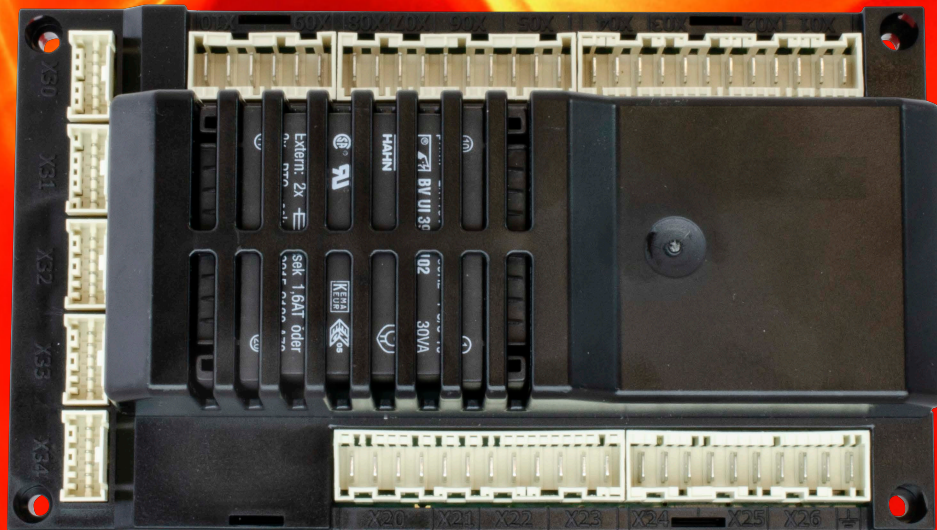


BurnerTronic BT300



Fault Codes for Software Version 3.9

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1 General Information

1.1 Validity of these Instructions

This document is a supplement to the Operating Instructions for the appliances listed below. It is only applicable together with the Operating Instructions for the affected device. The specifications in this document refer to the software version BT300 v3.9 and UI300 v3.11 / v4.2 and higher. The following functionalities are not available with software versions <3.0 of BurnerTronic.

- CO/O₂ control
- Applications with frequency inverter functions (VSM)

The designation UI300 used in the document applies to UI300-LSB, UI300-V1 and UI300-V2.

This document is applicable for the following devices:

- BT320
- BT330
- BT331
- BT335
- BT340
- BT341

1.2 Faults

NOTICE

The LAMTEC burner controls use different methods to detect fault messages between main processor and watchdog processor:

BT300/ETAMATIC/FMS/VMS/FA1:

The bus transmission does not generally use different fault numbers to distinguish between watchdog processor and main processor faults. In order to distinguish the main processor fault messages from the watchdog processor fault messages, an offset of 10000 is added to the watchdog processor faults. The main processor fault message H002 becomes the watchdog processor fault message U10002.

CMS:

CMS allocates different fault numbers to main processor and watchdog processor faults. An offset is not necessary.

2 List of Fault Codes

2 List of Fault Codes

Restarts according to TRD (P301 = 0 and P328 > 0) and EN676 (P301 = 2 and P328 > 0):

The restart counter increases automatically at every burner start.

The number of restarts is reset if

- BT300 remains in base fire for 10 s.
- a normal shut down occurs.
- a manual fault reset is triggered.

No.	P301 = 0	P301 = 2	Description	D1	D2
0	0	0	Unknown fault		
			<ul style="list-style-type: none"> – Reset fault – If the fault still exists: Send error number and diagnostic code to the technical support. – Replace the device 		
1	0	3	Flame fault		
			<ul style="list-style-type: none"> – Check ignition point – Check spark igniter and pilot burner – Check flame sensor – Check flame stability – Check positioning of the flame sensor – Check fuel valves – Check fuel supply – Check stability of the fuel pressure – Check grounding of the sensor cable – Check flame sensor cable for short circuits/broken wire – Check wiring – Check parameter 800 		
2	0	0	Parasitic light detection		
			<ul style="list-style-type: none"> – Check parasitic light detection (outside door) – Check flame sensor settings – Check positioning of the flame sensor (glowing parts in boiler) – Check flame sensor cable for short circuits/broken wire – Check grounding of sensor cable – Check spark igniter and pilot burner – Check parameter 800 – Check fuel supply – Check wiring 		
3	0	3	Flame fault during ignition.		
			<p>This fault occurs without proper ignition settings.</p> <ul style="list-style-type: none"> – Check ignition point – Check spark igniter and pilot burner – Check flame sensor – Check flame stability – Check positioning of the flame sensor – Check fuel valves – Check stability of the fuel pressure – Check fuel supply – Check grounding of sensor cable – Check the flame sensor cable for short circuits/broken wire – Check wiring – Check parameters 302, 303 and 800 		

2 List of Fault Codes

No.	P301 = 0	P301 = 2	Description	D1	D2
4	1	1	Flame OFF during operation		
			<ul style="list-style-type: none"> – Check curve settings – Check flame sensor – Check flame stability – Check positioning of the flame sensor – Check fuel valves – Check fuel supply – Check stability of the fuel pressure – Check grounding of sensor cable – Check the flame sensor cable for short circuits/broken wire – Check wiring – Check parameter 800 		
5	0	3	Flame signal does not appear during the 1 st time.		
			<ul style="list-style-type: none"> – Check ignition point – Check spark igniter and pilot burner – Check flame sensor – Check flame stability – Check positioning of the flame sensor – Check fuel valves – Check fuel supply – Check the stability of the fuel pressure – Check grounding of sensor cable – Check the flame sensor cable for short circuits/broken wire – Check wiring – Check parameters 302,303 and 800 		
6	0	3	Flame signal is lost during stabilisation time.		
			<ul style="list-style-type: none"> – Check ignition point – Check spark igniter and pilot burner – Check flame sensor – Check flame stability – Check positioning of the flame sensor – Check fuel valves – Check fuel supply – Check the stability of the fuel pressure – Check grounding of sensor cable – Check the flame sensor cable for short circuits/broken wire – Check wiring – Check parameters 302, 303 and 800 		
7	0	3	Flame signal is lost during 1 st safety time.		
			<ul style="list-style-type: none"> – Check ignition point – Check spark igniter and pilot burner – Check flame sensor – Check flame stability – Check positioning of the flame sensor – Check fuel valves – Check fuel supply – Check the stability of the fuel pressure – Check grounding of sensor cable – Check the flame sensor cable for short circuits/broken wire – Check wiring – Check parameters 302, 303 and 800 		

2 List of Fault Codes

No.	P301 = 0	P301 = 2	Description	D1	D2
8	0	3	Flame signal is lost during the 2 nd safety time.		
			<ul style="list-style-type: none"> – Check ignition point – Check spark igniter and pilot burner – Check flame sensor – Check flame stability – Check positioning of the flame sensor – Check fuel valves – Check fuel supply – Check the stability of the fuel pressure – Check grounding of sensor cable – Check the flame sensor cable for short circuits/broken wire – Check wiring – Check parameters 302, 303 and 800 		
9	0	3	Flame signal does not appear during the safety time.		
			<ul style="list-style-type: none"> – Check ignition point – Check spark igniter and pilot burner – Check flame sensor – Check flame stability – Check positioning of the flame sensor – Check fuel valves – Check fuel supply – Check the stability of the fuel pressure – Check grounding of sensor cable – Check the flame sensor cable for short circuits/broken wire – Check wiring – Check parameters 302, 303 and 800 		
10	0	1	Flame signal is lost within 3 s after the safety time exceeds.		
			<p>If flame OFF appears within 3 s after ignition, fault 10 is indicated; after that, fault 4 is indicated subsequently.</p> <ul style="list-style-type: none"> – Check curve – Check flame sensor – Check flame stability – Check positioning of the flame sensor – Check fuel valves – Check fuel supply – Check the stability of the fuel pressure – Check grounding of sensor cable – Check the flame sensor cable for short circuits/broken wire – Check wiring – Check parameters 800 		
11	0	0	Monitoring for parasitic light does not last for the required 5 s.		
			<p>This fault can occur during an internal self-test.</p> <ul style="list-style-type: none"> – Reset the fault. – Switch the mains voltage off and on again if necessary. – If the fault still exists, replace the device. 		

