

Technical Data LT10 with Measuring Gas Pump



Fig. 1-1 LT10 ...

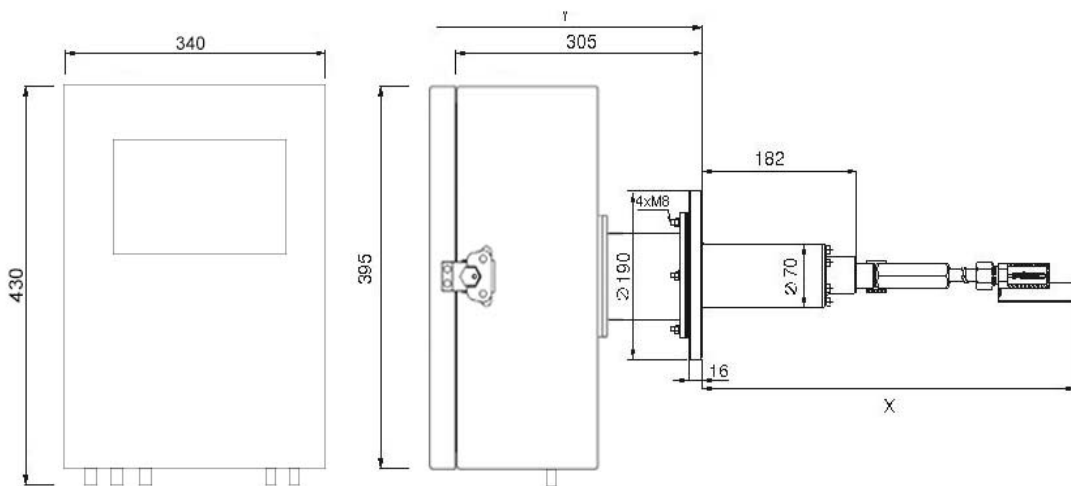


Fig. 1-2 Dimensions

X Insertion depth, dimension X (see table) Y Dimensions with open cover: 630mm/24.8" in

Immersion Depth Dimension X in	Gas Extraction Device (GED)		
	Standard up to 700 °C/1,292 °F (stainless steel 1.4571) type (order no.)	Inconel up to 950 °C/1,742 °F type (order no.)	Ceramic up to 1400 °C/2,552 °F type (order no.)
300mm/11.8" in	657R3015	-	-
500mm/19.7" in	657R3040	657R3020	657R3030
800mm/31.5" in	657R3041	657R3021	657R3031
1000mm/39.4" in	657R3042	657R3022	657R3032
1400mm/55.1" in	657R3043A	657R3023A	-
1800mm/70.9" in	657R3044A	657R3024A	-

CAUTION!

When ordering replacement GED (gas extraction devices), bear in mind that the insertion depth is measured from the flange, not across the entire length of the device.

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Dimensions

Surface	Sheet steel housing, orange varnished Probe unit stainless steel 1,4571 (V4A)
Dimensions of sheet-steel housing (HxWxD)	395x340x305 mm/15.5"x13.4"x12" in
Weight	27 kg/59.5 lb (with 1 m/3.3 ft gas extraction device). With GED-Heating 500mm/1000mm/19.7" in/39.4" in additional 4 kg/6 kg/8.8 lb/13.2 lb

Input data

Power supply	230 VAC and 115 VAC, +10 % / -15 %, 48 Hz ... 62 Hz ATTENTION: To be used only in grounded power line networks!
Power consumption (without heater for gas extraction device and filter)	typical 160 VA max. 250 VA

