Technical Data LT1 in Wall Mounting Housing



Fig. 1 Lambda Transmitter LT1 in wall mounting housing

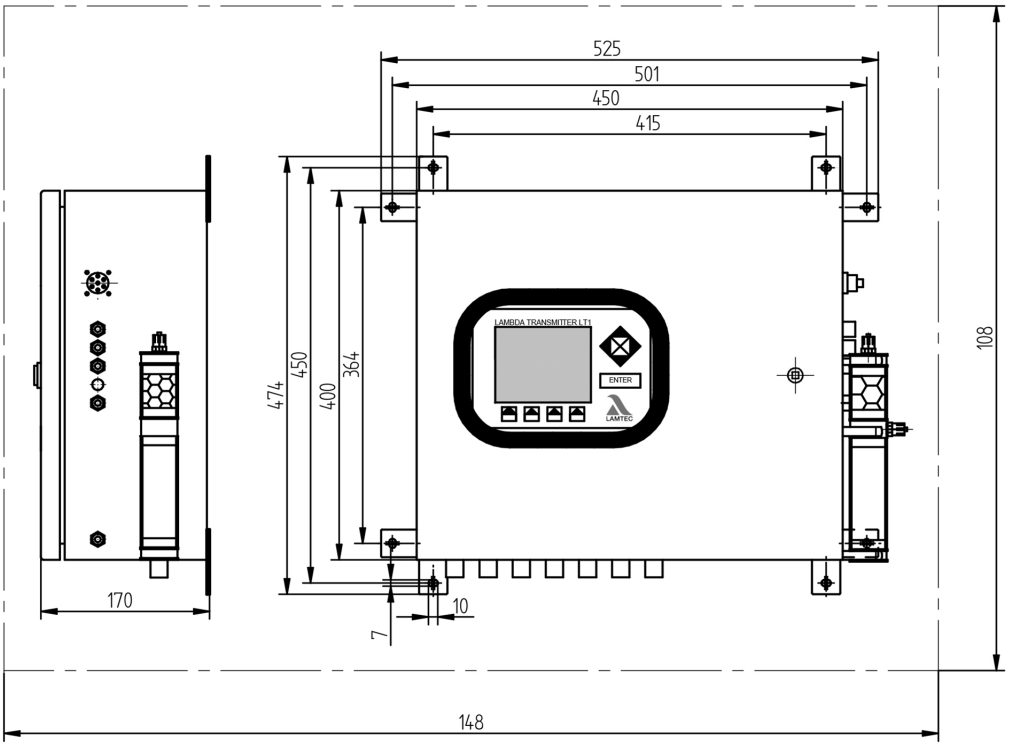


Fig. 2 Dimensional drawing LT1 type 657R002 wall mounting housing

LT1 in wall mounting housing	
Housing	Housing in sheet steel, powder-coated
Dimensions (HxWxD)	400x450x170 mm / 15.75"x17.72"x6.69" in
Colour (Housing in sheet steel)	RAL 7035 light grey
Weight	17.2 kg / 37.92 lb with display and operating unit +0.5 kg/1.1 lb
Control elements	Display and operating unit with LCD graphic display 100x80 mm / 3.94"x3.15" in (WxH) (option) LSB Remote Software (option)

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Characteristics	
Power supply	230 VAC and 115 VAC +10 % / -15 %, 48 Hz ... 62 Hz **Use only in grounded networks!**
Power consumption	max. 150 VA short-term 310 VA
Resolution	0.01 vol. % O_2 across the entire range
Measurement accuracy	0.05 % of the measured value, no more precise than 0.1 vol. % O_2
Time for operational readiness	1 ... 2 hours after MAINS ON

Interface	
LAMTEC SYSTEM BUS (LSB)	
Direct communication with LAMTEC burner control units	Transmission of measured values, warning and fault messages, receiving commands
Fieldbus connection to PROFIBUS DP	- Reading values, status, faults and warnings - Reset faults and warnings - Setting digital outputs

Analogue outputs	
1 ... 4 current/voltage outputs	1 standard – 2 ... 4 option Direct current 0/4 ... 20 mA load 0 ... 600 Ω non floating (potential isolation optional) Direct voltage 0 ... 10 V load ≥ 10 kΩ non floating (potential isolation optional)