2 List of Fault Codes

No.	P301 = 0	P301 = 2	Description	D1	D2
13	1	0	Flame signal appears too early during ignition (pilot burner).		
			<p>If parameters 302 and 303 are set to value 3 or 4, only the ignition flame may be present during ignition (up to the beginning of the second safety time). If the main flame is detected during this period, fault 13 is indicated.</p> <ul style="list-style-type: none"> – Check main fuel valves. – Check positioning of the main flame sensor. – Check main flame sensor. – The main flame sensor must detect only the main flame and not the pilot flame. – Check grounding of sensor cable. – Check the flame sensor cable for short circuits or broken wire. – Check wiring. 		
103	0	0	Invalid miscellaneous data.		
			<p>This fault can occur during an internal self-test.</p> <ul style="list-style-type: none"> – Reset fault and switch mains voltage OFF and ON again. – Restore the actual data set (not protected) to the device using UI300 or LSB Remote Software – Check the restored data set. – A Restart is required. – The fault is still present: Replace device 		
105	Optional	0	Curve data are invalid or not available.	Curve set / Fuel number	
			<p>A fault was detected while trying to save the curve or while checking the redundant curves.</p> <ul style="list-style-type: none"> – Is a curve available? If there is none, configure a curve. – If a curve exists, repeat the programming and reset the fault. – If the data set was stored with the LSB Remote Software or the UI300, restore the data set to the device and reset the fault. – The fault is still present: Replace device. 		
106	0	0	Difference in parameter value between main processor and watchdog processor	Parameter no.	
			<p>Possible cause of error: A normal (unprotected) data set was uploaded and an error occurred during the data transfer. The dataset was not saved correctly.</p> <ul style="list-style-type: none"> – Reload dataset. – Save the protected dataset with LSB Remote Software from the UI300 into the device. – If this is not possible: Change the reported parameters manually for one time and reset the fault. Reset and switch the mains voltage OFF and ON again – If the fault still exists: change the device 		
107	0	0	Invalid configuration		
			<ul style="list-style-type: none"> – Check and correct the configuration according to the specifications in chapter 3 <i>Assignment of Configuration Fault 107</i>. – Reset fault 		

2 List of Fault Codes

No.	P301 = 0	P301 = 2	Description	D1	D2
120	1	1	Different operation modes on both controllers		
			<p>Main processor and watchdog processor detect the digital input signal at slightly different times. A signal change is happening only for such a short time that only one of the two processors detects it.</p> <ul style="list-style-type: none"> – Check the signal sequence. – Reset fault and switch mains voltage OFF and ON again. 		
121	0	0	Correction is out of range.	Channel	
			<p>The watchdog processor checks whether the current correction values lie within the adjusted range.</p> <ul style="list-style-type: none"> – Check the correction range. – Reset fault – If the fault occurs continuously, replace the device 		
141	0	0	Variation of speed feedback is to big.	Channel	
			<p>The parameter set is based on an old, invalid factory setting. Password level 2 is required.</p> <ul style="list-style-type: none"> – Save data set (not protected). – Restore default data set of the software version of the affected BT300 (protected data set) into the device. – Restore the previously saved data set (not protected) to the device. – Reset the device 		
151	Optional	3	Recirculation damper is still OPEN 240 s after recirculation release is OFF.	Channel number	
			<p>Actuator failure.</p> <ul style="list-style-type: none"> – In the event of stiffness, clean the damper and make it run smoothly. – Check the function of the actuator without damper and replace if necessary. <p>D2:</p> <p>0 = 120 s (main processor) or 150 s (watchdog processor) after removing the recirculation terminal, the recirculation channel has not reached the CLOSED position</p> <p>1 = Recirculation channel should run to position CLOSED, but runs to position OPEN</p> <p>2 = Recirculation channel should run to curve position OPEN, but runs outside the position</p>		
152	0	0	Internal fault		
			<ul style="list-style-type: none"> – Reset fault – If the fault still exists: Send fault number and diagnostic code to the technical support. – Replace the device 		
170	0	0	Short circuit of LDR flame scanner		
			<ul style="list-style-type: none"> – Check wiring – Replace flame scanner 		


2 List of Fault Codes

No.	P301 = 0	P301 = 2	Description	D1	D2
191	1	1	1 st Monitoring band exceeded for too long. – Check the damper for ease of movement. In the event of stiffness, clean the damper and make it smooth-running. – Check the function of the actuator without damper and replace if necessary. – For analogue output (VSM), check the ramp speed of the frequency inverter and adjust if necessary. – Adjust the positioning speed in P 453 (reduce value).	Channel	
201	1	1	1 st Monitoring band has been fallen short for too long. – Check the damper for ease of movement. In the event of stiffness, clean the damper and make it smooth-running. – Check the function of the actuator without damper and replace if necessary. – For analogue output (VSM), check the ramp speed of the frequency inverter and adjust if necessary. – Adjust the positioning speed in P 453 (reduce value).	Channel	
211	0	0	2 nd Monitoring band has been exceeded for too long. – Check the damper for ease of movement. In the event of stiffness, clean the damper and make it smooth-running. – Check the function of the actuator without damper and replace if necessary. – For analogue output (VSM), check the ramp speed of the frequency inverter and adjust if necessary. – Adjust the positioning speed in P 453 (reduce value).	Channel	
221	0	0	2 nd monitoring band has been fallen short for too long. – Check the damper for ease of movement. In the event of stiffness, clean the damper and make it smooth-running. – Check the function of the actuator without damper and replace if necessary. – For analogue output (VSM), check the ramp speed of the frequency inverter and adjust if necessary. – Adjust the positioning speed in P 453 (reduce value).	Channel	
231	Optional	3	Electronic ratio control is blocked. The firing rate controller changes its direction too fast. – Check and correct PID parameters. – Reset fault.	Channel	
241	0	0	A servo motor does not move, i.e. there is no position feedback available. – Check the air damper and gas damper for jamming. – Replace affected actuator	Channel	Direction: P 2 = 0 backward, 1 forward

