Technical Data

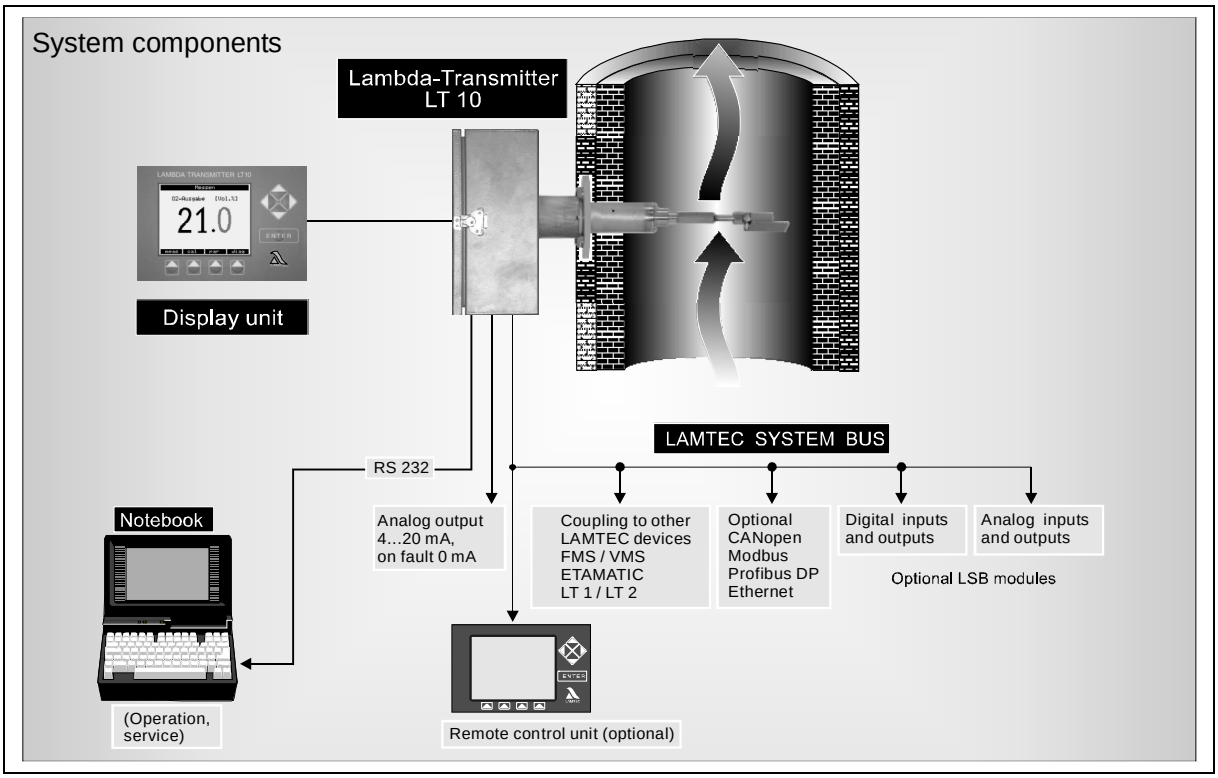
Lambda-Transmitter LT 10

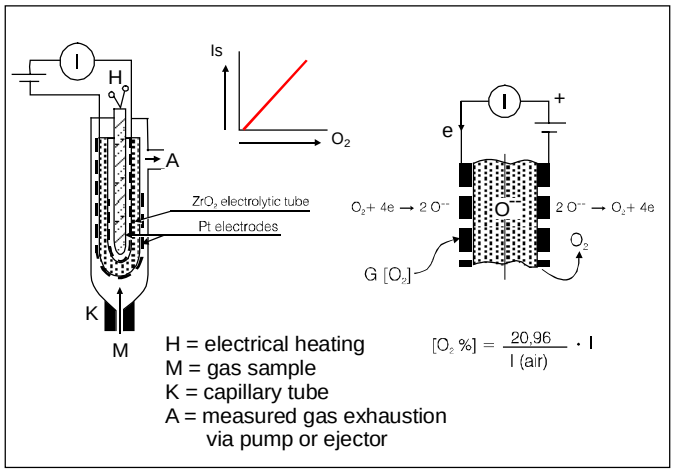
for O_2 measurement and process monitoring for combustion plants, plants conformity with 13th BImSchV and 17th BImSchV