Analogue inputs	
Analogue inputs: 1 ... 4	via plug-in card on LT1 power pack electronic – Analogue input module potentiometer 1 ... 5 kΩ type 657P6000 – Analogue input module 0/4 ... 20 mA type 663P6001 – Analogue input module 0/4 ... 20 mA with supply 24 VDC for transducer type 663P6002 – Temperature input for Pt100 sensor type 657R0890 temperature range 0 ... 320 °C/32 °F ... 608 °F 0 ... 850 °C/32 °F ... 1562 °F resolution 1 °C/33.8 °F

Digital outputs	
Digital outputs	1 standard + 6 optional – 1 relay output 0 ... 230 VAC, 2 A – 0 ... 42 VDC, 3 A collective fault indicator – relay card with 6 relays (1 changeover switch) 0 ... 230 VAC, 2 A – 0 ... 42 VDC, 3 A

Digital inputs	
Digital inputs	8 inputs - configurable (any) Factory settings: 24 VDC referenced to instrument potential, can be switched via jumper to floating, for external voltage source.

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Operating Conditions	
Relative humidity	0 % ... 100 %
Installation height	< 2,000 m | 6,561.68 ft above sea level

Environmental Conditions		
Operation	perm. temperature range	-20 ... +60 °C / -4 ... +140 °F
Transport	perm. temperature range	-40 ... +85 °C / -40 ... + 185 °F
Storage	perm. temperature range	-40 ... +85 °C / -40 ... + 185 °F
Degree of protection	according to DIN EN 40050	IP65 (use inside and outside buildings possible, cover recommended)
CE Declaration of Conformity	2014/35/EU	Low Voltage Directive
	2014/30/EU	EMC Directive
	2011/65/EU	RoHS Directive

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Order Information

NOTICE

All options marked with * correspond to the standard selection.

NOTICE

Configuration for limit value and measured value output according to SIL1 available.

Description / Type	Order no.
Lambda Transmitter LT1, for measurement of the O_2 concentration via Lambda probeLS1	657R002...

A 03 – TYPE WALL MOUNTING HOUSING / MOUNTING PLATE	Selection
IN WALL MOUNTING HOUSING, WITH INTERNAL FLUE GAS PUMP, Probe connection via circular plug IP54 Additional required: Extension for probe connecting cable, shielded Order no. 655R0010/R0011/R0012, length 2 m/5 m/10 m / 6.6 ft/16.4 ft/32.8 ft	5
IN WALL MOUNTING HOUSING IP65, WITH INTERNAL FLUE GAS PUMP, Probe connection via terminals Additional required: Extension for probe connecting cable with one-sided ferrules, shielded Order no. 655R0043/R0044/R0045, length 2 m/5 m/10 m/ 6.6 ft/16.4 ft/32.8 ft	5-IP65
IN WALL MOUNTING HOUSING IP65, FOR EXTERNAL FLUE GAS PUMP Additional required: Probe Connection Box (PCB), see attribute A21	6

A 09 – DISPLAY	Selection
WITH DISPLAY AND OPERATING UNIT	a1

A 12 – CALIBRATION	Selection
WITHOUT CALIBRATION UNIT	b00*
INTEGRATED CALIBRATION UNIT "PUMP"	b1
INTEGRATED CALIBRATION UNIT "PUMP" WITH OPTION "CONNECTING 1 TEST GAS"	b11
INTEGRATED CALIBRATION UNIT "PUMP" WITH OPTION "CONNECTING 2 TEST GASES"	b12
INTEGRATED CALIBRATION UNIT "PUMP" and PRESSURE RELEASE Necessary when ceramic-GED	b1A
INTEGRATED CALIBRATION UNIT "COMPRESSED AIR" Required pre pressure compressed air 0 ... 1 bar, adjustable on site	b2
INTEGRATED CALIBRATION UNIT "COMPRESSED AIR" and PRESSURE RELEASE Necessary when ceramic-GED required pre pressure compressed air 0 ... 1 bar, adjustable on site	b2A
EXTERNAL CALIBRATION UNIT "PUMP" Additional required: probe connection box (PCB), order no. 657R0013	b4
EXTERNAL CALIBRATION UNIT "PUMP" and PRESSURE RELEASE Necessary when ceramic-GED Additional required: probe connection box (PCB), order no. 657R0015	b4A
EXTERNAL CALIBRATION UNIT "COMPRESSED AIR" Additional required: probe connection box (PCB), order no. 657R0010, 657R0016, 657R0031	b5
EXTERNAL CALIBRATION UNIT "COMPRESSED AIR" and PRESSURE RELEASE Necessary when ceramic-GED Additional required: probe connection box (PCB), order no. 657R0011	b5A