2 List of Fault Codes

No.	P301 = 0	P301 = 2	Description	D1	D2
251	0	0	A servo motor cannot find the reference position. <ul style="list-style-type: none"> – Check the damper's smooth-running to the reference position. (see chapter <i>Adjusting of the Actuators</i> in the BT300 manual print no. DLT1201). – Check if the actuator type is adjusted properly (P455 - P457) and correct if necessary. – A restart is required – If the fault cannot be resolved, replace the affected actuator. 	Channel	
261	Optional	3	A servomotor returns an invalid position Too large deviation to target position. <ul style="list-style-type: none"> – Check servomotor type (P455 - 457) – Is the servomotor housing closed? – For servomotors with 0,8 Nm and 9 Nm an external torque must not exceed 0.2 Nm (for a motor with 0.8 Nm) or 1 Nm (for a motor with 9 Nm). – A restart is required. – Replace affected actuator. 	Channel	
271	Optional	3	The servo motor feedback remains constant for too long, even when the servo motor has moved. <ul style="list-style-type: none"> – Check wiring – The servomotor is blocked – The servomotor was opened without permission. 	Channel	
281	1	1	The feedback signal of at least 1 servo motor is invalid. To identify the servomotor's direction of rotation two pulse form signals, offset 90 degrees, are returned by the servomotor. If fault 281 occurs, these signals are not identified correctly. Cause of error: <ul style="list-style-type: none"> – Back lash – For servomotors with 0,8 Nm and 9 Nm an external torque must not exceed 0.2 Nm (for a motor with 0.8 Nm) or 1 Nm (for a motor with 9 Nm). 	channel	
291	Optional	3	A servo motor does not reach the final position, because of mixed-up detection. Servomotors are mixed up while reconnecting. The test for recognising this fault is described in the manual of the BT300 – print no. DLT1201 in chapter <i>Detection of Servomotors with Transposed Connections</i> .	Channel	
351	1	1	Invalid fuel change while burner is running Parameter set is based on an old, invalid factory setting. AL2 required. <ul style="list-style-type: none"> – Save data set (not protected) – Default data record of the software version of the affected BT300 (protected data set) into the device. – Restore the previously saved data set (not protected) to the device. – Reset the device. 		
360	0	0	Shut-down by the O ₂ trim due to lack of air At first the time set in P113 'O ₂ trim is active after ignition' expires then a fault is triggered. <ul style="list-style-type: none"> – Check and correct curve set. 		

2 List of Fault Codes

No.	P301 = 0	P301 = 2	Description	D1	D2
361	0	0	Maximum permissible CO voltage exceeded	CO Probe voltage +1V Offset	
			Cold start may have been interrupted → Probes not yet ready for use – Remove probe and check in air: Replace the probe if necessary – Burner is in air deficiency: Check and correct curve set		
362	0	0	Fault shut-down due to a missing burner maintenance		
			A reset of the maintenance counter occurs due to a change of parameter 10 or 11. AL2 is required.		
363	1 until v3.6	1 until v3.6	O ₂ value falls below the smallest, valid value.		
	0 from v3.7	0 from v3.7	O ₂ trim does not work on this burner. – Check electronic ratio control curve		
364	0	0	Maximum permissible CO _e value exceeded	CO-actual value	
			– Burner is in air deficiency → Check and correct curve set – Flame is cooled down too much: Too much excess air: check and correct curve set – Flame touches the combustion chamber: adjust flame geometry		
391	0	0	Curve set has changed during programming.		
			The fault is only indicated during curve set programming. – Make sure that during the curve set programming no fuel change takes place. P812 ≠ 2 – Reset fault		
393	0	0	A remote shut-down is triggered.		
			Can be triggered by: Clicking the BACK key for too long Clicking the ENTER key and BACK key simultaneously. Disconnecting the LSB Remote Software in SETTING mode (after a waiting time of 45 s) Clicking the icon  in the LSB Remote Software – Reset the fault.		
394	0	0	Burner ON/OFF signal from the control unit has dropped without permission.		
			– A restart is required.		
451	1	1	Ignition position was left in ignition mode.	Channel	
			With continuous output: – Check position and speed of the channel displayed in D1. – Speed and position are in good conditions: Check EMC influences by spark igniter – Speed and position are not in good conditions: Check the frequency inverters settings (analogue output) – Check the ease of movement of the control dampers.		

2 List of Fault Codes

No.	P301 = 0	P301 = 2	Description	D1	D2
600	0	0	Program monitoring time (FAT) exceeded.	Indication number	
			Description see chapter 4 <i>Assignment of the Programme Monitoring Time - Fault 600</i>		
601	0	0	A fault occurs during valve leakage test: Gas pressure is still present.		
			<p>Main valve 1 is leaking (see manual BT300 DLT1205 chapter <i>Valve leakage test for main valves</i>).</p> <ul style="list-style-type: none"> – Check the function of the gas pressure switch. – Is main valve 2 opened during the test? <p>If no: Check the valve and replace if necessary. Check wiring.</p> <ul style="list-style-type: none"> – Outlet pressure at the main valves during venting of the test line: If the outlet pressure is higher than the adjusted gas pressure at the pressure switch, carry out the following measures: <ul style="list-style-type: none"> – Re-adjust the pressure switch and check the detected leakage rate. (observe local standards and guidelines). – Reduce the aperture of the ventilation damper. – If the fault is still present: Replace valve 1. 		
602	0	0	A fault occurs during valve leakage test: Gas pressure is missing.		
			<p>Main valve 2 is leaking (see BT300 manual, print no. DLT1205 chapter <i>Valve leakage check of main valves</i>) BT300 software version < 3.3:</p> <ul style="list-style-type: none"> – Check gas inlet pressure. – Is the gas pressure less than the adjusted gas pressure at the pressure switch? <p>Check the function of the gas pressure switch.</p> <ul style="list-style-type: none"> – Does valve 1 open when actuated? <p>Yes: Gas valve 2 is leaking. Replace gas valve 2.</p>		
603	0	0	Manual venting of the gas line required!		
			<p>The Parameter set is based on an old, invalid factory setting. AL2 is required.</p> <ul style="list-style-type: none"> – Save data set (not protected). – Restore default data set of the software version of the affected BT300 (protected data set) into the device. – Restore the previously saved data set (not protected) to the device. – Reset the device 		
606	0	0	CPI/POC signal is in an unexpected state.		
			<ul style="list-style-type: none"> – Check the CPI/POC contacts of the main valves. – Check the functions of the main valves. 		

2 List of Fault Codes

No.	P301 = 0	P301 = 2	Description	D1	D2
608	1 *1)	1 *1)	Invalid drop of the safety interlock chain system – Check contacts and wiring of the safety interlock chain.		
609	1 *1)	1 *1)	Invalid drop of the safety interlock chain gas – Gas pressure is too high/low. – Check contacts and wiring of the safety interlock chain.		
610	Optional 1)	3 *1)	Invalid drop of the safety interlock chain oil – Oil pressure is too high/low. – Check contacts and wiring of the safety interlock chain.		
611	Optional	3	Gas pressure is too low. – Check gas pressure. – Check gas pressure switch. – Make sure that gas is available.		
613	0	0	Air pressure signal is missing. – Check air pressure switch. – Check fan		
617	1	1	The continuous pilot flame signal drops during operation. – Check curve settings – Check flame sensor – Check flame stability – Check positioning of the flame sensor – Check fuel valves – Is fuel pressure stable – Check fuel supply – Check earthing of the sensor cable – Check sensor cable for short circuits/broken wire – Check wiring – Check parameters 800		

*1) The restart is only carried out when the condition of the fault (i.e. the dropped safety interlock chain or the low voltage) has been eliminated.

