

# Technical Data LT2 /LT2-Ex in Wall Mounting Housing



Fig. 1 LT2 in wall-mounted housing

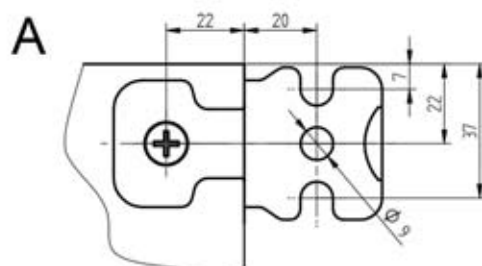
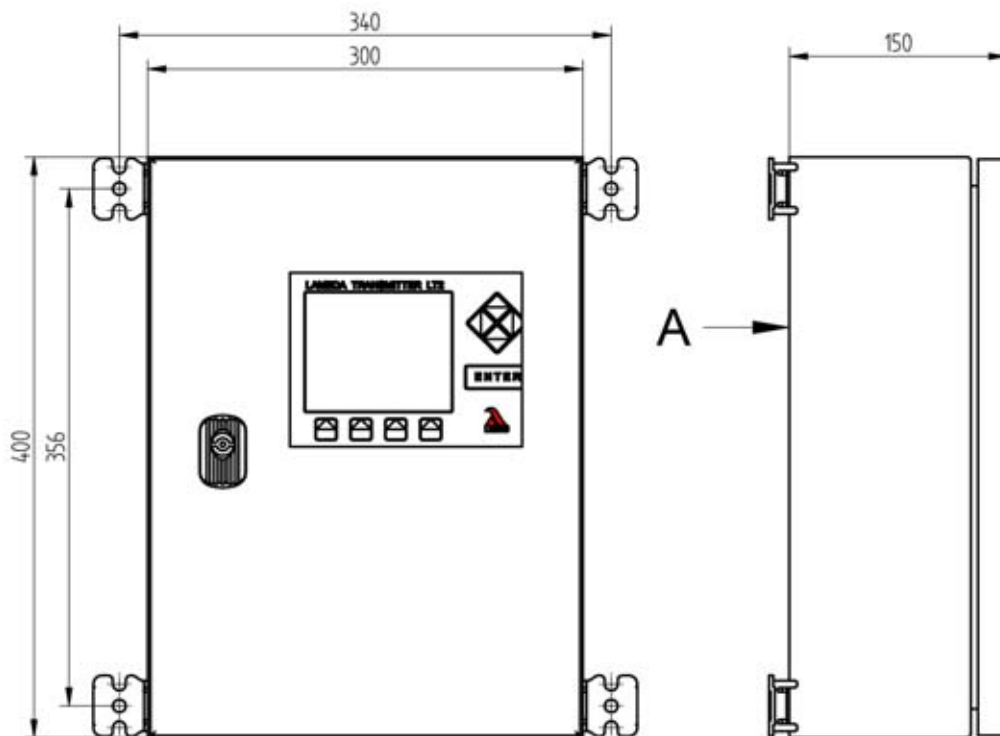


