

Technical Data Lambda Probe LS2 without Housing



Fig. 1 LS2 Lambda Probe without housing

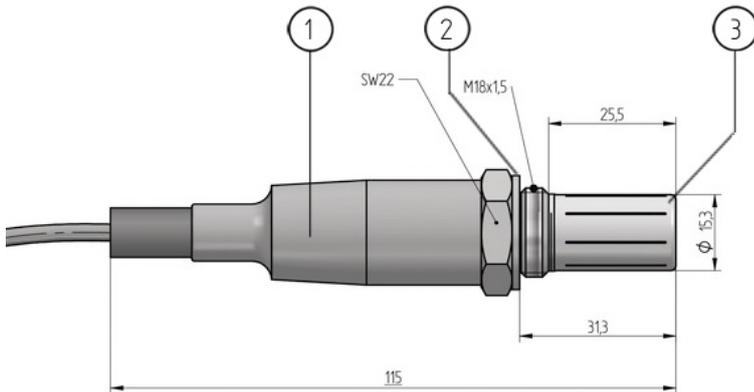
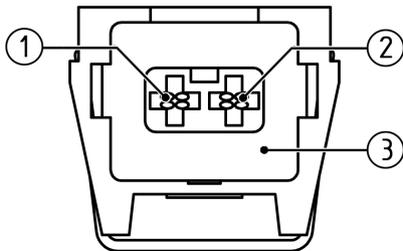


Fig. 2 Dimensions LS2 Lambda Probe without housing

- | | | |
|---|----------------------------------|----------|
| 1 | LS2 Lambda Probe without housing | 650R1004 |
| 2 | Sealing washer | |
| 3 | Probe head | |



- 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)

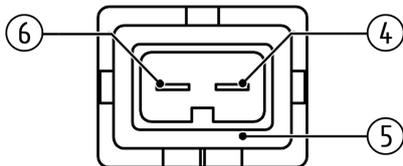


Fig. 3 Terminal assignment probe connection plug

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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. %
Heating consumption	10 ... 25 W (according to design, measuring gas temperature, and measuring speed)
Lifetime	> 3 years (in case of light fuel oil and natural gas)
Weight	320 g / 0.71 lb
Material of probe housing	1.4571
Material of connecting line	nickel-plated copper strand FEP insulation
Operating temperature of the measuring cell (sensor) at 13 V heating voltage in the air (20 °C / '68 °F)	650 °C / 1,202 °F
Measuring principle	zirconium dioxide cell (ZrO ₂) potentiometric (voltage probe)
Heating time	10 minutes until operating temperature is reached

* Information according to EN 16340:2014 D

** O₂: Information assumes an operating gas composition of 5 vol. % O₂, rest is N₂

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Conditions for use	
Mounting / measuring gas extraction device	directly in exhaust gas channel / in situ
Seal tightness	$q_L \leq 100 \text{ cm}^3/\text{h}^*$
Mounting position	horizontal to vertical
Permissible fuels	residue-free, gaseous hydrocarbons, light fuel oil
Ideal measuring gas speed	$1 \text{ m/s} \leq X \leq 6 \text{ m/s}$ (deviating speeds on request) (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	not required
Flange adapter	Connection thread M18 x 1,5 (40 Nm)

Environmental Conditions

Probe head	permissible flue gas temperature	$\leq 450 \text{ °C} / 842 \text{ °F}$
Operation	permissible temperature	$< 300 \text{ °C} / 572 \text{ °F}$ on hexagon of probe housing $< 200 \text{ °C} / 392 \text{ °F}$ on cable lead $< 150 \text{ °C} / 302 \text{ °F}$ on connecting cable, up to $230 \text{ °C} / 446 \text{ °F}$ short termed
Transport	permissible temperature	$-20 \dots +70 \text{ °C} / -4 \dots +158 \text{ °F}$
Storage	permissible temperature	$-20 \dots +70 \text{ °C} / -4 \dots +158 \text{ °F}$
Degree of protection	DIN EN 40050	IP42

* 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 for measurement of oxygen (O₂), for flue gas temperatures up to 450 °C / 842 °F
with connecting cable

Description/type	Order no.
Lambda Probe LS2 with cap, without housing, cable length 2 m / 78.74" in, incl. test report *	650R1004

* Additional required:

- Lambda Transmitter LT2, conf. for LS2 in type "Standard",
Order no. 657R102/LS2/1S/...
or
- Lambda Transmitter LT3, conf. for LS2,
Order no. 657R51/.../LS2/...
- Gas extraction device (GED), order no. 655R1001 / R1002 / R1003 / R1004
- Probe installation fitting (PIF), order no. 655R1010 or R1016

The information in this publication is subject to technical changes.



**LAMTEC Meß- und Regeltechnik
für Feuerungen GmbH & Co. KG**

Josef-Reiert-Straße 26

D-69190 Walldorf

Telefon: +49 (0) 6227 6052-0

Telefax: +49 (0) 6227 6052-57

info@lamtec.de
www.lamtec.de