2 List of Fault Codes

No.	P301 = 0	P301 = 2	Description	D1	D2
624	Optional	3	Oil pressure is too low.		
			<ul style="list-style-type: none"> – Make sure that oil is available. – Check oil pressure. – Check oil pressure switch. – Check oil filter – Check oil regulator 		
711	0	0	Invalid change of the operation mode		
			Fault during an internal self-test. Main processor and watch-dog processor detect the digital input signals at slightly different times. This can cause an incorrect change of the operating modes. <ul style="list-style-type: none"> – Check the signal sequence. – Reset fault and switch mains voltage OFF and ON again. 		
713	0	0	Invalid signal combination in operating mode BURNER OFF		
			Fault during an internal self-test. Main processor and watch-dog processor detect the digital input signals at slightly different times. This can trigger an incorrect signal combination. <ul style="list-style-type: none"> – Check the signal sequence. – Reset fault and switch mains voltage OFF and ON again. 		
714	0	0	Invalid signal combination in operating mode BURNER READY		
			Fault during an internal self-test. Main processor and watch-dog processor detect the digital input signals at slightly different times. This can trigger an incorrect signal combination. <ul style="list-style-type: none"> – Check the signal sequence. – Reset fault and switch mains voltage OFF and ON again. 		
715	0	0	Invalid signal combination in operating mode PRE-PURGE		
			Fault during an internal self-test. Main processor and watch-dog processor detect the digital input signals at slightly different times. This can trigger an incorrect signal combination. <ul style="list-style-type: none"> – Check the signal sequence. – Reset fault and switch mains voltage OFF and ON again. 		
716	0	0	Invalid signal combination in operating mode IGNITION POSITION		
			Fault during an internal self-test. Main processor and watch-dog processor detect the digital input signals at slightly different times. This can trigger an incorrect signal combination. <ul style="list-style-type: none"> – Check the signal sequence. – Reset fault and switch mains voltage OFF and ON again. 		
717	0	0	Invalid signal combination in operating mode IGNITION		
			Fault during an internal self-test. Main processor and watch-dog processor detect the digital input signals at slightly different times. This can trigger an incorrect signal combination. <ul style="list-style-type: none"> – Check the signal sequence. – Reset fault and switch mains voltage OFF and ON again. 		
719	0	0	Internal fault		
			<ul style="list-style-type: none"> – Reset fault – If the fault still exists: Send error number and diagnostic code to the technical support. – Replace the device 		

2 List of Fault Codes

No.	P301 = 0	P301 = 2	Description	D1	D2
720	0	0	Spark igniter is on for too long.		
			Up to version 3.8.0.0, the maximum switch-on time is calculated from different parameters of the BT300. From version 3.9.0.0, this time is set in parameter 338.		
721-729	0	0	Internal fault		
			– Reset fault – If the fault still exists: Send error number and diagnostic code to the technical support. – Replace the device		
730	0	0	Adjustment mode is active without pilot burner.		
			This mode is specially integrated for setting the pilot burner. Activation is only permitted with a pilot burner. P730 = 0: Adjustment mode is OFF.		
731	0	0	Internal fault		
			– Reset fault – If the fault still exists: Send error number and diagnostic code to the technical support. – Replace the device		
732	0	0	Invalid signal combination during operation.		
			Fault during an internal self-test. Main processor and watchdog processor detect the digital input signals at slightly different times. This can trigger an incorrect signal combination. – Check the signal sequence. – Reset fault and switch mains voltage OFF and ON again.		
734	0	0	Internal fault		
			– Reset fault – If the fault still exists: Send error number and diagnostic code to the technical support. – Replace the device		
739	0	0	Internal fault		
			– Reset fault – If the fault still exists: Send error number and diagnostic code to the technical support. – Replace the device.		

2 List of Fault Codes

No.	P301 = 0	P301 = 2	Description	D1	D2
740	0	0	Valve leakage test: Main gas valve 1 is leaking.		
			Main valve 1 is leaking (see BT300 manual DLT1205 chapter <i>Valve leakage check of main valves</i>). – Check the function of the gas pressure switch. – Is main valve 2 opened during the test? If no: Check the valve and replace if necessary. Check wiring – Outlet pressure at the main valves during the venting of the test line: If the outlet pressure is higher than the adjusted gas pressure at the pressure switch, take the following measures: – Re-adjust the pressure switch and recalculate the detected leakage rate (observe local standards and guidelines). – Reduce the aperture of the air damper for venting. – The fault is still present: Replace device		
741	0	0	Internal fault		
			– Reset fault – If the fault still exists: Send error number and diagnostic code to the technical support. – Replace the device		
742	0	0	Valve leakage test: Main gas valve 2 is leaking.		
			Main valve 2 is leaking (see instructions BT300 DLT1205 Chapter <i>Valve tightness control main valves</i>). – BT300 software version > 3.3: Check gas inlet pressure. Is the gas pressure lower than the adjusted gas pressure at the pressure switch? – Check gas pressure switch for function. – Does valve 1 open when actuated? Yes: Gas valve 2 is leaking. Replace gas valve 2.		
743	0	0	Flame monitoring: Flame burns for too long after shutdown.		
			– A Restart is required. – Check fuel valves for tightness. – Check flame sensor. – Check positioning of the flame sensor. – Check wiring. – Post-combustion time (P326) is set too short (AL2).		
745	0	0	Program monitoring time exceeded.		
746	0	0	Internal fault		
			– Reset fault – If the fault still exists: Send error number and diagnostic code to the technical support. – Replace the device		
747	0	0	Internal fault		
			– Reset fault – If the fault still exists: Send error number and diagnostic code to the technical support. – Replace the device		

2 List of Fault Codes

No.	P301 = 0	P301 = 2	Description	D1	D2
759	0	0	BT300 leaves SETTING mode automatically after 24 hours.		
			The BT300 has a hard coded time out of 24 hours for setting the burner. This Timeout has expired. – Reset fault. – Enter SETTING again.		
763	0	0	Internal fault		
			– Reset fault – If the fault still exists: Send error number and diagnostic code to the technical support. – Replace the device		
764	1	1	CO-controller - internal fault	Curve set	
			– Reset fault – If the fault still exists: Send error number and diagnostic code to the technical support. – Replace the device		
800	0	0	Invalid parameter	Parameter no.	
			– Re-enter the parameter. – Restore the protected data set in the device using the LSB Remote Software or the UI300. – If this is not possible, change the reported parameter manually and reset the fault. – Switch power OFF and ON – If the fault is still present: Replace device.		
801	0	0	Internal fault	Channel	
			– Reset fault – If the fault still exists: Send error number and diagnostic code to the technical support. – Replace the device		
802	1	1	Integration of a channel into the electronic ratio control needs too much time.	Channel	
			This fault only affects the recirculation channel. Possible causes: Recirculation valve is sluggish or blocked. The physical path of the damper is too long. – When switching on the recirculation damper, run the recirculation channel with a lower burner firing rate. – Adjust curve		
803	0	0	Channel is out of 1 st monitoring band for too long.	Channel	
			– Check the damper for ease of movement. In case of sluggish operation, clean the damper and make it run smoothly again. – Check the function of the servomotor without damper and replace if necessary. – For analogue output (VSM), check the ramp speed of the frequency inverter and adjust it if necessary. – Adjust the positioning speed in P 453 (reduce value). Note: Fault will be fixed with software version 3.9		

