | 212 °F at the connecting cable
Transport	permissible temperature	-20 ... +60 °C | -4 ... +140 °F
Storage	permissible temperature	-20 ... +60 °C | -4 ... +140 °F
Degree of protection	DIN EN 40050	IP65

NOTICE

The limits of the technical data must be strictly adhered to.

Order Information

Lambda Probe LS2-KAF for measurement of oxygen (O_2)

- Application for high dust loads up to 2,000 mg/m^3
- For semi automatic calibration
- Incl. hose connectors for test gas and purge operation
- Electronic connection on screw terminals, IP65
- Flue gas temperature max. 200 °C / 392 °F

Description / Type	Order No.
Lambda Probe LS2-KAF, semi automatically calibration and purging, incl. filter fleece (filter disk), immersion depth from flange 500 mm / 19.69" in	650R2230/AF
Lambda Probe LS2-KAF, semi automatically calibration and purging, incl. filter fleece (filter disk), immersion depth from flange 1,000 mm / 39.37" in	650R2231/AF
Lambda Probe LS2-KAF semi automatically calibration and purging, incl. filter fleece (filter disk), immersion depth from flange 1,500 mm / 59.06" in	650R2232/AF

Additional required:

Lambda Transmitter LT2, configured for LS2 in application 'semi automatically calibration and purge operation'
Order no. 657R102 / LS2 / 4KA /…

Counter flange, order no. 655R0179 (with deviating tube diameter DN80) / 655R0180

Flange gasket, order no. 655P4211

Pneumatic box 24 VDC for controlling of the purge device, order no. 650R2080
Cyclic control is performed by LT2 (can be set by parameter).

The information in this publication is subject to technical changes.

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