Fig. 2 Wall mounting housing

## Technical Data LT2 /LT2-Ex in Wall Mounting Housing

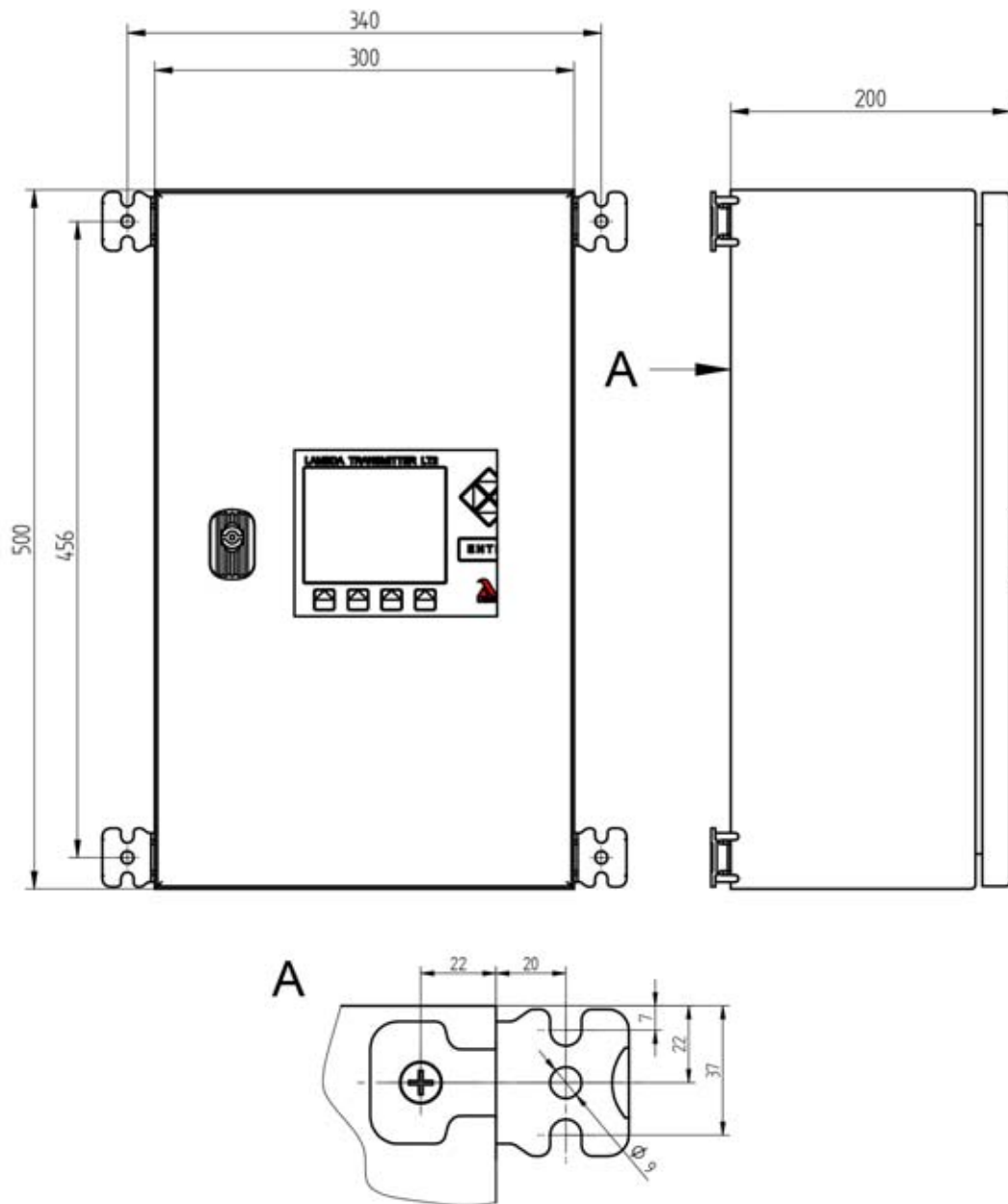


Fig. 3 Wall mounting housing with reference air pump

LT2 in wall mounting housing		
	without reference air pump	with reference air pump
Housing material	sheet steel, powder-coated	sheet steel, powder-coated
Dimensions (HxWxD)	400x300x150 mm / 5.75"x11.81"x5.91" in	500x300x200 mm / 19.69"x11.81"x7.87" in
Colour	light grey RAL 7035	light grey RAL 7035
Weight	10 kg / 22.05 lb with display and operating unit +0,5 kg /1.10 lb	13 kg / 28.66 lb with display and operating unit +0,5 kg /1.10 lb
Control elements	Display and operating unit with LCD graphic display (option) LSB Remote Software (option)	

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Fig. 4 Lambda Transmitter LT2-Ex in wall mounting housing for mounting outside the Ex-area