2 List of Fault Codes

No.	P301 = 0	P301 = 2	Description	D1	D2
804	0	0	Internal fault	Channel	
			<ul style="list-style-type: none"> – Reset fault – If the fault still exists: Send error number and diagnostic code to the technical support. – Replace the device 		
805	0	0	Directly controlled channel runs to an invalid position	Channel + set point position	
			<p>The fault is due to a channel which is not deactivated or controlled by the electronic ratio control (i.e. in pre-purge or post-purge).</p> <p>The fault occurs during an internal self-test.</p> <ul style="list-style-type: none"> – Reset fault and switch mains voltage OFF and ON again. – If the fault still exists: Replace the device 		
806	0	0	Implausible channel setpoint	Channel + set point position + actual value + programming tolerance	
			<ul style="list-style-type: none"> – Check data in curve table and program defective curve points again. – Restore the data set (not protected) with LSB Remote Software or UI300 to the device. 		
807	1	1	Timeout of an LSB message	LSB message no.	Cause of VSM100 fault
			<p>Possible cause of error :</p> <ul style="list-style-type: none"> – Connection between VSM/LCM GND and protective earth PE is defective. – Feedback of the speed variation was too fast – Fault of VSM – Fault on the LSB (red LED flashes or is permanently ON) 		
			<p>D1: 185 = VSM100</p> <p>D2:</p> <ul style="list-style-type: none"> 0 = Unknown cause 1 = Fault in FlashCRC 2 = DIP switch is inconsistent for input selection (Namur/3-wire/current, the high byte contains the DIP switch position). 3 = Like 2, but with a different code position 4 = Like 2, but with a different code position 5 = SRAM fault, high byte contains the code position 6 = Stack error 7 = Fault in CPU self test 8 = RAM error 9 = Delta-T-error. Fixed with VSM version 1.2.0.0. 10 = Fault in reference voltage, the upper 12 bits contain the values of the reference voltage. 11 = Other fault/crash 12 = PowerOn, the device was shut OFF 		

2 List of Fault Codes

No.	P301 = 0	P301 = 2	Description	D1	D2
808-810	0	0	Internal fault		
			<ul style="list-style-type: none"> – Reset fault – If the fault still exists: Send fault number and diagnostic code to the technical support. – Replace the device 		
889	0	0	The time gap between two remote fault resets is too short.		
			<p>EN 14459 allows only 4 remote fault resets every 15 min. The fault reset is monitored by LSB Remote Software, UI300, LAMTEC SYSTEM BUS and field bus. Exceeding the number of fault resets causes the fault shot-down 889 and further remote fault resets are ignored. After a delay time another remote fault reset is possible.</p> <p>The fault shut-down H889 also occurs, if a fault reset is sent without any reason.</p> <p>A reset by terminal is always possible.</p> <p>How to reset this fault:</p> <ul style="list-style-type: none"> – Wait for 15 minutes until you try to reset the fault again. – Cut off the power supply from BT300 for an instant, reconnect it and reset the fault subsequently. 		
921-929	0	0	Internal fault		
			<ul style="list-style-type: none"> – Reset fault – If the fault still exists: Send error number and diagnostic code to the technical support. – Replace the device 		
985	0	0	VSM diagnosis fault		
			<p>Possible cause of the fault: BurnerTronic expects a VSM module but the exchange of diagnosis data with the module fails.</p> <ul style="list-style-type: none"> – A restart is required. – Check wiring of the LSB – Replace VSM 		
986	0	0	Dynamic range test detected an invalid feedback.	Channel	Actual value
			<ul style="list-style-type: none"> – Check the damper for ease of movement. If sluggish, clean the damper and make it run smoothly again. – Check servomotor function without damper and replace if necessary. – For analogue output (VSM), check ramp speed of the frequency inverter and adjust if necessary. – Adjust the positioning speed in P 453 (reduce value). – Reset fault and switch mains voltage off and on again. – If the fault still occurs, replace the device. 		

2 List of Fault Codes

No.	P301 = 0	P301 = 2	Description	D1	D2
987	0	0	Internal fault		
			<ul style="list-style-type: none"> – Reset fault – If the fault still exists: Send error number and diagnostic code to the technical support. – Replace the device 		
988	0	0	DFM: Fuel selection relay is defective or no/inconsistent feedback		
			Invalid fuel selection in the DFM or inconsistent feedback from DFM. <ul style="list-style-type: none"> – Check wiring of terminals 34 and 36 on the DFM to X09 Pin 1 and 2 on the BT300 (see terminal assignment in BT300 manual, print no. DLT1201, chapter <i>Dual Fuel Module DFM300</i>). 		
989	0	0	Plausibility test of the servo motor feedback in programmed curve failed.		
			Maximum and minimum of the feedback setpoints stored in the curve is less than 10 digits. The curve was programmed while the fan was at standstill. <ul style="list-style-type: none"> – Switch on the fan and reprogram the curve while the fan is running. The curve must rise continuously. 		
990	Optional *1)	3	Power failure for at least 60 ms.		
			Short interruptions in mains voltage (for longer than 60 ms) <ul style="list-style-type: none"> – Check power supply Switch OFF the fault shutdown due to voltage interruption Parameter level 2 is required: <ul style="list-style-type: none"> – 115 V device: P813 = 32864 → 96 V – 230 V device: P813 = 32963 → 195 V 		
996	0	0	Device is blocked. The secure parameter block transmission is not finished.		
			Secure writing of the parameter cannot be finished. <ul style="list-style-type: none"> – Write the parameter once more. – Restore backup dataset to BT300 using UI300 or LSB Remote Software. 		
999			Internal fault		
			Description see chapter 5 <i>Assignment of Internal Fault 999</i> . otherwise <ul style="list-style-type: none"> – Reset fault – If the fault still exists: Send error number and diagnostic code to the technical support. – If the fault is still present, replace the device 		

*1) The restart is only carried out when the condition of the fault (i.e. the dropped safety interlock chain or the low voltage) has been eliminated.

3 Assignment of Configuration Fault 107

3 Assignment of Configuration Fault 107

D1	Description
1	Too many channels are activated.
2	No channel at all is configured.
3	Permanent spark igniter is configured (P302, P303), but no pilot flame monitoring device is present (P 800).
6	Pre-purge suppression by external signal is not implemented.
7	Fuel change by OFF and an unlimited post purge time is configured.
8	Pre-purge time is smaller than the minimum pre-purge time.
9	For staged oil operation at least one of the servomotors must be set to air channel.
13	Australian flame monitoring (2 main flame scanners) is configured, but no pilot flame scanner.
18	Standby operation at BT300 not permitted
19	Invalid fuel change selected.
20	BT300 only with separate ignition point.
21	'Ignition with fan ON', only useful with pure oil devices.
23	3-staged operation only works without pilot burner. When using BT335 only 2 oil stages are valid.
24	Permanent operation is not permitted.
25	Fuel change is not permitted. A curve set selection is only possible by bus when using a DFM or BT335.
26	Too many channels.
27	Staged oil operation needs at least one air channel.
28	There is an invalid function configured for a channel.
29	The BT300 application with 2 gases is only suitable with BT340/BT341.
30	Multiple terminals defined for one signal, terminal configuration is invalid.
31	No output terminal for fan or transformer available.
32	Necessary outputs for operation with oil are not available (oil pump or oil valve).
33	Necessary outputs for operation with gas are not available (gas valve).
34	An output terminal is needed for the pilot valve, but none is available in the actual terminal configuration.
40	No input terminal for the air pressure monitor is available.
41	No input terminal for the safety interlock chain oil is available (oil pressure min. will not be monitored directly, because it can be included in the safety interlock chain).
42	No input terminal for the safety interlock chain gas or minimum gas pressure is available.
43	The feedback line for the fuel selection is not mapped, but it is required.
44	Parameter 537 must be less than or equal to parameter 538 (firing rate limitation in modulating operation).
45	The mix-up detection must not be used together with the function "Referencing to the upper stop" for actuator 1 and 2. Actuator 3 may execute the function "Referencing to the upper stop" even if the mix-up detection is active.
47	Fuel selection by terminal is only permitted with BT335.
48	The terminal configuration "Dual Fuel Light" is only possible with BT335.
49	If the fuel selection by terminal is configured, the UV terminal cannot be used as flame input.
50	2 nd monitoring band is not larger than the 1 st monitoring band, Parameter 2: affected channel (first occurrence)
51	D2: 0 = Switch on function 'spark igniter with fan' and do not permit 'post-purge at flame fault' 1 = Switch on function 'spark igniter with fan' and do not permit 'continuous purge'

