



Presentation example PME7...

Presentation example LME7...

PME72.541...

Program module for burner control LME72.000

User Documentation

Application:

- 1-stage, without actuator
- 1-stage or modulating, direct or pilot ignited forced draft burners
- Integrated actuator control (can be parameterized) via 3-position controller
- Flame supervision only via ionization signal
- E.g. for burners to EN 676

The PME7... and this User Documentation are intended for use by OEMs which integrate the LME7... with PME7... in their products.



Note!

This documentation is only valid together with LME7... Basic Documentation (P7105)!

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1 Supplementary documentation

Product type	Type of documentation	Documentation number
LME...	Environmental Product Declaration	E7105
PME...	Environmental Product Declaration	E7105.1
LME7...	Data Sheet	N7105
LME...	Product Range Overview	Q7010
LME7	Basic Documentation	P7105

2 Warning notes



Warning!

The safety, warning and technical notes given in the Basic Documentation on the LME7... (P7105) apply fully to the present document also!

To avoid injury to persons, damage to property or the environment, the following warning notes must be observed!

The LME7... are safety devices! Do not open, interfere with or modify the unit. Siemens does not assume responsibility for damage resulting from unauthorized interference!

3 Typographical conventions

Safety notes

This User Documentation contains notes which must be observed to ensure your personal safety and to protect the product and the connected equipment. The instructions and notes are highlighted by warning triangles or a hand symbol and are presented as follows, depending on the hazard level:



Warning

means that death, severe personal injury or substantial damage to property **can** occur if adequate precautionary measures are not taken



Note

draws your attention to **important information** on the product, on product handling, or to a special part of the documentation

Qualified personnel

Only **qualified staff** are allowed to install and operate the equipment. Qualified staff in the context of the safety-related notes contained in this document are persons who are authorized to commission, ground and tag devices, systems and electrical circuits in compliance with established safety practices and standards.

Correct use

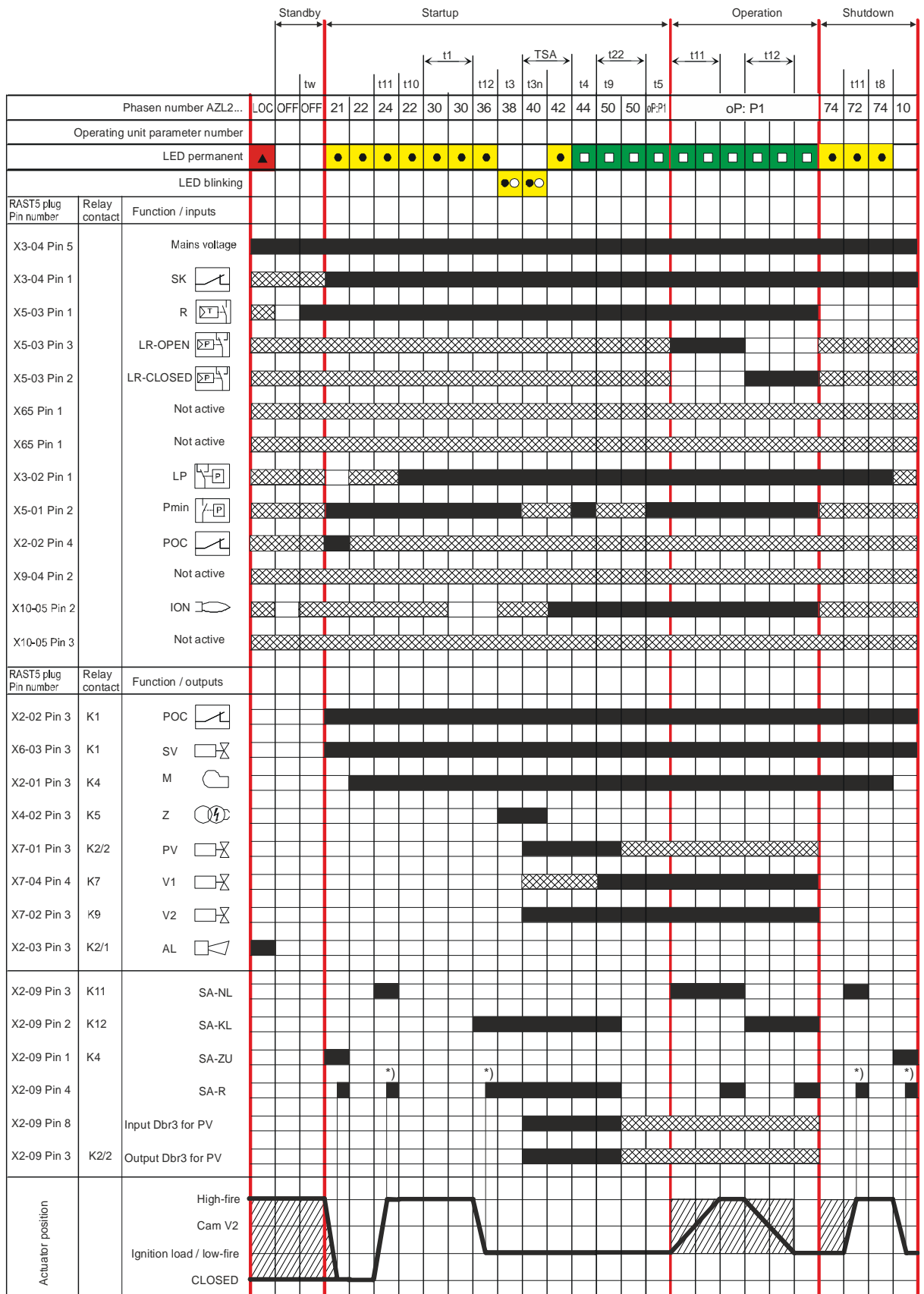
Note the following:

The device may only be used on the applications described in the technical documentation and only in connection with devices or components from other suppliers that have been approved or recommended by Siemens.

The product can only function correctly and safely if shipped, stored, set up and installed correctly, and operated and maintained as specified.

4 Program sequence PME72.541...

→ For fuel trains G and G1/1



7105d73e/1014

Figure 1: Program sequence

*) During the actuator's running phases, the actuator's feedback signal must first be OFF, then ON

5 List of phase display

Phase number of display	LED	Function
AZL2...		
LOC	OFF	Lockout phase
Standby		
OFF	OFF	Standby, waiting for heat request
Ph08	OFF	Power ON/test phase (e.g. detector test)
Startup		
Ph21	Yellow	Safety valve ON, air pressure switch in no-load position Test if POC closed (timeout/lockout after 5 seconds) Actuator travels to the closed position
Ph22	Yellow	Part 1: Fan motor ON Part 2: Specified time air pressure switch Message (timeout), stabilization air pressure switch
Ph24	Yellow	Actuator travels to the prepurge position (timeout)
Ph30	Yellow	Part 1: Prepurge time without extraneous light test Part 2: Prepurging with extraneous light test (2.1 seconds)
Ph36	Yellow	Actuator travels to the ignition load position (timeout)
Ph38	Yellow flashing	Preignition time
Ph40	Yellow flashing	Postignition time
Ph42	Green	Flame detection
Ph44	Green	Interval: End of safety time and fuel valve 1 ON
Ph50	Green	Part 1: Interval: Fuel valve 1 ON and pilot valve OFF Part 2: Flame-out response time
Operation		
oP:P1	Green	Operation
Shutdown		
Ph10	OFF	Home run
Ph72	Yellow	Actuator travels in postpurge position (timeout)
Ph74	Yellow	Postpurge time
Safety shutdown phases		
Ph01	Yellow / red	Under voltage / over voltage
Ph02	Yellow	Safety shutdown (e.g. open safety loop) → lockout
Ph04	Green / red	Extraneous light in standby
Ph90	Yellow	Gas pressure switch-min open → safety shutdown and start prevention