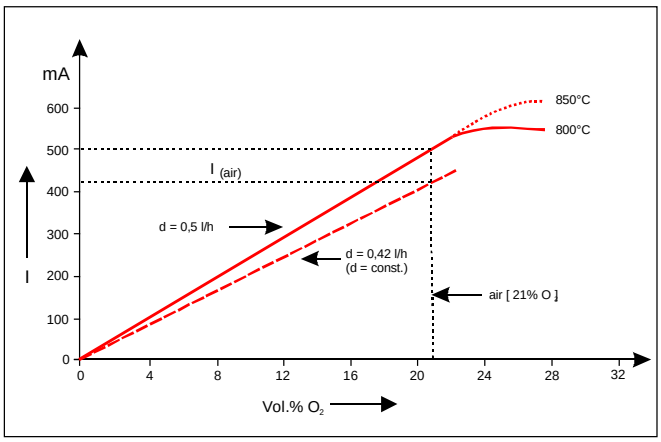
based on the well tried ZrO_2-flow principle

Sensors and systems for combustion engineering

LAMTEC







Vorteile

- Linear measurement signal with fixed zero point
- Fully automatic verification and adjustment of the probe using air or compressed air depending upon execution. No special test gases required
- High accuracy of measurement better than 0.2% by volume of O_2 in the range 0…21% by volume of O_2
- Sensor element outside the exhaust gas system (stack), no ignition source in the flue gas duct
- Measuring gas temperature up to a max. 950°C / 1750°F with metal and up to 1400°C / 2550°F with ceramic flue gas intake device
- Measuring gas temperature has no effect on the accuracy of measurement due to the low volume of test gas (0.5 l/h approx.) and the arrangement of the actual sensor system outside the exhaust gas system)
- Automatic control and monitoring of the volume of measuring gas
- Short response time (t_{90}) < 20 seconds, with standard intake device, 1000 mm length
- Suitable for general use
- Compensation for ageing of the measurement cell
- Easy to use with self-diagnosis and error memory
- ZrO_2 sensor, heater and all gas-carrying components are replaceable
- Low-maintenance