3 Assignment of Configuration Fault 107

D1	Description
52	<p>Configuration of the controllers incorrect:</p> <p>D2:</p> <p>1 = O₂ trim is inactive, but the O₂ correctional range is not 0</p> <p>2 = CO controller is inactive, but the CO correctional range is not 0</p> <p>3 = CO controller is inactive</p> <p>Requirements:</p> <p>At least one of the monitors that can be activated by parameter P225, P244 or P241 must be ON</p> <p>4 = Safe O₂ trim is activated, but the O₂ minimum monitoring is not switched on</p>

4 Assignment of the Programme Monitoring Time - Fault 600

4 Assignment of the Programme Monitoring Time - Fault 600

D1	Description
4	No effects of the CO/O ₂ controller
6	The number of 250 000 burner starts has exceeded
7	Adjustment mode is active
8	Fuel selection is missing
9	Safety interlock chain system is open
10	Air pressure is still pending
11	Safety interlock chain oil is open
12	Safety interlock chain gas is open
13	Ignition position acknowledgement is missing
14	High fire acknowledgement is missing
15	Air pressure is missing
19	Valve leakage test is running
20	Valve leakage test is OK
21	Servomotors are moving to their upper position
22	Setting pre-purge
23	Pre-purge is running
24	Setting post-purge
25	Post-purge is running
26	Setting mode
28	Burner OFF
29	Standby
30	Setting base firing rate
31	Base firing rate
32	Setting control mode
33	Control mode If no ignition takes place after starting within this time (P304) after "Burner ON," a fault is indicated. P304 = 0, no fault
35	Ignition position
36	Ignition
37	Setting ignition point
38	Thermostat
39	Main processor ignition position
40	Watchdog processor ignition position
41	Main processor pre-purge
42	Watchdog processor pre-purge
43	Post-purge time
44	Pre-purge time
955	Continuous purge
1086	Fault shut-down because of missing burner maintenance (362)
2001	Long ignition time
2002	Active dynamic test
2003	Burner release
2004	Miscell data repair

4 Assignment of the Programme Monitoring Time - Fault 600

D1	Description
2005	Automatic restart
2006	CPI / POC signal was missing at the start-up

5 Assignment of Internal Fault 999

5 Assignment of Internal Fault 999

D1	D2	Description
420	0 1 2 3 4 5 6 7 8	<p>The signal at the terminals changes rapidly for several seconds (100 ms - 200 ms). Stabilise the signal:</p> <ul style="list-style-type: none"> – Check wiring for loose contacts. – Check pressure switch: Is the pressure safely above or below the set pressure thus preventing the pressure switch from oscillating? <p>Terminal X.10.2 = burner ON Terminal X.10.1 = fault reset Terminal X.9.2 = firing rate + Help: Adjust firing-rate controller more precisely Terminal X.9.1 = firing rate - Help: Adjust firing-rate controller more precisely Terminal X.8 = air pressure Terminal X.7 = safety interlock chain system Terminal X.6 = safety interlock chain fuel Terminal X.5 = gas/oil pressure Terminal X21 = UV input/input contact of the flame scanner Help: Use QRA2m up to software version 3.1 and adjust the flame scanner in a way that a UV current higher than 250 μA can be measured. With software version 3.3 and higher set new UV settings in P 800.</p>
450	0	<p>Main power relay (K2) does not switch correctly to off when out of power.</p> <p>Internal main relay K2 Output relay for valve 1 Output relay for valve 2 Output relay for valve 3 / pilot valve Output relay for valve for spark igniter</p>
451	0 1 2 3 4 5 6 7 8	<p>Relay does not switch correctly although relay supply is switched on. Relay contact jams, does not drop or is controlled externally.</p> <ul style="list-style-type: none"> – Disconnect the plug of the affected relay output from the BT300 and check whether the error still exists. If yes: Replace the device. If no: Search for an external source of malfunction. <p>Relay PWR Relay oil pump Relay fan Relay V1 If the relay contact of relay V1 is OK:</p> <ul style="list-style-type: none"> – Internal fuse is blown. This fuse supplies relay V1, V2, V3 and spark igniter. Check outputs for these relays for short-circuit. – The fuse cannot be replaced. The device must be replaced. <p>Relay V2 Relay V3 Relay spark igniter Relay alarm Relay DFM</p>

5 Assignment of Internal Fault 999

D1	D2	Description
452	0 1 2 3 4 5 6 7 8	<p>Relay contact jams, does not drop or is controlled externally.</p> <ul style="list-style-type: none"> – Disconnect the plug of the affected relay output from the BT300 and check whether the error is still present. If yes: Replace the device. If no: Search for an external source of malfunction. <p>Relay PWR Relay oil pump Relay fan Relay V1 Relay V2 Relay V3 Relay spark igniter Relay alarm Relay DFM</p>
1200	0	<p>Flame signal doesn't disappear during self-test.</p> <p>Up to software version 3.3, this fault can be caused by a high ionisation current.</p> <ul style="list-style-type: none"> – Update to software version 3.4 or higher – If no update is possible: Install resistor 1.5 MΩ between BT300 X20.4 and the ionisation electrode.
1240	0	<p>Short circuit detected on LDR</p> <ul style="list-style-type: none"> – Check the flame scanner which is connected on X20.1 and X20.2 (LDR-input at BT300) and replace in case of any malfunction. – Check terminals and sensor cable for short-circuit – If the fault still exists: Replace device.
1250	uiADValue	<p>Circuit self-test failed, A/D value out of expected range.</p> <p>If the fault occurs after a reset, the cause is solved with software Version 3.4 .</p> <ul style="list-style-type: none"> – Update to software version 3.4 or higher – If the fault still exists: Replace device.
2807		<p>Valve leakage test is set (P802= 1 or 2), but has not been carried out.</p> <p>Possible causes:</p> <ol style="list-style-type: none"> 1) The valve leakage test was deactivated with P312 = 0 and P315 = 0. Remedy: set P802 = 0 2) Internal fault that prevents a valve leakage test > Replace the device
6205	Determined number of points	<p>The number of points don't match Ram-curve.</p> <p>This fault is produced by changing data in the BT300 (e.g. a data record is imported into the BT300) without performing a reset before restarting.</p> <ul style="list-style-type: none"> – Reset the device.

6 Assignment of CO/O₂ Control Faults or Information

NOTICE

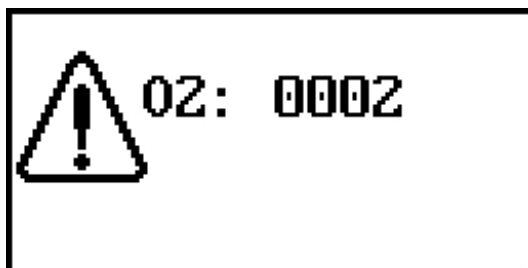
Depending on the parameter settings, either O₂ trim is deactivated or a fault switching of the burner is triggered (P 142).