Measuring Data

Measuring principle	Zirconium dioxide current probe
Operating temperature of measuring cell	800 °C ... 1000 °C/1,472 °F ... 1,832 °F
Measured gas flow rate	typical: 0,5 l/h - equal to 500 mA probe current
Resolution	0,1 vol.% O ₂
Measurement accuracy	better than 0,2 vol.% O ₂ across the entire range (0 ... 25 vol. % O ₂) after previous calibration
Detection limit	0,1 vol.% O ₂
Cross-sensitivity	None vis-a-vis H ₂ O, CO ₂ , SO ₂ , HCl
Signal interference from combustible gases	At concentrations: ≤ 1000 ppm CO ≤ -0,05 vol.% O ₂ ≤ 1000 ppm NO ≤ -0,05 vol.% O ₂ ≤ 1000 ppm CH ₄ ≤ -0,2 vol.% O ₂
Interference of all gases	≤ +0,2 vol.% O ₂
Probe current	0 ... 1000 mA, typical value for air: 300 ... 600 mA, depending on flow rate
Maximum permissible duration of flue gas temperature	Standard GED 700 °C/1,292 °F Inconel GED 950 °C/1,742 °F Ceramic GED 1400 °C/2,552 °F
Temporal drift of zero and reference point	< 0,2 vol.% O ₂ of each maintenance rate
Response time (90 % time)	< 20 s (with standard gas extraction device, 1m/3.3 ft long)
Time for ready status	< 2 hours

Analogue Outputs

1 Analogue output standard	0/4 ... 20 mA, 0/2 ... 10 V, floating max. potential difference ± 20 V Resolution: 0,01 mA Accuracy: 0,01 mA Load: 800 Ω Factory setting: 4 ... 20 mA DC → 0 ... 21 vol.% O ₂
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Analogue Outputs

Monitor output	<p>Output: 0 ... 2,55 VDC, load > 10 kW, < 100 nF</p> <p>Accuracy: 2 % of measured value, not better than 0,1 vol.% O₂</p> <p>Resolution: 10 mV</p> <p>Factory setting: 0 ... 2.55 VDC → 0 ... 25.5 vol.% O₂</p> <p>Monitor function: Can be switched to (via DIP switch): probe voltage U_S 0 ... 255 mV DC, equal to 0 ... 2.55 V internal probe (cell) resistance R_I 0 ... 255 Ω, equal to 0 ... 2.55 V</p>
Further analogue outputs	4 analogue outputs 0 ... 20 mA, 0 ... 10 V possible via LSB module

Analogue Inputs

Analogue inputs	4 analogue inputs 0 ... 20 mA, 0 ... 10 V possible via LSB module
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Digital Outputs

Digital outputs	4 relay outputs 250 V, 6 A possible via LSB module
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Digital Inputs

Digital inputs	4 digital inputs 24 VDC possible via LSB module
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Control element

Control element	<ul style="list-style-type: none"> • Display and operating unit via 2 rows of LED each with 6 LED multi-function key, maintenance switch • Display and operating unit with graphical LCD-display • Remote control unit (option) • LSB remote software /PC (option)
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Interfaces:

Interfaces	<ul style="list-style-type: none"> • LAMTEC SYSTEM BUS for connection to other LSB devices, alternatively RS422 • Additional RS422 (option) • Field bus interfaces (option): <ul style="list-style-type: none"> – Profibus DP – Modbus RTU – Modbus TCP/IP – CANopen – Interbus S • RS 232 for connecting a PC with remote display software
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Operating condition

Ambient temperature	Operation: -20°C ... +55°C/-4 °F ... 131 °F In conjunction with transmitter protective housing (option) up to -40 °C/-40 °F A Thermal Jacket is recommended for ambient temperature under 0 °C/32 °F. It is absolutely necessary under -10 °C/14 °F. Protect the display from direct sunlight.
	Transport and storage: -40 °C ... +85 °C/-40 °F ... 185 °F)
Protection class according to DIN 40050	IP 65; NEMA 4X
CE Declaration of Conformity	2014/35/EU - Low Voltage Directive 2014/30/EU - EMC Directive 2011/65/EU - RoHS Directive
TÜV qualification test	TÜV qualification tested for emissions measuring devices to Federal German Pollution Control Act (13th and 17th Implementing Ordinance) Test no. 2: 936 / 21203535 / A

Technical Data LT10 with Measuring Gas Pump

Order Information

O₂-Measurement Lambda Transmitter LT10

Lambda Transmitter LT10-P (Pump)

