

Technical Data Lambda Probe LS2-BF



Fig. 1 Lambda Probe LS2-BF

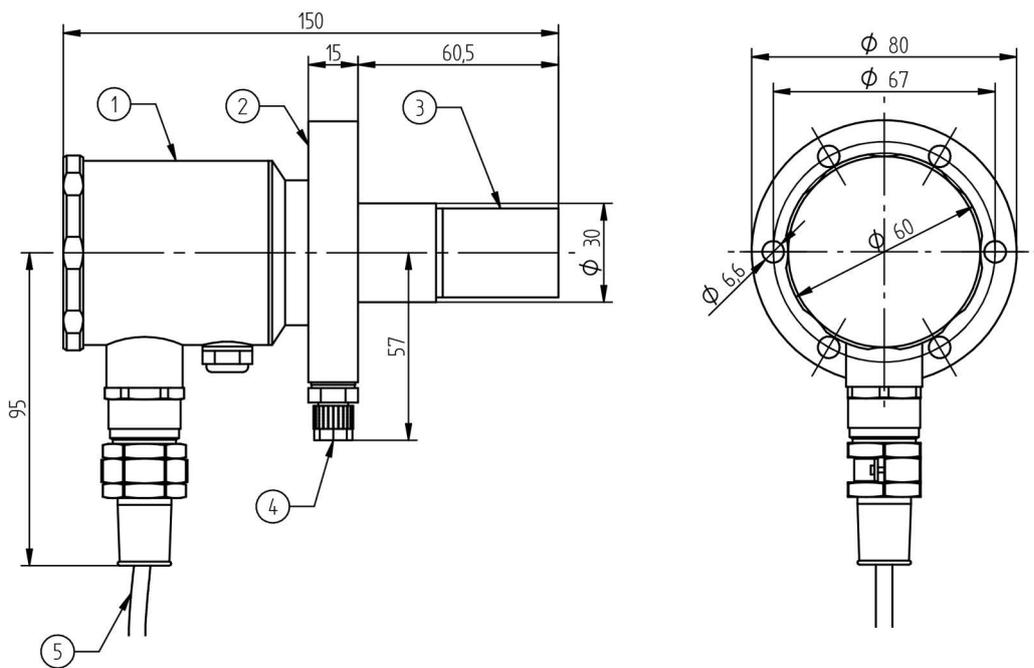


Fig. 2 Dimensional drawing Lambda Probe LS2-BF

1	Junction box
2	Mounting flange
3	Max. measuring gas temperature at sintered metal filter
4	Hose connection
5	Connecting cable

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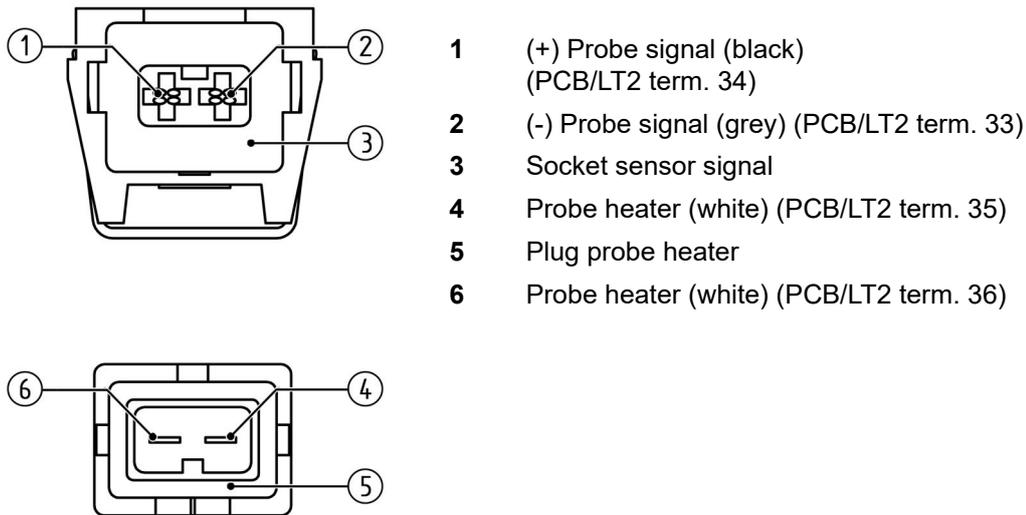


