

Technical Data Lambda Probe LS2 ECO



Fig. 1 Lambda Probe LS2 ECO

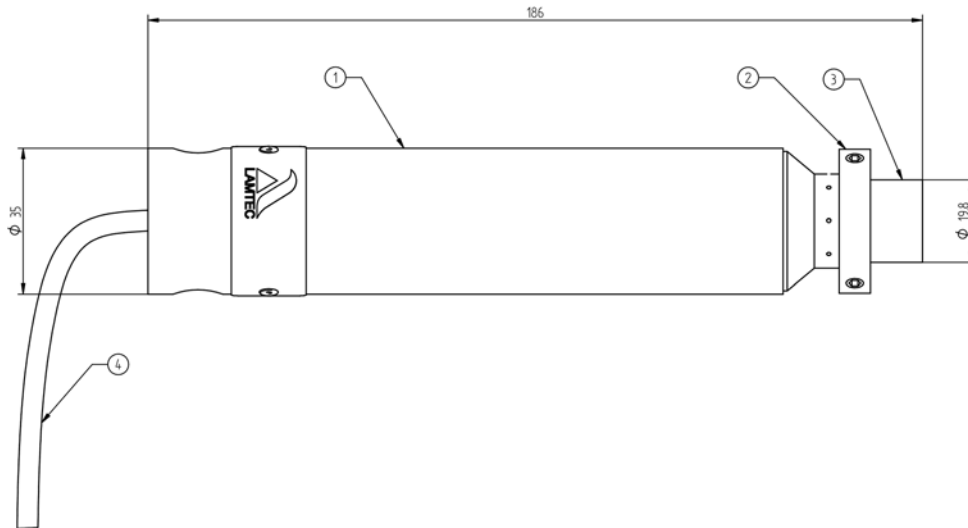
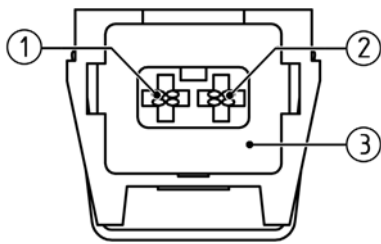


Fig. 2 Lambda Probe LS2 ECO (dimensions in mm)

1	Lambda Probe LS2 ECO
2	Locking ring for GED ECO
3	Probe head

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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)

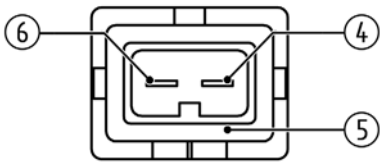
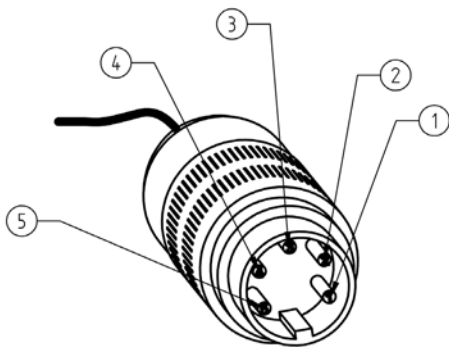


Fig. 3 Terminal assignment automotive plug

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	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 in ambient air	O ₂ : < 0.3 vol. %
Repeat accuracy	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	560 g 1.23 lb
Material of probe housing	1.4571/1.4301
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	$q_L \leq 100 \text{ cm}^3/\text{h} / 6.10 \text{ in}^3/\text{h} *$
Mounting position	Horizontal to vertical
Permissible fuels	Residue-free, gaseous hydrocarbons, light fuel oil
Ideal measuring gas speed	<p>Without GED:</p> <ul style="list-style-type: none"> – $1 \text{ m/s} \leq X \leq 4 \text{ m/s} \mid 3.28 \text{ ft/s} \leq X \leq 13.12 \text{ ft/s}$ <p>with GED ECO:</p> <ul style="list-style-type: none"> – $T < 100 \text{ }^\circ\text{C} \mid 1 \text{ m/s} \leq X \leq 6 \text{ m/s} \mid 212 \text{ }^\circ\text{F} \mid 3.28 \text{ ft/s} \leq X \leq 19.68 \text{ ft/s}$ – $T > 100 \text{ }^\circ\text{C} \mid 1 \text{ m/s} \leq X \leq 12 \text{ m/s} \mid 212 \text{ }^\circ\text{F} \mid 3.28 \text{ ft/s} \leq X \leq 39.37 \text{ ft/s}$ <p>(Higher measuring gas speed increases the measurement error. Measured at measuring gas temperature $25 \text{ }^\circ\text{C} \mid 77 \text{ }^\circ\text{F}$. In case of smaller measuring gas temperatures it might be necessary to protect the probe from the incident flow.)</p>
Reference air supply	Not required
Flange adapter	Male coupling G1¼"

Environmental Conditions

Probe head	permissible flue gas temperature	$\leq 300 \text{ }^\circ\text{C} \mid 572 \text{ }^\circ\text{F}$
Operation	permissible temperature	$\leq 260 \text{ }^\circ\text{C} \mid 500 \text{ }^\circ\text{F}$ at connecting cable
Transport	permissible temperature	$-20 \dots +70 \text{ }^\circ\text{C} \mid -4 \text{ }^\circ\text{F} \dots +158 \text{ }^\circ\text{F}$
Storage	permissible temperature	$-20 \dots +70 \text{ }^\circ\text{C} \mid -4 \text{ }^\circ\text{F} \dots +158 \text{ }^\circ\text{F}$
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 300 °C | 572 °F
with connecting cable

Description / Type	Order no.
Lambda Probe LS2 ECO (in standard housing), cable length 2 m 6.6 ft, with automotive plug, IP42*	650R1000
Lambda Probe LS2 ECO (in standard housing), cable length 5 m 16.4 ft, with automotive plug, IP42*	650R1007
Lambda probe LS2 ECO (in housing standard), cable length 2 m 6.56 ft, with round plug 5 pins, IP42*	650R2000
Lambda probe LS2 ECO (in housing standard), cable length 5 m 16.4 ft, with round plug 5 pins, IP42*	650R2007

- * Additional required:
- Lambda Transmitter LT3, configured for LS2 with round plug
Order-No. 657R51 / ... / LS2R / ...
 - Gas extraction device GED ECO, order no. 655R1001 / R1002 / R1003
 - Probe installation fitting (SEA), order no. 655R1010 or R1016

The information in this publication is subject to technical changes.



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