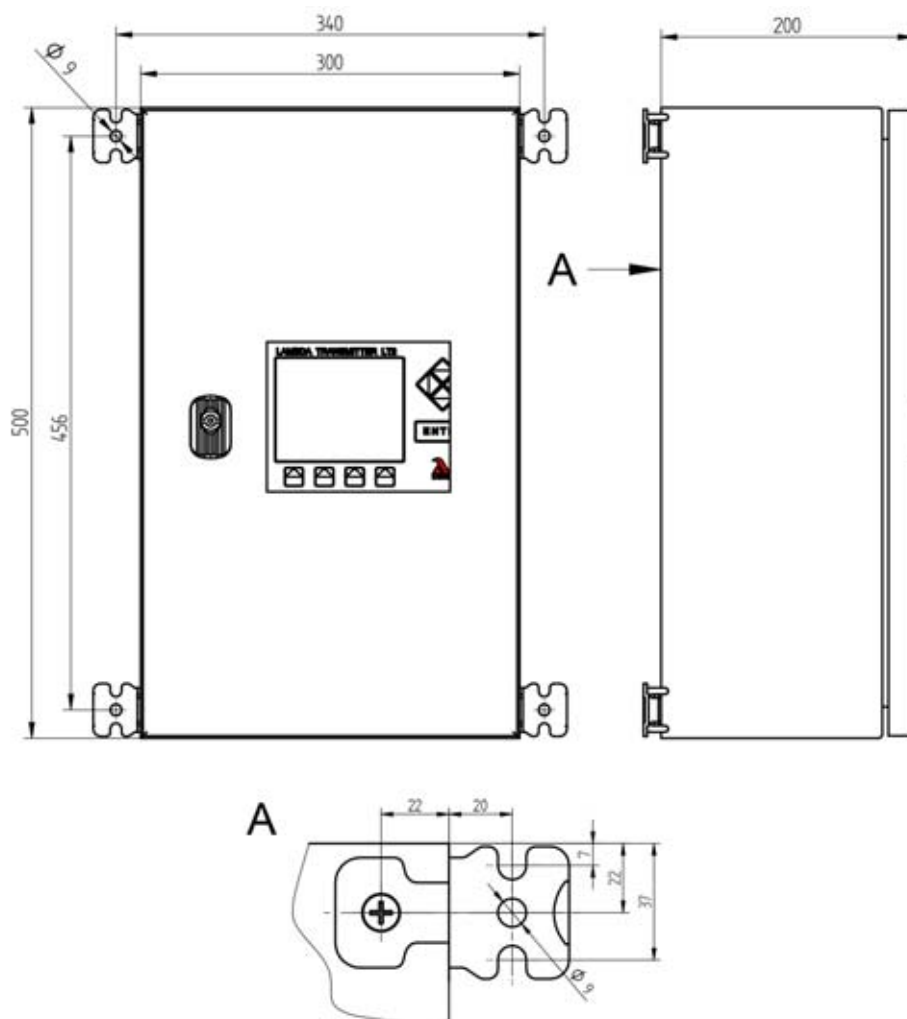


Fig. 5 Dimensional drawing LT2-Ex in wall mounting housing

## Technical Data LT2 /LT2-Ex in Wall Mounting Housing



Fig. 6 Lambda Transmitter LT2-Ex in EExd-housing for installation within the hazardous area