Fig. 3 Terminal assignment probe connection plug

Technical Data	
Measuring range	O ₂ : 0 - 21 % O ₂
Measuring precision	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 : < 3 s t ₉₀ : < 9 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 CO ₂ (15 vol. %) < 0.1 vol. % O ₂ : to CO (874 ppm) < 0.1 vol. % O ₂ : to CH ₄ (76 ppm) < 0.1 vol. % O ₂ : to SO ₂ (76 ppm) < 0.1 vol. % O ₂ : to NO (245 ppm) < 0.1 vol. % (O ₂ : Information assumes an operating gas composition of 5 vol. % O ₂ , rest is N ₂)
Heating consumption	10 ... 25 W (at T _{gas} 350 °C 662 °F approx. 18 W) (according to design, measuring gas temperature, and measuring speed)
Weight	1,300 g 2.86 lb
Material of probe housing	1.4571
Material of connection housing	Aluminium
Material of connecting line	NICKEL-plated copper strand FEP insulation
Measuring principle	Zirconium dioxide cell (ZrO ₂) potentiometric (voltage probe)
Approval	According to EN 16340:2014 D

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Operating Condition	
Lifetime	> 3 years (in case of light fuel oil and natural gas)
Heating time	10 min until operating temperature is reached
Operating temperature of the measuring cell (sensor) at 13 V heating voltage in the air (20 °C 68 °F)	650 °C 1,202 °F
Mounting / measuring gas extraction device	Directly in exhaust gas channel / in situ
Seal tightness	$q_L \leq 100 \text{ cm}^3/\text{h}$ (According to DIN V 18160-1:2006-01, seal tightness towards environment through housing and fastening)
Mounting position	Horizontal to vertical
Permissible fuels	Residue-free, gaseous hydrocarbons, light fuel oil, heavy fuel oil (HFO), lignite and coal, biomass (according to design)
Ideal measuring gas speed	Without GED: $1 \text{ m/s} \leq X \leq 6 \text{ m/s}$ $3.28 \text{ ft/s} \leq X \leq 19.69 \text{ ft/s}$ with GED BASE: $1 \text{ m/s} \leq X \leq 10 \text{ m/s}$ $3.28 \text{ ft/s} \leq X \leq 32.81 \text{ ft/s}$ with GED FLEX: $0.1 \text{ m/s} \leq X$ depending on version $0.328 \text{ ft/s} \leq X$ (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.) Attention: For lengths of GED FLEX > 1 m, a higher measuring gas speed (> 30 m/s 98.42 ft/s) can lead to flutter and vibration of GED.
Reference air supply	Not required
Flange adapter	Depending on the selected GED

Environmental Conditions		
Probe head	permissible flue gas temperature	< 450 °C 842 °F
Operation	permissible temperature	< 100 °C 212 °F on cable gland < 100 °C 212 °F on connection cable
Transport	permissible temperature	-20 ... +70 °C -4 ... +158 °F
Storage	permissible temperature	-20 ... +70 °C -4 ... +158 °F
Degree of protection	according DIN EN 40050	IP65

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

NOTICE

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

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Order Information

**Lambda Probe LS2-BF for the measurement of oxygen (O₂),
for measuring gas temperatures up to 1.400 °C in combination with GED FLEX or GED BASE**

Description / Type	Order no.
Lambda Probe LS2-BF, cable length 2 m, IP65, incl. seal for connection head, Novaphit SSTC	650R1615
Additional required:	
For measurements without purge operation, without fully automatic calibration	
- Lambda Transmitter LT3, configured for LS2, order no. 657R51 / .../ LS2 / ...	
- Gas Extraction Device GED BASE or GED FLEX	
For measurements with purge operation (cyclic triggering)	
- Lambda Transmitter LT2, configured for LS2 in application 'purge operation'	
order no. 657R102 / LS2 / 3A / ...	
- Gas Extraction Device GED FLEX, T-adapter for purge operation	
- Dedusting / purge unit, IP65, for T-Adapter GED FLEX, order no. 657R0934	
For measurements with purge operation (manual triggering)	
- Lambda Transmitter LT3, configured for LS2, order no. 657R51 / .../ LS2 / ...	
- Gas Extraction Device GED FLEX, T-adapter for purge operation	
- Dedusting / purge unit, IP65, for T-Adapter GED FLEX, order no. 657R0934	
For measurements with fully automatic calibration	
- Lambda Transmitter LT2, configured for LS2 in application 'fully automatic calibration'	
order no. 657R102 / LS2 / V / ...	
- Gas Extraction Device GED BASE or GED FLEX	
- Dedusting / purge unit, IP65, for T-Adapter GED FLEX, order no. 657R0934	
- Fully automatic calibration system, order no. 657R0940	
For measurements with purge operation (cyclic triggering) and fully automatic calibration	
- Lambda Transmitter LT2, configured for LS2 in application 'fully automatic calibration and purging'	
order no. 657R102 / LS2 / VA / ...	
- Gas Extraction Device GED FLEX, T-adapter for purge operation	
- Dedusting / purge unit, IP65, for T-Adapter GED FLEX, order no. 657R0934	
- Fully automatic calibration system, order no. 657R0940	

The information in this publication is subject to technical changes.



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