6 Fuel trains (examples)

6.1 Gas direct ignition (G), 1-stage

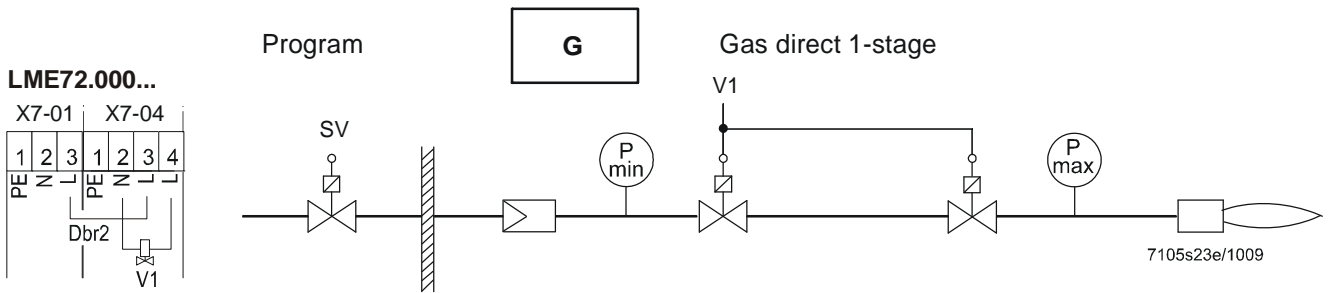


Figure 2: Fuel train gas direct ignition (G), 1-stage

6.2 Gas pilot ignition 1 (Gp1/1), 1-stage

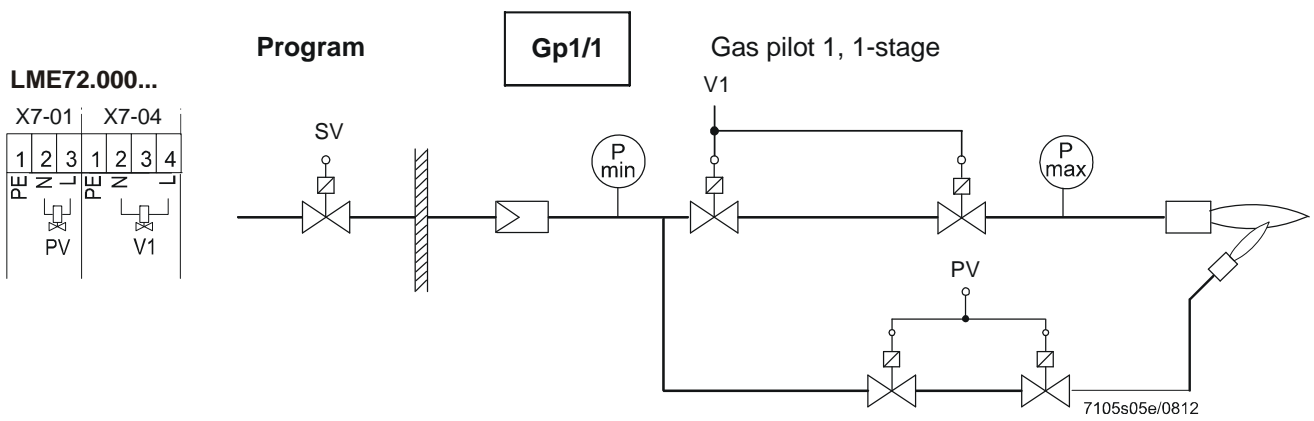


Figure 3: Fuel train gas pilot ignition 1 (Gp1/1), 1-stage

7 Input gas pressure switch-min

Behavior in the event gas pressure switch-min fails (terminal X5-01 pin 2 and pin 3)

If gas pressure switch-min fails, safety shutdown is triggered and startup prevented until gas pressure switch-min closes again. During start prevention, the yellow LED is lit and the safety circuit is active. Burner control operates in phase 90.

8 Connection diagram for LME72.000... with actuator SQM4...



Note:

The connection diagram shown is merely an example which must be verified in the individual case depending on the application!