Fig. 7 Back view Lambda Transmitter LT2-Ex in EExd-housing

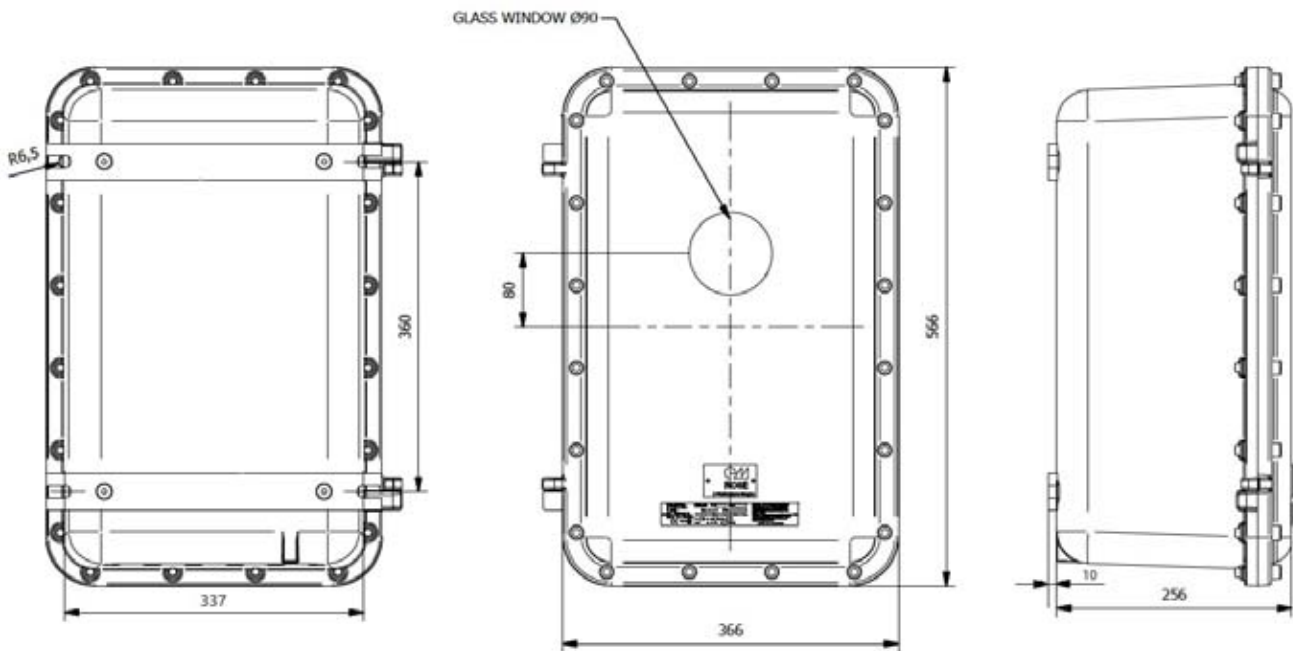


Fig. 8 Dimensional drawing LT2-Ex in EExd-housing

LT2-Ex in Wall Mounting-/ EExd-Housing		
Housing	Wall Mounting Housing	EExd-Housing
Dimensions (HxWxD)	500x300x200 mm / 19.69x11.81x7.87" in	566x388x256 mm / 22.28x15.28x10.08" in
Colour	RAL 7035 light grey	RAL 7035 light grey
Weight	approx. 13.5 kg / 29.76 lb	approx. 40 kg / 88.18 lb
Material	Sheet steel , powder-coated	Cast aluminium, powder-coated
Control elements	Display and operating unit with LCD graphic display (optional) LSB-Remote-Software (optional)	

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<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. 50 VA short-term 150 VA (heating phase probe)
Display	LCD graphic display 100x80 mm (WxH) / 3.94" in.x3.15" in in panel installation housing = standard in wall mounting housing = optional
Resolution	O <sub>2</sub> : 0,1 Vol. % O <sub>2</sub> in range 0 ... 18 Vol. % O <sub>2</sub> 1,0 Vol. % O <sub>2</sub> in range 18 ... 30 Vol. % O <sub>2</sub> CO: 1 ppm in CO range
Time for operational readiness	approx. 10 minutes after MAINS ON
Cold start delay	automatically cold start delay, 10 min.
<b>Analogue outputs</b>	
Monitor output	0 ... 2,55 VDC, load >10 kΩ, ≤100 nF
1 ... 4 current/voltage outputs	1 (LS2, KS1) or 2 (KS1D) standard – up to 4 options direct current 0/4 ... 20 mA load 0 ... 600 Ω 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 LT2 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 output</b>	
Digital output	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 input</b>	
Digital input	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 RS 232 only in combination with PC Remote Software
BUS connection	PROFIBUS DP Modbus RTU

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### Environmental Conditions LT2

<b>Operation</b>	Per, Temperature Range	-20 ... +60 °C / -4 ... +140 °F
<b>Transport</b>	Per, Temperature Range	-40 ... +85 °C / -40 ... +185 °F
<b>Storage</b>	Per, Temperature Range	-40 ... +85 °C / -40 ... +185 °F
<b>Degree of protection</b>	According to DIN 40050	IP66
<b>CE Declaration of Conformity</b>	2014/30/EU – EMC Directive 2014/35/EU – Low Voltage Directive 2011/65/EU – RoHS Directive	

### Environmental Conditions LT2-Ex

<b>Ambient temperature</b>	<b>Wall mounting housing</b>	<b>EExd-Housing</b>
<b>Operation</b>	-20 ... +60 °C / -4 ... +140 °F	-20 ... +60 °C / -4 ... +140 °F
<b>Transport</b>	-40 ... +85 °C / -40 ... +185 °F	-40 ... +85 °C / -40 ... +185 °F
<b>Storage</b>	-40 ... +85 °C / -40 ... +185 °F	-40 ... +85 °C / -40 ... +185 °F
<b>Degree of protection</b>	according to DIN 40050 IP66	according to DIN 40050 IP66
<b>Explosion protection</b>	none	marking according to ATEX:  II 2G Ex d IIB+H2 T5 Gb  II 2D Ex tb IIIC T100°C Db marking according to IECEx: Ex II 2G Ex d IIB+H2 T5 Gb Ex II 2D Ex tb IIIC T100°C Db
<b>CE Declaration of Conformity</b>	2014/35/EU – Low Voltage Directive 2014/30/EU – EMC Directive 2009/142/EG – Gas Appliance Directive 94/9/EG ATEX-Directive in the corrected version of 10.10.96	

