

## Technical Data LT1 in Panel Installation Housing



Fig. 1-1 Lambda Transmitter LT1 in 19" panel installation housing with Display and operating unit

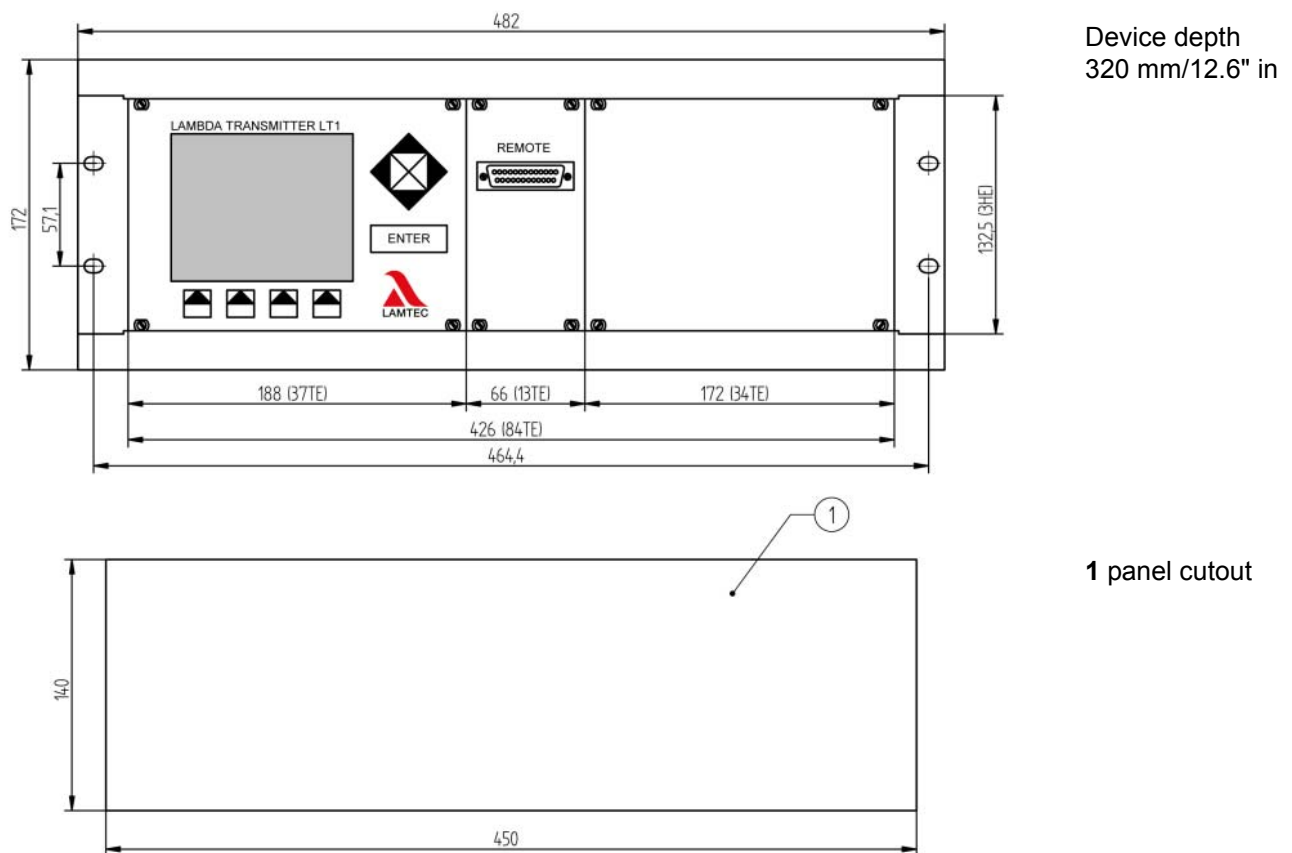


Fig. 1-2 Dimensional drawing LT1 type 657R004 19"-housing with display and operating unit

### LT1 in panel installation housing

Housing	3HE/19" Panel-mounted housing
Protection class to DIN 40050	IP20, front IP40
Dimensions (HxWxD)	133x482x320 mm/5.24"x18.98"x12.60" in
Colour	Silver metallic (anodized aluminium), control elements brown
Weight	9,4 kg/20.72 lb
Control elements	Display and operating unit with LCD graphic display 100x80 mm/3.94"x3.15" in (WxH), included as standard LSB Remote Software (option)