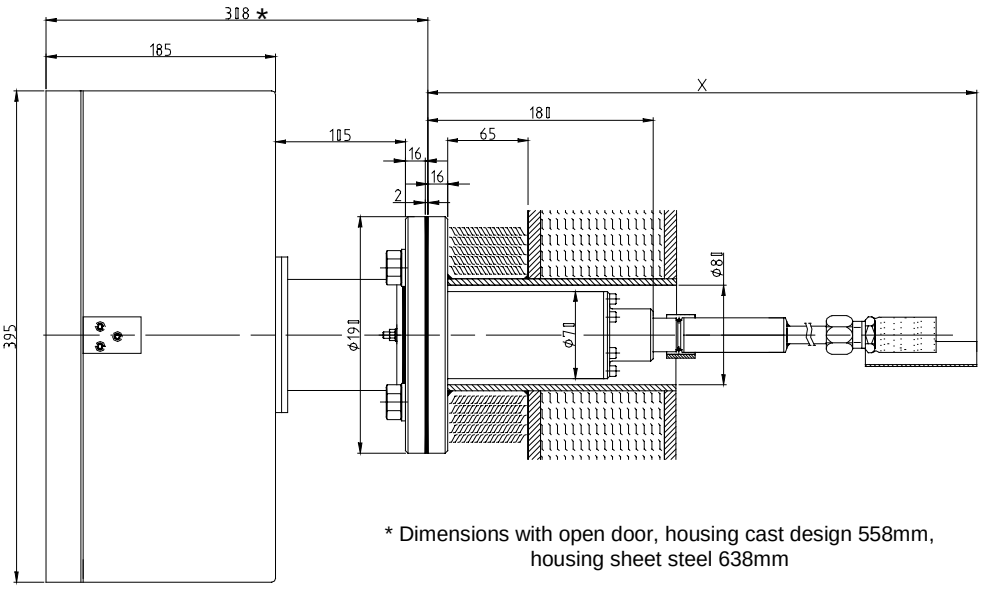
Housing:	Sheet steel housing, coated mat. flue gas intake armature, stainless steel 1.4571 (V4A)	
Protection in accordance with DIN 40050:	IP 65; NEMA 4X	
Dimensions (h x w x d), mm :	395 x 330 x 300 mm	
Colour:	Orange RAL 2004	
Weight with flue gas intake armature (MEV) 1 m length	**LT10 Pumpe** 30kg	**LT10 Ejektor** 28 kg
Ambient temperature:		
Operation	-20°C ...+55°C	
Transportation and storage	-40°C ...+85°C	
Mains supply:	230 V AC und 115 V AC +10% / -15 %, 48 Hz...62 Hz To be used only in a grounded power line network!	
Power consumption (without GED and filter heating system):	typical 160 VA max. 250 VA	
Measurement principle:	Zirconium dioxide flow probe	
Operating temperature of the measurement cell:	800...1000°C	
Measuring gas flow rate:	typical 0.5 l/h ≙ 500 mA probe current	
Limit of accuracy:	0.01% by volume O_2	
Accuracy of measurement:	better than 0.2% by volume O_2 over the whole range 0...25% by volume O_2 after previous adjustment	
Detection limit:	0,05 Vol.% O_2	
Cross sensitivity:	none in respect of H_2O, CO_2, SO_2, HCl	
Signal interference caused by combustible gases:	with concentrations ≤1000 ppm CO ≤ - 0,05 by volume O_2 ≤1000 ppm NO ≤ - 0,05 by volume O_2 ≤1000 ppm CH_4 ≤ - 0,2 by volume O_2	
Disturbing influences of all gases:	≤ ± 0,2 Vol.% O_2	
Probe current:	0 ...1000 mA Typical values in air: 500 mA +/- 50 mA	
Permissible maximum duration of exhaust gas temperature:	Standard MEV - 700°C (1292°F) Inconell-MEV - 950°C (1742°F) Ceramic-MEV - 1400°C (2552°F) on request - 1600°C (2912°F)	
Zero- and reference point drift against time:	< 0,2 Vol.% O_2 per maintenance interval	
Maintenance intermittent:	**LT10 Pumpe** 3 months	**LT10 Ejektor** 1 month
Response time (T_{90}) (with standard flue gas intake armature, length 1 m)	< 20 s	< 22 s
Time until available	ca. 1 hour	
Pneumatic connections	**LT10 Pumpe**	**LT10 Ejektor**
For calibration	None (air)	Compressed air (pre pressure 2bar) Quality of compressed air acc. ISO 8573.1 class 3
For gas extraction	None	Compressed air (pre pressure 2bar)

Analog outputs:	Continuous current output	4…20 mA, fault 0 mA Floating, difference of potential max. 20V
	Resolutuion	0,01 mA
	Accuracy	0,01 mA
	Burden	800 Ω
	Factory setting	0…21% by volume O_2 ≙ 4…20 mA, on fault 0 mA
	Monitor output	
	Output:	0…2.55 V DC, output load > 10 k Ω, < 100 nF
	Accuracy	2% of the measured value, not better than 0.1% by volume O_2
	Resolution:	10 mV
	Factory setting:	0…25.5% by volume O_2 ≙ 0…2.55 V DC
	Monitorfunktion:	Can be changed to probe voltage Us or probe current Is using dip switch
	Probe current Is:	0...1000 mA ≙ 0...1,0 V DC
	Probe voltage Us	0...1400 mV DC ≙ 0...1,4 V DC
	Additional analog outputs 0/4...20 mA or 0...10V via LSB module possible (optional)	
Analog inputs:	Analog inputs 0...20 mA or 0...10V via LSB module possible (optional)	
Digital outputs:	Digital outputs via LSB module possible (optional)	
Digital inputs:	Digital inputs via LSB module possible (optional)	
Operating elements:	Multi-function keys Maintenance switch 2 LED rows, of 6 LEDs, each Display unit Remote control unit (optional) Remote Display Software for PC / RS 232 communication	
Interfaces:	LAMTEC SYSTEM BUS for connecting to other LAMTEC devices Alternative RS 232 for connecting to a PC with remote display software	
Fieldbus	Profibus DP Modbus Ethernet CANopen	
Conformity with the following European directives:	89/336/EWG Electromagnetic compatibility 73 / 23 / EWG - Electrical equipment within specific voltage limits	
Vibration test:	MCERTS scheme for measuring systems Report no. 936 / 21203535 / TÜV-Rheinland	
TÜV- qualification test:	TÜV qualification test for emission with measurement devices in accordance 13th and 17th BImSchV. LT10 pump version report no.: 936 / 21203535 / A LT10 ejector version report no..: 936 / 21203535 / B	