**PME72.541... 1-stage modulating
With pilot ignition
Without valve proving**

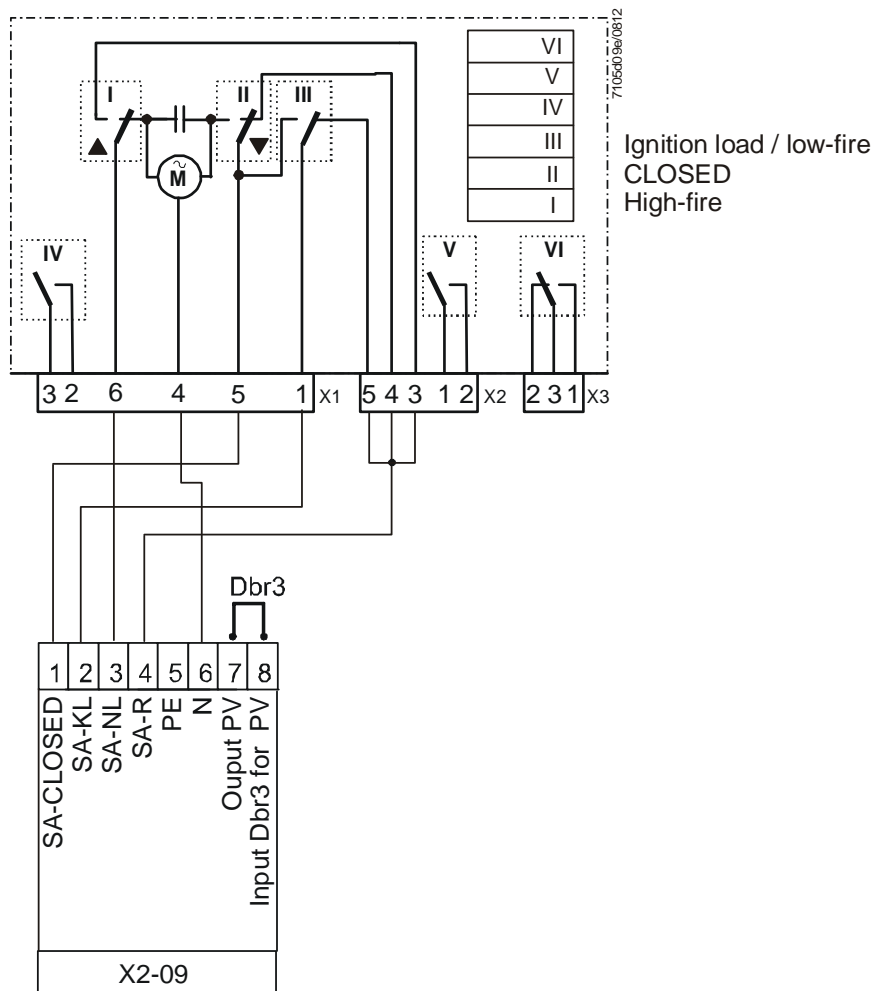


Figure 4: Connection diagram for LME72.000... with actuator SQM4...

9 Connection diagram for LME72.000... without actuator



Note:

The connection diagram shown is merely an example which must be verified in the individual case depending on the application!

**PME72.541... 1-stage
With pilot ignition
Without actuator
Without valve proving**

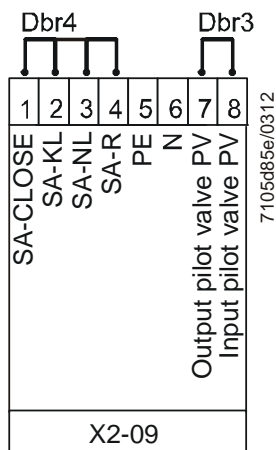


Figure 5: Connection diagram for LME73.000... without actuator

- When using the LME72.000... without actuator according to application *Gas direct ignition (G)*, *1-stage*, wire link Dbr4 must be fitted to the actuator's terminal X2-09 as shown above

10 Time table and settings

Type	Times in seconds															
	tw	TSA max.	t1 min.	t3 min.	t3n approx.	t4 min.	t5 min.	t8 min.	t9 approx.	t10 approx.	t11 approx.	t12 approx.	t22	1)	2)	3)
PME72.541...																
Requirements	2.5	3	30	6	2.5	9	8.5	15	3	15	300	300	t9+1	---	---	---
Factory setting	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Max.	2.5	3	---	---	---	---	---	---	---	---	---	---	---	1	0.45	0.45
Min.	---	---	30	6	---	9	8.5	15	---	---	---	---	---	0.3	0.3	---
Step size	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Legend

- tw Waiting time
- TSA Safety time
- t1 Prepurge time
- t3 Preignition time
- t3n Postignition time parameter 257 +0.3 seconds
- t4 Interval: End of safety time - fuel valve 1 ON
- t5 Interval: Pilot valve OFF - load controller release
- t8 Postpurge time
- t9 Interval: Fuel valve 1 ON and pilot valve OFF
- t10 Specified time air pressure switch message (timeout)
- t11 Opening time of actuator (timeout)
- t12 Closing time of actuator (timeout)
- t22 2nd safety time

- 1) Reaction time to a change of signal by the air pressure switch contact (opens) and flame-out response time in the event of loss of flame
- 2) Reaction time to a change of signal by the inputs (e.g. pressure switch-min)
- 3) Flame detection time