# Technical Data LT2 /LT2-Ex in Wall Mounting Housing

## Order Information

Description / Type	Order no. - Selection
Lambda Transmitter LT2 in wall mounting housing	657R102...

A 03 – PROBE	Selection
CONFIGURATED FOR COMBI PROBE KS1 (CO-DETECTION)	KS1
CONFIGURATED FOR COMBI PROBE KS1D <sup>1)</sup> (O <sub>2</sub> -MEASUREMENT and CO-DETECTION)	KS1D
CONFIGURATED FOR LAMBDA PROBE LS2 (O <sub>2</sub> -MEASUREMENT)	LS2*

<sup>1)</sup> The analogue outputs for the combination probe KS1D can only be supplied in floating version.

A 06 – TYPE	Selection
STANDARD	1S*
FOR PROBE WITH BYPASS TUBE AND PURGE UNIT internal built-in relay module R0017 (attribute 39, selection 30) is necessary	3A
FOR PROBE TYPE "K - SEMI AUTOMATIC CALIBRATION" Internal built-in pressure sensor card required (analogue input 1 A27 and analogue input 2 A30), selection not necessary, will be setted automatically by the system!	3K
FOR PROBE TYPE "KR - SEMI AUTOMATIC CALIBRATION WITH CYCLIC REGENERATION" Internal built-in pressure sensor card (analogue input 1 A27 and analogue input 2 A30), internal built-in relay module R0017 (attribute 39, selection 30) and reference air pump (attribute 48) is required, selection not necessary, will be setted automatically by the system!	3KR
FOR PROBE TYPE "KA - SEMI AUTOMATIC CALIBRATION AND PURGING" Internal built-in pressure sensor card (analogue input 1 A27 and analogue input 2 A30) and internal built-in relay module R0017 (attribute 39, selection 30) is required, selection not necessary, will be setted automatically by the system!	4KA
FOR PROBE TYPE "KV - FULL AUTOMATIC CALIBRATION" Internal built-in pressure sensor card (analogue input 1 A27 and analogue input 2 A30) and internal built-in relay module R0017 (attribute 39, selection 30) is required, selection not necessary, will be setted automatically by the system!	5KV
FOR PROBE TYPE "KVA - FULL AUTOMATIC CALIBRATION AND PURGING" Internal built-in pressure sensor card (analogue input 1 A27 and analogue input 2 A30) and internal built-in relay module R0017 (attribute 39, selection 30) is required, selection not necessary, will be setted automatically by the system!	6KVA
FOR PROBE TYPE "KVR - FULL AUTOMATIC CALIBRATION WITH CYCLIC REGENERATION" Internal built-in pressure sensor card (analogue input 1 A27 and analogue input 2 A30) and internal built-in relay module R0017 (attribute 39, selection 30) is required, selection not necessary, will be setted automatically by the system!	6KVR
FOR PROBE TYPE "EX-AREA 1"	7EX1
FOR PROBE TYPE "EX-AREA 2"	8EX2
FOR PROBE TYPE "HT - EJECTOR EXTRACTION" internal built-in relay module R0017 (attribute 39, selection 30) is necessary	9E

\* (Default setting)

A 09 – DISPLAY	Selection
WITHOUT DISPLAY AND OPERATION UNIT or EXTERNAL (wall mounting housing without window)	a0*
WITH DISPLAY AND OPERATION UNIT (wall mounting housing with window)	a1

\* (Default setting)

<b>A 12 – PRESSURE SENSOR – Selection not necessary, will be setted automatically by the system</b>
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# Technical Data LT2 /LT2-Ex in Wall Mounting Housing