Extracts from the TÜV Qalification Test

TÜV - Qualification Test in accordance 13th. und 17th. BlmSchV:	LT10 Pumpversion	LT10 Ejektorversion
Report-No.:	936 / 21203535 / A	936 / 21203535 / B
Tested measuring range at:	0....21 vol% O_2	0...21 vol% O_2
Availability:	99,84%	über 98,7%
Maintenance rate:	12 weeks	4 weeks
Detection limit:	0,05 vol% O_2	≤ 0,07 vol% O_2
Effect of the gas flow and air pressure variations:	< 1% automatic compensation flow and air pressure	
Line voltage influence:	≤ 0,85%	≤ 0,20%
Ambient temperature:	- 20°C bis +55°C (-4°F to +131°F)	
Effect of temperature variation:	zero point - 0,15vol% O_2 reference point 0,26vol% O_2	
Response time t_{90}	≤ 20 sec.	≤ 22sec.
Drift in maintenance period:	zero point < max. -0,12 vol% O_2 reference point < 0,20 vol% O_2	
Repeatability:	290	98
Linearity at measuring range 0...21vol% O_2	< 0,24 vol% O_2	

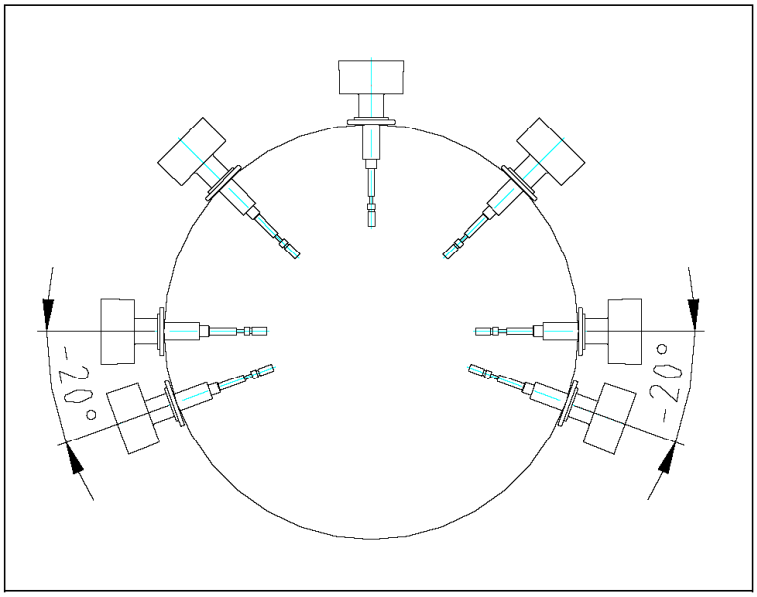
Dimension LT10:



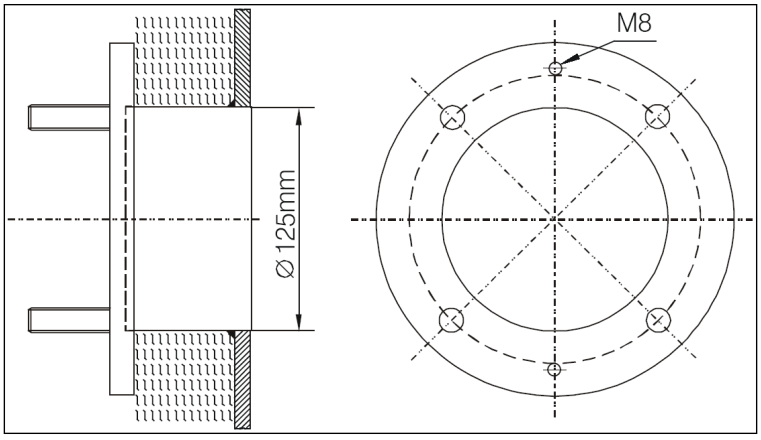
* Dimensions with open door, housing cast design 558mm, housing sheet steel 638mm

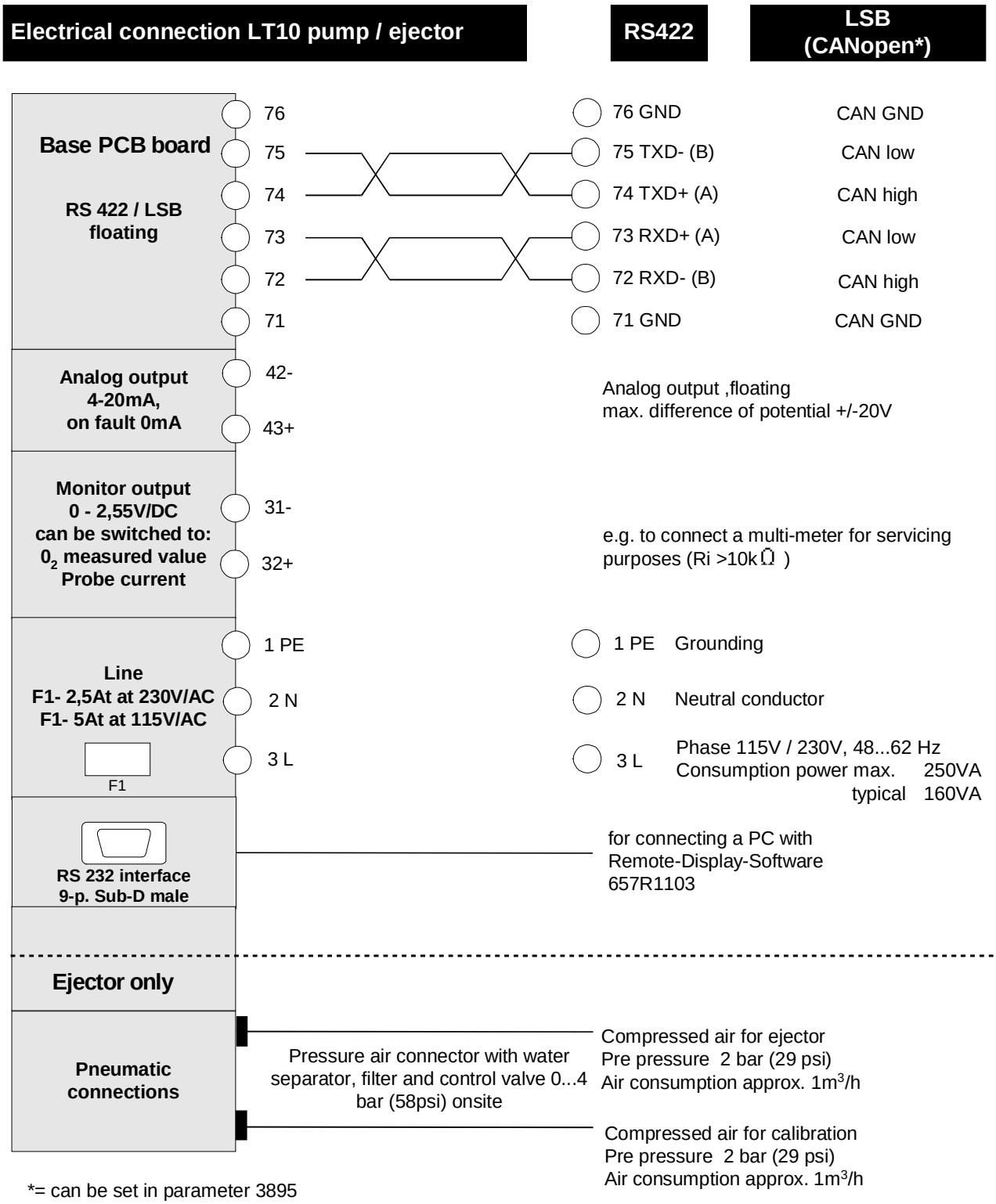
Installation position:

It can be mounted in any position between -20° of the vertical axis to the horizontal axis. Connection side below.



Dimension counter flange:





*= can be set in parameter 3895

Bestellbeispiele

O2- Measurement LT 10P

Product/ Type		Order No.
1	Lambda-Transmitter LT 10P incl. sealing for flange, with automatic calibration-device, operating keypad and display, without flue gas intake, in sheet-steel-housing IP 65	6 57 R 4003
1	Flue gas intake, consisting of MEV and protection tube, for flue gas temperature up to 700 °C, installation length 1.000 mm, material 1.4571 (V4A), with aluminium shroud for thermal conduction	6 57 R 3042
1	Counter flange DN80PN6 with pipe DI 125 mm, material: steel KTL-coated, black	657 R 3506
1	LSB-output module with 4 digital outputs, relay contacts potential free	663 R 4027LT

O2- Measurement LT 10P with MEV- and filter heating for measurement temperatures below dew point

Bezeichnung / Typ		Bestell-Nr.
1	Lambda-Transmitter LT 10P incl. sealing for flange, with automatic calibration-device, operating keypad and display, without flue gas intake, in sheet-steel-housing IP 65	6 57 R 4003
1	Flue gas intake, consisting of MEV and protection tube with MEV-and filter heater and power supply unit for flue gas temperature up to 450 °C, installation length 1.000 mm, material: 1.4571 (V4A), incl. intermediate flange and seal	657 R 3062A
1	Counter flange DN80PN6 with pipe DI 125 mm, material: steel KTL-coated, black	657 R 3506
1	LSB-output module with 4 digital outputs, relay contacts potential free	663 R 4027LT

O2- Measurement LT 10E

Bezeichnung / Typ		Bestell-Nr.
1	Lambda-Transmitter LT 10E incl. sealing for flange, with automatic calibration-device, operating keypad and display, without flue gas intake, in sheet-steel-housing IP 65	6 57 R 4005
1	Air pressure control for treated, water free compressed air, (only to use for ambient temperatures > 0°C)	657 R 3005
1	Flue gas intake, consisting of MEV and protection tube, for flue gas temperature up to 700 °C, installation length 1.000 mm, material 1.4571 (V4A), with aluminium shroud for thermal conduction	657 R 3042
1	Counter flange DN80PN6 with pipe DI 125 mm, material: steel KTL-coated, black	657 R 3506
1	LSB-output module with 4 digital outputs, relay contacts potential free	663 R 4027LT

O2- Measurement LT 10E with high dust protection tube for dusty flue gas

Bezeichnung / Typ		Bestell-Nr.
1	Lambda-Transmitter LT 10E, incl. sealing for flange, with automatic calibration-device, operating keypad and display, without flue gas intake, in sheet-steel-housing IP 65	657 R 4005
1	Air pressure control for treated, water free compressed air, (only to use for ambient temperatures > 0°C)	657 R 3005
1	Flue gas intake, consisting of MEV and protection tube, for flue gas temperature up to 700 °C, installation length 1.000 mm, material 1.4571 (V4A), with aluminium shroud for thermal conduction	657 R 3042
1	Protection tube for high dust application, for flue gas temperature up to 700 °C, installation length 1.000 mm, material: 1.4571 ((V4A)	657 R 3562
1	Adapter flange with seal for protection tube (steel)), for high dust application	657 R 3511
1	Counter flange DN80PN6 with pipe DI 125 mm, material: steel KTL-coated, black	657 R 3506

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