A 15 – HOUSING HEATING	Selection
WITHOUT HOUSING HEATING	d0*
WITH HOUSING HEATING 230 VAC/320 W (-25 °C/-13 °F), only for LT1 without integrated display	d1

A 15 – HOUSING HEATING	Selection
WITH HOUSING HEATING 230 VAC/500 W (-40 °C/-40 °F), only for LT1 without integrated display	d2
WITH HOUSING HEATING 230 VAC/180 W, only for LT1 with integrated display	d3

A 18 – PRESSURE SENSOR – Selection not necessary, will be setted automatically by the system

A 21 - FLUE GAS PUMP	Selection
EXTERNAL FLUE GAS PUMP Additional required: Probe Connection Box (PCB), order no. 657R0013/14/15/16/31/31-4	f0
INTEGRATED FLUE GAS PUMP STANDARD / AGGRESSIVE GASES	f1*
INTEGRATED EJECTOR FLUE GAS PUMP	f3
EXTERNAL EJECTOR FLUE GAS PUMP Additional required: probe connection box (PCB), order no. 657R0010/11/12/17/31-1/31-2/31-3/31-5	f5

A 24/27/30/33 – ANALOGUE OUTPUTS 1/2/3/4	Selection Output 1	Selection Output 2	Selection Output 3	Selection Output 4
WITHOUT ANALOGUE OUTPUT	not possible	h20*	h30*	h40*
ANALOGUE OUTPUT CURRENT 4 ... 20 mA	h11*	h21	h31	h41
ANALOGUE OUTPUT CURRENT 0 ... 20 mA	h12	h22	h32	h42
ANALOGUE OUTPUT VOLTAGE 0 ... 10 VDC	h13	h23	h33	h43
ANALOGUE OUTPUT CURRENT 4 ... 20 mA FLOATING	h14	h24	h34	h44
ANALOGUE OUTPUT CURRENT 4 ... 20 mA FLOATING **REG** Necessary in conjunction with O_2 control via analogue input at FMS/VMS (0 ... 25 Vol. % $O_2 \rightarrow$ 4 ... 20 mA)	h15	h25	h35	h45
ANALOGUE OUTPUT CURRENT 0 ... 20 mA FLOATING	h16	h26	h36	h46
ANALOGUE OUTPUT VOLTAGE 0 ... 10 VDC FLOATING	h17	h27	h37	h47

A 36/39/42/45 – ANALOGUE INPUT 1/2/3/4 – Selection not necessary, will be setted automatically by the system

A 48 – DIGITAL OUTPUTS, LIMIT VALUES, O_2 CONTROLLER, FIRING-RATE OUTPUT	Selection
WITHOUT DIGITAL OUTPUTS	j00[1]
RELAY MODULE WITH 6 DIGITAL OUTPUTS (EACH WITH ONE CHANGE-OVER CONTACT)	j30
FIRING-RATE DEPENDING LIMIT VALUES, FIRING-RATE INPUT VIA LSB, INCL. RELAY MODULE	j31
FIRING-RATE DEPENDING LIMIT VALUES, FIRING-RATE INPUT VIA POTENTIOMETER, INCL. RELAY MODULE	j32
FIRING-RATE DEPENDING LIMIT VALUES, FIRING-RATE INPUT VIA CURRENT, INCL. RELAY MODULE	j33
O_2 CONTROLLER (PID), FIRING-RATE INPUT VIA LSB, INCL. RELAY MODULE *	j34
O_2 CONTROLLER (PID), FIRING-RATE INPUT VIA POTENTIOMETER, INCL. RELAY MODULE *	j35
O_2 CONTROLLER (PID), FIRING-RATE INPUT VIA CURRENT, INCL. RELAY MODULE *	j36
OUTPUT of "INTERNAL FIRING-RATE" AT ANALOGUE OUTPUT Only possible via LSB connection in combination with FMS/VMS/ETAMATIC	j40

1 Additional required: Analogue output current 4 ... 20 mA, floating, for output of the O_2 controller value

A 51 – EFFICIENCY CALCULATION **Analogue outputs for the flue gas temperature and / or the efficiency must be ordered separately (attribute A27 / A30)** **Additional required:** **Temperature sensor PT100, length 150 mm/5.9" in, order no. 657R0897 and/or** **Temperature sensor PT100, length 250 mm/9.8" in, order no. 657R0891**	Selection
WITHOUT EFFICIENCY CALCULATION	k0*
EFFICIENCY CALCULATION WITH FIXED ENVIRONMENT TEMPERATURE FLUE GAS TEMPERATURE RANGE 0 ... 320 °C/32 ... 608° F, WITHOUT ANALOGUE OUTPUT	k1
EFFICIENCY CALCULATION WITH FIXED ENVIRONMENT TEMPERATURE FLUE GAS TEMPERATURE RANGE 0 ... 850 °C/32 ... 1562 °F, WITHOUT ANALOGUE OUTPUT	k11
EFFICIENCY CALCULATION FLUE GAS AND ENVIRONMENT TEMPERATURE 0 ... 320 °C/32 ... 608° F, WITHOUT ANALOGUE OUTPUT	k2