Factory setting: P 142 = 0 (CO/O₂ control is inactive, burner is not switched off)

ot = O₂ control temporarily deactivated - automatic reset if values OK again.

od = O₂ control permanently deactivated - manual reset required or automatic reset at burner start.

O₂ fault example:



O₂ measured value at pre-purge is too large
≥24%

Fig. 6-1 Display of an O₂ monitoring fault

No.	CO faults - information		Fault description
0001	O ₂ fault	od	O ₂ measured value during pre-purge is too low (P104).
			O ₂ actual value at pre-purge too low. Setpoint: > 16.0% O ₂ – Check the probe. – Perform an offset calibration
0002	O ₂ fault	od	O ₂ measured value during pre-purge is too high (P103).
			O ₂ actual value at pre-purge too high Setpoint: <24.5 vol. % O ₂ Probe is too cold or the offset calibration is not performed. – Check the probe's internal resistor. – Perform an offset calibration.
0003	O ₂ fault	od	O ₂ measured value after ignition is too high (P105).
			The probe dynamics cannot be detected. Setpoint: <14.0 vol. % O ₂ (factory setting) The fault occurs after a timeout if no O ₂ value is transmitted by LSB. – Check if Lambda Transmitter is in adjustment mode. If yes: Finish adjustment mode. – No value is indicated: Check LSB. – Is the probe hot enough?

6 Assignment of CO/O₂ Control Faults or Information

No.	CO faults - information		Fault description
0004	O ₂ fault	ot od	No probe dynamics - O ₂ trim is deactivated (P118)
			No probe dynamics can be detected. – Correction range in BT300 too small or set to '0' 0 = Default setting. The value must be set by the customer for each specific system. – Set the correction range. – Is the servomotor at the upper range limit? Reprogram the electronic ratio control.
0006	O ₂ fault	ot od	O ₂ measured value is outside the upper monitoring band.
			The first upper monitoring band was exceeded for too long. – Check the following and adjust if necessary: – Correction range – Electronic ratio control – Setpoint curve
No.	O ₂ faults - information		Fault description
0008	O ₂ fault	od ot	O ₂ measured value is outside the 1 st lower monitoring band.
			The first monitoring band was undershot for too long. – Check the following and adjust if necessary: – Correction range – Electronic ratio control – Setpoint curve
0009	O ₂ fault		Half air shortage reached.
			O ₂ value is too small – Expanded control strategy: Air supply is increased. The automatic, expanded control strategy increases the air supply.
0011	O ₂ fault		Invalid O ₂ measured value on LSB.
			Lambda Transmitter is in cold start, adjustment mode or calibration mode (do not measure). – Wait until cold start has finished or leave adjustment mode or calibration mode. – Is LSB connected to Lambda Transmitter? – Is Lambda Transmitter switched ON? – Is LSB in fault condition (ERR LED is ON on LCM100)?
0012			O ₂ setpoint curve is incorrect.
			O ₂ setpoint curve is empty or contains less than 3 points. – Check and correct setpoint curve.
0013	O ₂ fault	ot	Air deficiency: O ₂ trim has been deactivated.
			O ₂ actual value is permanently too small. Due to insufficient air the control was deactivated. A Replacement value for insufficient air is indicated as the correction.

6 Assignment of CO/O₂ Control Faults or Information

No.	O ₂ faults - information		Fault description
0018	O ₂ fault	od	Internal fault: O ₂ setpoint curve is incorrect.
			<ul style="list-style-type: none"> – Reset fault – If the fault still exists: Send error number and diagnostic code to the technical support. – Replace the device
0020	O ₂ fault		Internal fault: O ₂ trim fault
			<ul style="list-style-type: none"> – Reset fault – If the fault still exists: Send error number and diagnostic code to the technical support. – Replace the device
0060	O ₂ fault	ot	The watchdog processor has detected a fault. O ₂ trim has been switched off after a timeout.
			<ul style="list-style-type: none"> – Reset fault – If the fault still exists: Send error number and diagnostic code to the technical support. – Replace the device
0069			Content of the O ₂ setpoint curve is invalid.
			– Enter a valid O ₂ setpoint curve.
0073			Unknown CO/O ₂ operating state
			<ul style="list-style-type: none"> – Reset fault – If the fault still exists: Send error number and diagnostic code to the technical support. – Replace the device
0074			Prohibited O ₂ operating mode
			<ul style="list-style-type: none"> – Reset fault – If the fault still exists: Send error number and diagnostic code to the technical support. – Replace the device
0363	O ₂ fault		Burner deactivation after the O ₂ deactivation limit is undershot;

6 Assignment of CO/O₂ Control Faults or Information

CO fault example:



The plausibility check of the sensor voltage of the CO_e measuring cell with O₂ trim has been activated.

Fig. 6-2 Display of a CO monitoring fault

When the following monitoring routines are activated, CO control is deactivated. Depending on the settings made, CO optimisation is completely deactivated (factory setting) or switched to O₂ trim online.