Gas Extraction Set

Heating for Gas Extraction Set

Lambda Transmitter LT10-P, protection class IP65* - without gas extraction set

Description / Type	Order no.
Lambda Transmitter LT10-P with automatic calibrating unit, Display and operating unit, without gas extraction device, in sheet steel housing IP65	657R4003

* Additional required: Gas extraction set, counter flange and gasket.
To avoid dew point under range: Gas extraction set with heating

Gas Extraction Set Standard

Including gas extraction device and protective tube with sintered metal pre-filter 20 µm for flue gas temperatures up to 700 °C/1,292 °F, Material: stainless steel 1.4571

Description / Type	Order no.
Gas extraction device for immersion depth from flange 300 mm/11.81" in	657R3015
Gas extraction device for immersion depth from flange 500 mm/19.69" in, protective tube with AL-core for thermal conductivity	657R3040
Gas extraction device for immersion depth from flange 800 mm/31.5" in, protective tube with AL-core for thermal conductivity	657R3041
Gas extraction device for immersion depth from flange 1.000 mm/39.37" in, protective tube with AL-core for thermal conductivity	657R3042
Gas extraction device for immersion depth from flange 1.400 mm/55.12" in, protective tube with AL-core for thermal conductivity and bracket	657R3043A
Gas extraction device for immersion depth from flange 1.800 mm/70.87" in, protective tube with AL-core for thermal conductivity and bracket	657R3044A
Sintered metal pre-filter for protective tube up to 700 °C/1,292 °F, 2 µm instead of 20 µm	655R1209
Sintered metal pre-filter for protective tube up to 700 °C/1,292 °F, 10 µm instead of 20 µm	655R1211
Sintered metal pre-filter for protective tube up to 700 °C/1,292 °F, 40 µm instead of 20 µm	655R1210

Gas Extraction device with Heating

Including gas extraction device and protective tube with sintered metal pre-filter 20 µm, intermediate flange, gasket, power supply unit 230 VAC* and flange heating 230 VAC* for flue gas temperatures up to 450 °C/842 °F, Material: stainless steel 1.4571

Description / Type	Order no.
Heating for gas extraction device, immersion depth from flange 800 mm/31.5" in	657R3051
Heating for gas extraction device, immersion depth from flange 1.000 mm/39.37" in	657R3052
Heating for gas extraction device, bracket and power supply, immersion depth from flange 1.400 mm/55.12" in	657R3053A
Heating for gas extraction device, bracket and power supply, immersion depth from flange 1.800 mm/70.87" in	657R3054A
Additional cost for version 115 VAC	657R3524

Technical Data LT10 with Measuring Gas Pump

Gas Extraction Set with Heating and Pre-filter Heating

Including gas extraction device and protective tube with sintered metal pre-filter 20 µm, intermediate flange, gasket, power supply unit 230 VAC* pre-filter heating 230 VAC* for flue gas temperatures up to 450 °C/842 °F, Material: stainless steel 1.4571

Description / Type	Order no.
Gas extraction device with heating and pre-filter heating, immersion depth from flange 500 mm/19.69" in	657R3060
Gas extraction device with heating and pre-filter heating, immersion depth from flange 800 mm/31.5" in	657R3061
Gas extraction device with heating and pre-filter heating, incl. bracket, immersion depth from flange 1.000 mm/39.37" in	657R3062A
Gas extraction device with heating and pre-filter heating, incl. bracket, immersion depth from flange 1.400 mm/55.12" in	657R3063A
Gas extraction device with heating and pre-filter heating, incl. bracket, immersion depth from flange 1.800 mm/70.87" in	657R3064A
Additional cost for flange heating, version 115 VAC	657R3524
Sintered metal filter for pre-filter heating 2 µm instead of 20 µm	655R1215
Sintered metal filter for pre-filter heating 10 µm instead of 20 µm	655R1214
Sintered metal filter for pre-filter heating 40 µm instead of 20 µm	655R1216