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A 51 – EFFICIENCY CALCULATION **Analogue outputs for the flue gas temperature and / or the efficiency must be ordered separately (attribute A27 / A30)** **Additional required:** **Temperature sensor PT100, length 150 mm/5.9" in, order no. 657R0897 and/or** **Temperature sensor PT100, length 250 mm/9.8" in, order no. 657R0891**	**Selection**
EFFICIENCY CALCULATION FLUE GAS AND ENVIRONMENT TEMPERATURE 0 ... 850 °C/32 ... 1562 °F, WITHOUT ANALOGUE OUTPUT	k22
FLUE GAS TEMPERATURE MEASUREMENT 0 ... 850 °C/32 ... 1562 °F, WITHOUT ANALOGUE OUTPUT	k3
FLUE GAS TEMPERATURE MEASUREMENT 0 ... 320 °C/32 ... 608° F, WITHOUT ANALOGUE OUTPUT	k33

A 54 – POWER SUPPLY VOLTAGE	**Selection**
POWER SUPPLY VOLTAGE 230 VAC	l1*
POWER SUPPLY VOLTAGE 115 VAC	l2

A 57 – LANGUAGE SETTING	**Selection**
GERMAN	nD*
ENGLISH	nE
FRENCH	nF

A 60 – CO/O_2 MONITORING/ -CONTROL	**Selection**
WITHOUT CO/O_2 MONITORING/ -CONTROL	o0*
CO/O_2 MONITORING PREPARED as MASTER-LT Additional required: LT2/KS1 prepared as SLAVE-LT	o1
CO/O_2 CONTROL PREPARED as MASTER-LT Additional required: LT2/KS1 prepared as SLAVE-LT and FMS / VMS or ETAMATIC with activated CO control	o2

A 63 – CALCULATIONS	**Selection**
WITHOUT CALCULATIONS	p0*
CO_2 CALCULATION Analogue output for the CO_2 value must be ordered separately (attribute A27/A30/A33)	p1
O_2 WET/DRY – CONVERSION	p2

A 66 – OTHER OPTIONS	**Selection**
WITHOUT OTHER OPTIONS	q0*
PRESSURE COMPENSATION MEASURED VALUE Necessary when pressure change >10 at the measuring point (fault influences approx. 1.3 % from the measured value)	q1
TEMPERATURE COMPENSATION MEASURED VALUE Necessary when temperature change >10 K at the probe housing (fault influences approx. 1 % from the measured value) in measuring range from 10 ... 21 Vol. % O_2 Only in conjunction with Lambda Probe LS1 with integrated temperature sensor Pt100	q2
FORCED VENTILATION	q5
PURGING SINTERED METAL FILTER Necessary if increased dust levels at the measuring point	q6
EXTERNAL CONTROL "BLOW OUT HIGH DUST PROTECTION TUBE"	q7
CYCLIC CONTROL "BLOW OUT HIGH DUST PROTECTION TUBE"	q71
CYCLIC CONTROL "BLOW OUT SINTERED METAL FILTER AND HIGH DUST PROTECTION TUBE"	q8

A 69 – SPECIAL CONFIGURATION	**Selection**
WITHOUT SPECIAL CONFIGURATION	z0*
BUILT-IN in STAINLESS STEEL HOUSING, MATERIAL: V2A	z1
PARAMETER SETTING GED- AND FILTER HEATING SYSTEM	z2

A 69 – SPECIAL CONFIGURATION	Selection
PARAMETER SETTING FOR PROFIBUS-CONNECTION Additional required: Field bus module, order no. 663R040 – 1PB / LT PROFIBUS DP, CONNECTING at LT	z4
PARAMETER SETTING FOR MODBUS-CONNECTION Additional required: Field bus module, order no. 663R040 – 3MBK / LT MODBUS on terminals (RTU), CONNECTING at LT	z41

The information in this publication is subject to technical changes.

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