## A 15/18/21/24 – ANALOGUE OUTPUT 1/2/3/4

	Selection Output 1	Selection Output 2	Selection Output 3	Selection Output 4
WITHOUT ANALOGUE OUTPUT	not possible	c20*	c30*	c40*
ANALOGUE OUTPUT CURRENT 4 ... 20 mA	c11*	c21	c31	c41
ANALOGUE OUTPUT CURRENT 0 ... 20 mA	c12	c22	c32	c42
ANALOGUE OUTPUT VOLTAGE 0 ... 10 V	c13	c23	c33	c43
ANALOGUE OUTPUT CURRENT 4 ... 20 mA FLOATING	c14	c24	c34	c44
ANALOGAUSGANG STROM 4 ... 20 mA FLOATING REG 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)	c15	c25	c35	c45
ANALOGUE OUTPUT CURRENT 0 ... 20 mA FLOATING	c16	c26	c36	c46
ANALOGUE OUTPUT VOLTAGE 0 ... 10 V FLOATING	c17	c27	c37	c47

\* (Default setting)

## A 27/30/33/36 – ANALOGUE INPUT 1/2/3/4 Selection not necessary, will be setted automatically by the system

### A 39 – DIGITAL OUTPUTS, LIMIT VALUES, O<sub>2</sub>-CONTROLLER, FIRING-RATE

	Selection
WITHOUT RELAY MODULE	e00*
RELAY MODULE WITH 6 DIGITAL OUTPUTS (EACH WITH ONE CHANGE-OVER CONTACT)	e30
FIRING-RATE DEPENDENT LIMIT VALUES, FIRING-RATE INPUT VIA LSB, INCL. DIGITAL OUTPUTS	e31
FIRING-RATE DEPENDENT LIMIT VALUES, FIRING-RATE INPUT VIA POTENTIOM. INCL. DIGITAL OUTPUTS	e32
FIRING-RATE DEPENDENT LIMIT VALUES, FIRING-RATE INPUT VIA CURRENT, INCL. DIGITAL OUTPUTS	e33
O <sub>2</sub> -CONTROLLER (PID), FIRING-RATE INPUT VIA LSB, INCL. DIGITAL OUTPUTS**	e34
O <sub>2</sub> -CONTROLLER (PID), FIRING-RATE INPUT VIA POTENTIOMETER, INCL. DIGITAL OUTPUTS**	e35
O <sub>2</sub> -CONTROLLER (PID), FIRING-RATE INPUT VIA CURRENT, INCL. DIGITAL OUTPUTS**	e36
OUTPUT of "INTERNAL FIRING-RATE" AT ANALOGUE OUTPUT	e40

\* (Default setting)

\*\* Additional required: analogue output current 4 ... 20 mA, floating, for output of the O<sub>2</sub>-controller value

### A 42 – "EFFICIENCY CALCULATION, TEMPERATURE MEASUREMENT"

Analogue outputs for the flue gas temperature and / or the efficiency must be ordered separately (attribute A18/A21)

Additional required:

Temperature sensor PT100, -50 °C ... +400 °C / -58 °F ... +752 °F, length 150 mm / 5.91" in, order no. 657R0897 and / or

Temperature sensor PT100, -50 °C ... +400 °C / -58 °F ... +752 °F, length 250 mm / 9.84" in, order no. 657R0891

	Selection
WITHOUT EFFICIENCY CALCULATION	f0*
EFFICIENCY CALCULATION WITH FIXED ENVIRONMENT TEMPERATURE FLUE GAS TEMPERATURE RANGE 0 ... 320 °C / 32 °F ... 608 °F, WITHOUT ANALOGUE OUTPUT	f1
EFFICIENCY CALCULATION WITH FIXED ENVIRONMENT TEMPERATURE FLUE GAS TEMPERATURE RANGE 0 ... 850 °C / 32 °F ... 1,562 °F, WITHOUT ANALOGUE OUTPUT	f11
EFFICIENCY CALCULATION FLUE GAS AND ENVIRONMENT TEMPERATURE 0 ... 320 °C / 32 °F ... 608 °F, WITHOUT ANALOGUE OUTPUT	f2
EFFICIENCY CALCULATION FLUE GAS AND ENVIRONMENT TEMPERATURE 0 ... 850 °C / 32 °F ... 1,562 °F, WITHOUT ANALOGUE OUTPUT	f22
FLUE GAS TEMPERATURE MEASUREMENT 0 ... 850 °C / 32 °F ... 1,562 °F, WITHOUT ANALOGUE OUTPUT	f3
FLUE GAS TEMPERATURE MEASUREMENT 0 ... 320 °C / 32 °F ... 608 °F, WITHOUT ANALOGUE OUTPUT	f33