* For version in 115 VAC the option 657R3524 must be ordered additionally

Gas Extraction Set up to 950 °C/1,742 °F

Including gas extraction device and protective tube with sintered metal pre-filter 20 µm for flue gas temperatures up to 950 °C/1,742 °F, Material: INCONEL 600 2.4816

Description / Type	Order no.
Gas extraction set for immersion depth from flange 500 mm/19.69" in	657R3020
Gas extraction set for immersion depth from flange 800 mm/31.5" in	657R3021
Gas extraction set for immersion depth from flange 1.000 mm/39.37" in	657R3022
Gas extraction set for immersion depth from flange 1.400 mm/55.12" in, incl. bracket	657R3023A
Gas extraction set for immersion depth from flange 1.800 mm/70.87" in, incl. bracket	657R3024A
Sintered metal filter for protective tube INCONEL 600, up to 950 °C/1,742 °F, 2 µm instead of 20 µm	655R1206
Sintered metal filter for protective tube INCONEL 600, up to 950 °C/1,742 °F, 10 µm instead of 20 µm	655R1207
Sintered metal filter for protective tube INCONEL 600, up to 950 °C/1,742 °F, 40 µm instead of 20 µm	655R1208
Protective tube INCONEL in high dust application	657R3428

Protective Tube for High Dust Application

for flue gas temperatures up to 700 °C/1,292 °F, Material: stainless steel 1.4571

Description / Type	Order no.
Protective tube for high dust application, immersion depth from flange 500 mm/19.69" in *	657R3560
Protective tube for high dust application, immersion depth from flange 800 mm/31.5" in *	657R3561
Protective tube for high dust application, immersion depth from flange 1.000 mm/39.37" in *	657R3562
Protective tube for high dust application, immersion depth from flange 1.400 mm/55.12" in *	657R3563
Protective tube for high dust application, immersion depth from flange 1.800 mm/70.87" in *	657R3564

* Additional required: Adapter flange type 657R3511 / 657R3512

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Protective Tube for High Dust Application

for flue gas temperatures up to 950 °C//1,742 °F, Material: INCONEL 600 2.4816

Description / Type	Order no.
Protective tube for high dust application, immersion depth from flange 500 mm/19.69" in *	657R3570
Protective tube for high dust application, immersion depth from flange 800 mm/31.5" in *	657R3571
Protective tube for high dust application, immersion depth from flange 1.000 mm/39.37" in *	657R3572
Protective tube for high dust application, immersion depth from flange 1.400 mm/55.12" in *	657R3573
Protective tube for high dust application, immersion depth from flange 1.800 mm/70.87" in *	657R3574

* Additional required: Adapter flange type 657R3511 / 657R3512

Adapter Flange for High Dust Protective Tube

Description / Type	Order no.
Adapter flange with seal for high dust protective tube, material: steel galvanized	657R3511
Adapter flange with seal for high dust protective tube, material: stainless steel 1.4571	657R3512

Purge device for high dust protective tube

Description / Type	Order no.
Purge unit for high dust protective tube at LT10-P	657R4030

Display and Operation Unit for Lambda Transmitter LT10

Description / Type	Order no.
Serial interface cable, D-Sub 9-pins connectors (female), length 10 m/32.8 ft	663R0100
Extension for serial interface cable type 663R0100, length 10 m/32.8 ft (extension to a total of max. 40 m/131.23 ft)	663R0101

Accessories

Description / Type	Order no.
Counter flange DN80 PN6 with tube DI 125 mm/4.92" in, tube length 75 mm/2.95" in, Material: steel EPD, black (also suitable for GED-heating or high dust application)	657R3506
Counter flange DN80 PN6 with tube DI 125 mm/4.92" in, tube length 75 mm/2.95" in, Material: stainless steel 1.4571 (also suitable for GED-heating or high dust application)	657R3507
Thermo Jacket for sheet steel housing (weather protection)	657R4015
Module with 4 digital outputs, floating contacts, installed in LT10	663R4027

The information in this publication is subject to technical changes.

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