## Technical Data LT1 in Panel Installation Housing

<b>Characteristics</b>	
Power supply	230 VAC and 115 VAC +10 % / -15 %, 48 Hz ... 62 Hz <b>Use only in earthed networks!</b>
Power consumption	max. 150 VA short-term 310 VA
Resolution	0,01 vol. % O <sub>2</sub> across the entire range
Measurement accuracy	0,05 % of the measured value, no more precise than 0,1 vol. % O <sub>2</sub>
Time for operational readiness	1 ... 2 hours after MAINS ON
Cold start delay	automatically cold start delay, 5-120 min.
<b>Analogue outputs</b>	
Monitor output	0 ... 2,55 VDC, load >10 kΩ, ≤100 nF 2 % of the measured value, no more precise than 0,2 vol. % O <sub>2</sub>
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)
<b>Analogue inputs</b>	
Analogue inputs: 1 ... 4	via plug-in card on LT1 power pack electronic <ul style="list-style-type: none"> <li>– Analogue input module potentiometer 1 ... 5 kΩ type 657P6000</li> <li>– Analogue input module 0/4 ... 20 mA type 663P6001</li> <li>– Analogue input module 0/4 ... 20 mA with supply 24 VDC for transducer type 663P6002</li> <li>– 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</li> </ul>
<b>Digital outputs</b>	
Digital outputs	1 standard + 6 optional <ul style="list-style-type: none"> <li>– 1 relay output 0 ... 230 VAC, 2 A – 0 ... 42 VDC, 3 A collective fault indicator</li> <li>– relay card with 6 relays (1 changeover switch) 0 ... 230 VAC, 2 A – 0 ... 42 VDC, 3 A</li> </ul>
<b>Digital inputs</b>	
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.
<b>Interface</b>	
Interface	LAMTEC SYSTEM BUS, alternative RS 422 floating, RS 232 only in combination with LSB Remote Software

## Technical Data LT1 in Panel Installation Housing

<b>Interface</b>	
BUS connection	PROFIBUS DP Modbus RTU
<b>Operating condition</b>	
Ambient temperature	Operation: 0 °C ... +60 °C /32 °F ... 140 °F Transport and storage: -40 °C ... +85 °C/-40 °F ... 185 °F
CE Declaration of Conformity	2014/30/EU – EMC Directive 2014/35/EU – Low Voltage Directive

# Technical Data LT1 in Panel Installation Housing

## Order Information

### O<sub>2</sub> Measuring System Lambda Transmitter LT1

LT1 in 19"-Rack incl. Display- and Operating Unit – Configuration

<b>657R004 -</b>	A 06 TYPE	A 12 CALIBRATION UNIT	A 18 PRESSURE SENSOR	A 21 FLUE GAS PUMP	A 24 ANALOGUE OUTPUT 1	A 27 ANALOGUE OUTPUT 2	A 30 ANALOGUE OUTPUT 3
A 33 ANALOGUE OUTPUT 4	A 36 ANALOGUE INPUT 1	A 39 ANALOGUE INPUT 2	A 42 ANALOGUE INPUT 3	A 45 ANALOGUE INPUT 4	A 48 RELAIY MODULE, LIMIT VALUES O <sub>2</sub> CONTROLLER, FIRING-RATE		A51 EFFICIENCY CALCULATION
A 54 POWER SUPPLY VOLTAGE	A 57 LANGUAGE	A 60 CO/O <sub>2</sub> CONTROL	A 63 CALCULATIONS	A 66 OPTIONS	A 69 SPECIAL CONFIGURATION		

#### A 06 – TYPE

#### Selection

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\*

FOR EXTERNAL FLUE GAS PUMP  
Additional required: probe connection box (PCB), see attribute A21

6

\* (Default settings)

#### A 12 – CALIBRATION UNIT

#### Selection

WITHOUT CALIBRATION UNIT

b00\*

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 or 657R0031

b5

EXTERNAL CALIBRATION UNIT "COMPRESSED AIR" and PRESSURE RELEASE  
Necessary when ceramic-GED  
Additional required: probe connection box (PCB), order no. 657R0011

b5A

\* (Default settings)

#### 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

f1\*

INTEGRATED FLUE GAS PUMP FOR AGGRESSIVE GASES

f2

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

\* (Default settings)

# Technical Data LT1 in Panel Installation Housing

## A 24/27/30/33 – ANALOGUE OUTPUT 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 <b>REG</b> Necessary in conjunction with O <sub>2</sub> control via analogue input at FMS/VMS (0 ... 25 Vol. % O <sub>2</sub> → 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
ANALOGUE OUTPUT CURRENT 4 ... 20 mA ELECTRICALLY ISOLATED	h19	h29	h39	h49

