

Technical Data Lambda Probe LS2-BF



Fig. 1 Lambda Probe LS2-BF

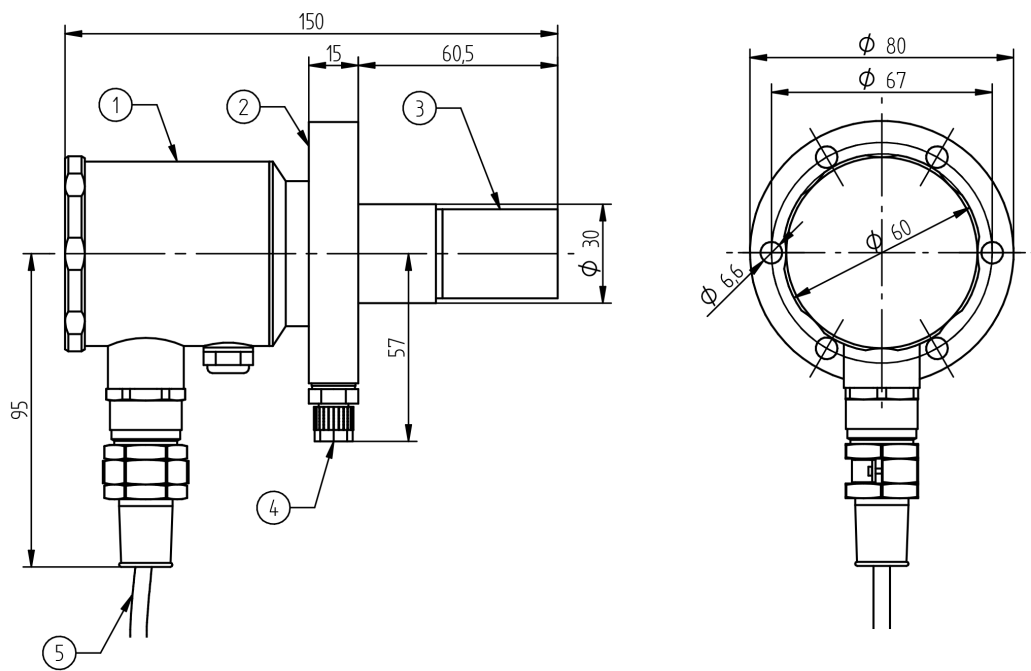
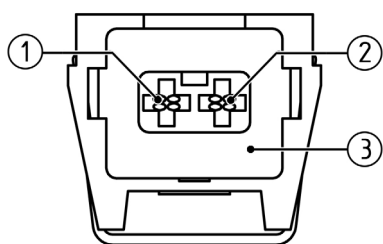


Fig. 2 Dimensional drawing Lambda Probe LS2-BF

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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- 1 (+) Probe signal (black) (PCB/LT2 term. 34)
- 2 (-) Probe signal (grey) (PCB/LT2 term. 33)
- 3 Socket sensor signal
- 4 Probe heater (white) (PCB/LT2 term. 35)
- 5 Plug probe heater
- 6 Probe heater (white) (PCB/LT2 term. 36)

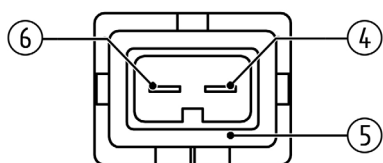
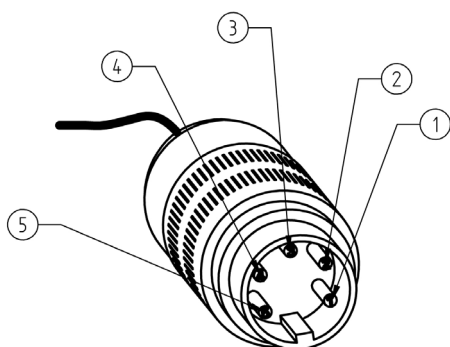


Fig. 3 Terminal assignment automotive plug

For deliveries from: 01.04.2024.