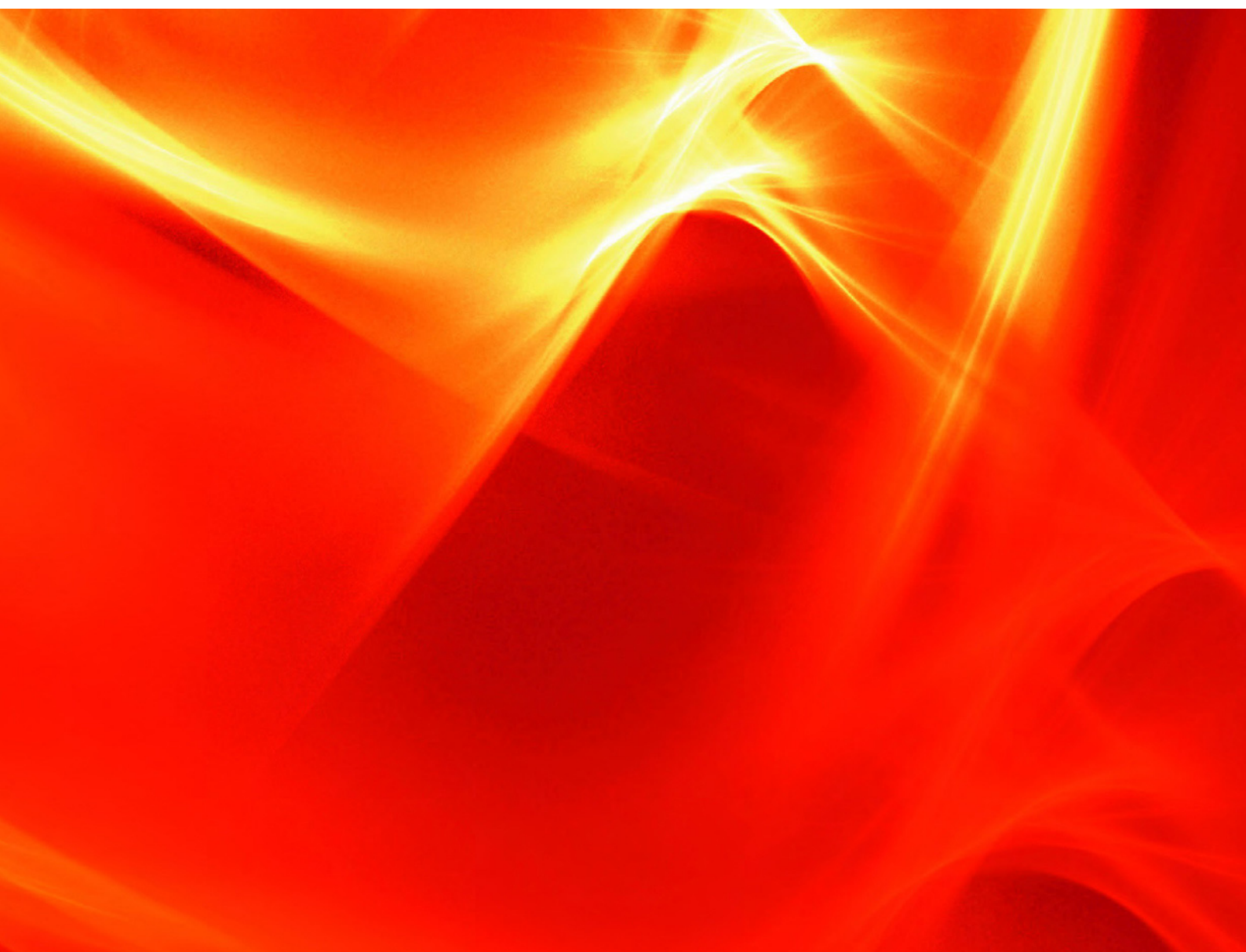
No.	Fault/information		Comment
0040	CO fault	ot	There is no CO edge information available on the LAMTEC SYSTEM BUS.
			<p>Lambda Transmitter is incorrectly configured or not connected to LSB. LSB connection is twisted.</p> <p>Lambda Transmitter is not in measuring mode (malfunction/cold start). Lambda Transmitter is in adjustment mode.</p> <p>The correction range is set too small. As a result, the control cannot approach the CO edge.</p> <p>– Check correction range (P703) and adjust if necessary.</p> <p>The electronic ratio curve is set in such a way that the CO edge cannot be reached.</p> <p>– Check curve setting and adjust I if necessary.</p> <p>With CO, the LT does not achieve the necessary probe dynamics for triggering the CO edge.</p> <p>– Check the trigger threshold for the edge signal in the LT and adjust it if necessary.</p>
0041	CO fault	ot	CO probe voltage is outside the monitoring range (U _{CO/H2}).
			<p>Incorrect polarity of probe connection (signal).</p> <p>The probe is defective.</p> <p>Permissible probe voltage range in Lambda Transmitter is too small. Range: +10 ... + 500 mV</p>
0042	CO fault	ot	CO probe offset is outside the monitoring range.
			<p>During the offset calibration process 21 % O₂ (air) were not present at the measuring point.</p> <p>– Repeat offset calibration</p> <p>The probe heats up.</p> <p>– Check internal probe resistance Ri in LT</p> <p>– Check wiring and correct if necessary</p> <p>The probe is defective.</p> <p>Fault in the wiring (incorrect polarity)</p> <p>Range: -25 ... +10 mV/20 s</p>

6 Assignment of CO/O₂ Control Faults or Information

No.	Fault/information		Comment
0043	CO fault	ot/od	Cell resistance of the CO sensor is outside the monitoring range.
			<p>The probe is too cold.</p> <p>Heating capacity is too low</p> <ul style="list-style-type: none"> – Check wiring for probe heating and correct if necessary. – Check internal probe resistance R_i in LT <p>Cable cross-section is too small for probe heating.</p> <p>$P_H = \dots W$</p> <p>Range: $<100 \Omega$</p>
0044	CO fault		Cell temperature of the CO sensor is outside the monitoring range.
			<p>A fault occurred during O₂ measured value calibration in air.</p> <ul style="list-style-type: none"> – Repeat O₂ measured value calibration in air. – Check and correct wiring. – Probe is defective. Range: 700 bis 1.300 K
0045	CO fault	ot/od	Dynamics of the CO probe too low.
			<p>The correction range in the BT300 is too small or set to '0'.</p> <ul style="list-style-type: none"> – Check and correct the correction range. – Check and correct the electronic ratio curve. <p>The correction in BT300 is at its limit:</p> <ul style="list-style-type: none"> – Correction channel is at limit stop. <p>Check and correct the electronic ratio curve.</p> <ul style="list-style-type: none"> – With CO, the LT does not achieve the necessary probe dynamics for triggering the CO edge. <p>Check the trigger threshold for the edge signal in the LT and adjust it if necessary.</p> <p>The probe is defective.</p>
0047	CO fault	ot	CO control has been switched off by the monitoring processor.
			<ul style="list-style-type: none"> – Reset fault – If the fault still exists: Send error number and diagnostic code to the technical support. – Replace the device
0049	CO fault		CO control has been switched off by the O ₂ monitoring system.
			<p>The smallest permissible O₂ value ($<0.4 \text{ Vol.}\%$) has been exceeded.</p> <ul style="list-style-type: none"> – Check whether the burner at which the fault occurred is running CO_e free (no CO edge) at the firing rate value and with less than 0.4% O₂. <p>If yes: Reduce P204. FE 4is required.</p> <p>If no: Activate increasing air on firing rate change (P232). AL2 is required.</p>
0050	CO fault	ot	The effective CO probe voltage U_{COe} is incorrect.
			<p>Is the probe defective?</p> <p>Value is outside the monitoring range.</p> <p>Range: 0 ... 100 mV for 20 s</p> <ul style="list-style-type: none"> – Remove probe and recalibrate in air. <p>If this is not possible, the probe is defective (toxic).</p>

6 Assignment of CO/O₂ Control Faults or Information

No.	Fault/ informa- tion		Comment
0052	CO fault	ot	The CO edge signal is not plausible.
			<p>The CO edge signal was present constantly for more than 60 s. The controller cannot control out of the CO.</p> <ul style="list-style-type: none"> – Check/adjust the triggering threshold for the CO edge on the LT. – Check/adjust correction range (P703). – Check/adjust electronic ratio curves. – Check/replace probe for correct function. – Check/replace LT
0053	CO fault	ot	The CO edge signal is not plausible.
			<p>Permanent CO controller switch-off. CO edge signal persisted for more than 300 s.</p> <ul style="list-style-type: none"> – Reset fault by a manual acknowledgement of the fault or with a burner restart – Check/adjust correction range (P703). – Check/adjust electronic ratio curves. – Check/replace probe for correct function. – Check/replace LT
0054	CO fault	ot	The CO edge has been exceeded for too long after ignition.
			<p>The CO edge has been exceeded permanently for more than 120 s. The controller cannot control out of the CO.</p> <ul style="list-style-type: none"> – Check/adjust the triggering threshold for the CO edge on the LT. – Check/adjust correction range (P703). – Check/adjust electronic ratio curves (ignition point). – Check/replace probe for correct function. – Check/replace LT
0055	CO fault	od	The CO edge has been exceeded for too long after ignition.
			<p>The CO edge has been exceeded permanently for more than 240 s. The controller cannot control out of the CO. The CO detection can be switched off after ignition by P234 (P 234 = 0)</p> <ul style="list-style-type: none"> – Check/adjust the triggering threshold for the CO edge on the LT. – Check/adjust correction range (P703). – Check/adjust electronic ratio curves (ignition point). – Check/replace probe for correct function. – Check/replace LT



The information in this publication is subject to technical changes.



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