\* (Default settings)

## 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<sub>2</sub> CONTROLLER, FIRING-RATE OUTPUT

	Selection
WITHOUT DIGITAL OUTPUTS	j00*
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 <sub>2</sub> CONTROLLER (PID), FIRING-RATE INPUT VIA LSB, INCL. RELAY MODULE *	j34
O <sub>2</sub> CONTROLLER (PID), FIRING-RATE INPUT VIA POTENTIOMETER, INCL. RELAY MODULE *	j35
O <sub>2</sub> 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

\* Additional required: Analogue output current 4 ... 20 mA, floating, for output of the O<sub>2</sub> 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 MIT WITH FIXED ENVIRONMENT TEMPERATURE FLUE GAS TEMPERATURE RANGE 0 ... 320 °C/32 °F ... 608° F, WITHOUT ANALOGUE OUTPUT	k1
EFFICIENCY CALCULATION WITH FIXED ENVIRONMENT TEMPERATURE FLUE GAS TEMPERATURE RANGE 0 ... 850 °C/32 °F ... 1562 °F, WITHOUT ANALOGUE OUTPUT	k11
EFFICIENCY CALCULATION FLUE GAS AND ENVIRONMENT TEMPERATURE 0 ... 320 °C/32 °F ... 608° F, WITHOUT ANALOGUE OUTPUT	k2
EFFICIENCY CALCULATION FLUE GAS AND ENVIRONMENT TEMPERATURE 0 ... 850 °C/32 °F ... 1562 °F, WITHOUT ANALOGUE OUTPUT	k22
FLUE GAS TEMPERATURE MEASUREMENT 0 ... 850 °C/32 °F ... 1562 °F, WITHOUT ANALOGUE OUTPUT	k3
FLUE GAS TEMPERATURE MEASUREMENT 0 ... 320 °C/32 °F ... 608° F, WITHOUT ANALOGUE OUTPUT	k33

\* (Default settings)

### A 54 – POWER SUPPLY VOLTAGE

	Selection
POWER SUPPLY VOLTAGE 230 VAC	l1*
POWER SUPPLY VOLTAGE 115 VAC	l2

\* (Default settings)

# Technical Data LT1 in Panel Installation Housing

## A 57 – LANGUAGE SETTINGS

	Selection
GERMAN	nD*
ENGLISH	nE
FRENCH	nF

\* (Default settings)

## A 60 – CO/O<sub>2</sub> MONITORING/ -CONTROL

	Selection
WITHOUT CO/O <sub>2</sub> MONITORING/ -CONTROL	o0*
CO/O <sub>2</sub> MONITORING PREPARED as MASTER-LT Additional required: LT2/KS1 prepared as SLAVE-LT	o1
CO/O <sub>2</sub> CONTROL PREPARED as MASTER-LT Additional required: LT2/KS1 prepared as SLAVE-LT and FMS/VMS or ETAMATIC with activated CO Control	o2

\* (Default settings)

## A 63 – CALCULATIONS

	Selection
WITHOUT CALCULATION	p0*
CO <sub>2</sub> CALCULATION Analogue output for the CO <sub>2</sub> value must be ordered separately (attribute A27/A30/A33)	p1
O <sub>2</sub> WET / DRY – CONVERSION	p2

\* (Default settings)

## A 66 – OTHER OPTIONS

	Selection
WITHOUT OTHER OPTIONS	q0*
PRESSURE COMPENSATION MEASURED VALUE Necessary when pressure change >10 mbar 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 probe housing (fault influences approx. 1 % from the measured value) in measuring range from 10 ... 21 Vol. % O <sub>2</sub> Only in conjunction with Lambda Probe LS1 with integrated temperature sensor Pt100	q2

\* (Default settings)

## A 69 – SPECIAL CONFIGURATION

	Selection
WITHOUT SPECIAL CONFIGURATION	z0*
PARAMETER SETTING GED AND FILTER HEATING SYSTEM	z2
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

\* (Default settings)

The information in this publication is subject to technical changes.

**LAMTEC Meß- und Regeltechnik  
für Feuerungen GmbH & Co. KG**  
Wiesenstraße 6  
D-69190 Walldorf  
Telefon: +49 (0) 6227 6052-0  
Telefax: +49 (0) 6227 6052-57

[info@lamtec.de](mailto:info@lamtec.de)  
[www.lamtec.de](http://www.lamtec.de)