- 1 = (+) Probe signal O₂ (black)
- 2 = without function
- 3 = Probe heater (white)
- 4 = Probe heater (white)
- 5 = (-) Probe signal O₂ (red or blue)

Fig. 4 Pin assignment 5-pole round plug

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Technical Data	
Measuring range	O₂ : 0 - 21 % O ₂
Measuring precision	O₂ : ± 5 % of measured value - not better than ± 0.3 vol. %
Sensor signal	O₂ : -30 ... +150 mV
Response time	O₂ : t ₆₀ : < 3 s t ₉₀ : < 9 s
Relaxation time (measurement readiness after overload)	O₂ : t ₉₀ : < 8 s
Offset to environment	O₂ : < 0.3 vol. %
Repeating precision	O₂ : < 0.1 % deviation from measured value
Drift	O₂ : < 1.7 % from measured value (after 1000 h of operation in EL light fuel oil and 1004 switching cycles ON / OFF)
Cross sensitivity	O₂ : to CO ₂ (15 vol. %) < 0.1 vol. % O₂ : to CO (874 ppm) < 0.1 vol. % O₂ : to CH ₄ (76 ppm) < 0.1 vol. % O₂ : to SO ₂ (76 ppm) < 0.1 vol. % O₂ : 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: – $T < 100 \text{ °C}$ $1 \text{ m/s} \leq X \leq 10 \text{ m/s}$ 212 °F $3.28 \text{ ft/s} \leq X \leq 32.81 \text{ ft/s}$ – $T > 100 \text{ °C}$ $1 \text{ m/s} \leq X \leq 20 \text{ m/s}$ 212 °F $3.28 \text{ ft/s} \leq X \leq 65.67 \text{ ft/s}$ with GED FLEX: – $0.1 \text{ m/s} \leq X$ depending on version $0.328 \text{ ft/s} \leq X$ depending on version (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 3.28 ft, 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

**LS2-BF Lambda Probe for measurement of oxygen (O₂),
for measuring gas temperatures up to 1,400 °C together with GED FLEX or GED BASE**

Description/type	Order no.
Lambda Probe LS2-BF, cable length 2 m 6.6 ft, incl. round plug 5 pins, IP65, incl. seal Novaphit SSTC for connecting head and additional pack with fixing material	650R2115
Lambda Probe LS2-BF, cable length 5 m 16.5 ft, incl. round plug 5 pins, IP65, incl. seal Novaphit SSTC for connecting head and additional pack with fixing material	650R2116

- Additionally required:
- For measurements without purge operation, without fully automatic calibration
 - LT3 Lambda Transmitter, configured for LS2, order no. 657R51 / ... / LS2R / ...
 - GED BASE or GED FLEX measuring gas extraction device
 - For measurements with purge operation (cyclical tripping)
 - LT2 Lambda Transmitter, configured for LS2 in “purge operation” design
Order no. 657R102 / LS2R / 3A / ...
 - GED FLEX measuring gas extraction device, T-adapter for purge operation
 - Dedusting/purge unit, IP65, for GED FLEX T-adapter, order no. 657R0934
 - For measurements with purge operation (manual tripping)
 - LT3 Lambda Transmitter, configured for LS2, order no. 657R51 / ... / LS2R / ...
 - GED FLEX measuring gas extraction device, T-adapter for purge operation
 - Dedusting/purge unit, IP65, for GED FLEX T-adapter, order no. 657R0934
 - For measurements with fully automatic calibration
 - LT2 Lambda Transmitter, configured for LS2 in “fully automatic calibration” design
Order no. 657R102 / LS2R / V / ...
 - GED BASE or GED FLEX measuring gas extraction device
 - Dedusting/purge unit, IP65, for GED FLEX T-adapter, order no. 657R0934
 - Fully automatic calibration system, order no. 657R0940
 - For measurements with purge operation (cyclical tripping) and fully automatic calibration
 - LT2 Lambda Transmitter, configured for LS2 in “fully automatic calibration and purging” design
Order no. 657R102 / LS2R / VA / ...
 - GED FLEX measuring gas extraction device, T-adapter for purge operation
 - Dedusting/purge unit, IP65, for GED FLEX T-adapter, order no. 657R0934
 - Fully automatic calibration system, order no. 657R0940

The information in this publication is subject to technical changes.



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