\* (Default setting)

### A 45 – POWER SUPPLY VOLTAGE

	Selection
POWER SUPPLY VOLTAGE 230 VAC	g1*
POWER SUPPLY VOLTAGE 115 VAC	g2

\* (Default setting)



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### A 48 – REFERENCE AIR PUMP

Only necessary in conjunction with K-probes, if reference air of the probe can't be provided via on-site compressed air

Selection

WITHOUT REFERENCE AIR PUMP (dimensions wall mounting housing 400x300x150 mm)	i0*
REFERENCE AIR PUMP 230 VAC (dimensions wall mounting housing 500x300x200 mm)	i1
REFERENCE AIR PUMP 115 VAC (dimensions wall mounting housing 500x300x200 mm)	i3

\* (Default setting)

### A 51 – HOUSING HEATING

Selection

WITHOUT HOUSING HEATING	k0*
HOUSING HEATING 230 VAC/120 W	k1

\* (Default setting)

### A 54 – CO/O<sub>2</sub>-CONTROL/-MONITORING

Selection

WITHOUT CO/O <sub>2</sub> -CONTROL/-MONITORING	m0*
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	m1
CO/O <sub>2</sub> -CONTROL PREPARED as SLAVE-LT Additional required: LT1/LS1 or LT2/LS2 prepared as MASTER-LT and FMS/VMS or ETAMATIC with activated CO-Control	m2
CO/O <sub>2</sub> -MONITORING PREPARED as MASTER-LT Additional required: LT2/KS1 prepared as SLAVE-LT	m3
CO/O <sub>2</sub> -MONITORING PREPARED as SLAVE-LT Additional required: LT1/LS1 or LT2/LS2 prepared as MASTER-LT	m4
CO/O <sub>2</sub> -MONITORING CONNECTING O <sub>2</sub> VIA EXTERNAL SYSTEM PREPARED as SLAVE-LT	m5

\* (Default setting)

### A 57 – CALCULATIONS

Selection

WITHOUT CALCULATIONS	n0*
CO <sub>2</sub> -CALCULATIONS Analogue output for the CO <sub>2</sub> -value must be ordered separately (attribute A18/A21/A24)	n1
O <sub>2</sub> WET / DRY – CONVERSION	n2

\* (Default setting)

### A 60 – LANGUAGE SETTINGS

Selection

LANGUAGE GERMAN/ENGLISH	oD*
LANGUAGE GERMAN/FRENCH	oDF
LANGUAGE ENGLISH/GERMAN	oE
LANGUAGE ENGLISH/FRENCH	oEF
LANGUAGE FRENCH/ENGLISH	oFE

\* (Default setting)

## Technical Data LT2 /LT2-Ex in Wall Mounting Housing

A 63 – SPECIAL CONFIGURATION	Selection
WITHOUT SPECIAL CONFIGURATION	z0*
INSTALLATION IN STAINLESS STEEL HOUSING LT2 WITHOUT WINDOW (dimensions 400x300x200 mm) only LT2 without display and without reference air pump	z3
INSTALLATION IN STAINLESS STEEL HOUSING WITH VIEWING DOOR (dimensions 400x300x200 mm) only LT2 with display and without reference air pump	z4
INSTALLATION IN STAINLESS STEEL HOUSING WITH VIEWING DOOR (dimensions 500x400x200 mm) only LT2 with reference air pump	z5
BUILT-IN IN EEX-HOUSING suitable EExd-housing must be ordered separately look to chapter "Accessories for LT2 - EExd-housing"	z6...
CONFIGURATION BY ORDER	z8
PARAMETERS FIELD BUS CONNECTION PROFIBUS Additional required: Field bus module, order no. 663R040 – 1PB/LT PROFIBUS DP, CONNECTING at LT	z9
PARAMETERS FIELD BUS CONNECTION MODBUS Additional required: Field bus module, order no. 663R040 – 3MBK/LT MODBUS on terminals (RTU), CONNECTING at LT	z91

\* (Default setting)

The information in this publication is subject to technical changes.



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