11 Inputs and outputs / internal connection diagram

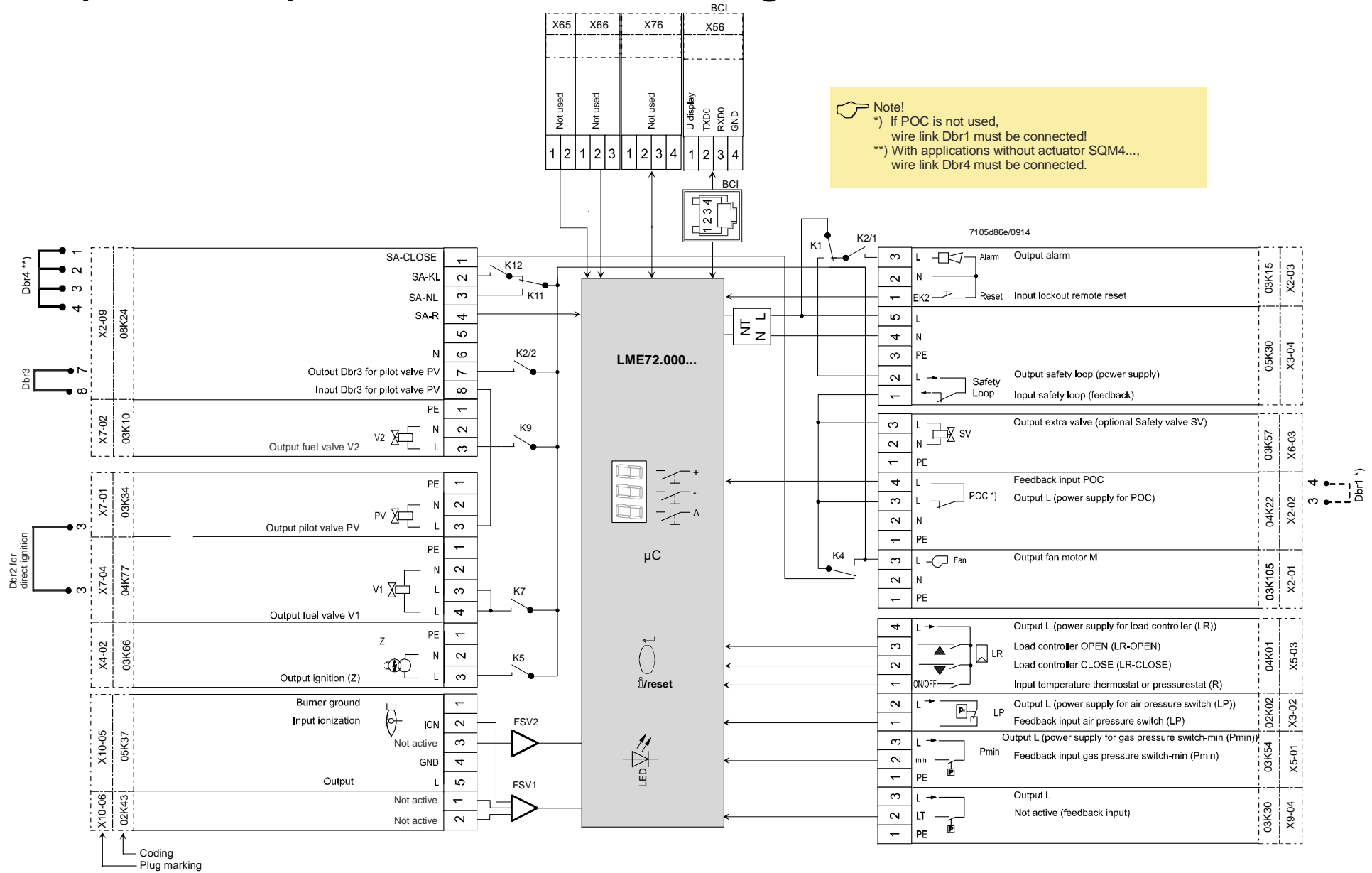


Figure 6: Inputs and outputs / internal connection diagram

12 Parameter list (AZL2...)




Parameter number	Parameter	Edit	Value range		Resolution	Factory setting	Password level reading from level	Password level writing from level
			Min.	Max.				
000	Internal parameter							
41	Heating engineer's password (4 characters)	Edit	xxxx	xxxx	---	---	---	OEM
42	OEM's password (5 characters)	Edit	xxxxx	xxxxx	---	---	---	OEM
60	Backup/restore	Edit	Restore	Backup	---	---	---	SO
100	General							
102	Identification date	Read only	---	---	---	---	Info	---
103	Identification number	Read only	0	9999	1	0	Info	---
113	Burner identification	Edit	x	xxxxxxxx	1	---	Info	SO
164	Number of startups resettable	Resettable	0	999999	1	0	Info	Info
166	Total number of startups	Read only	0	999999	1	0	Info	---
170.00	Switching cycles relay contact K12	Read only	0	999999	1	0	Info	---
170.01	Switching cycles relay contact K11	Read only	0	999999	1	0	Info	---
170.02	Switching cycles relay contact K2	Read only	0	999999	1	0	Info	---
170.03	Switching cycles relay contact K1	Read only	0	999999	1	0	Info	---
171	Max. switching cycles relay	Read only	0	999999	1	0	Info	---

Parameter number	Parameter	Edit	Value range		Resolution	Factory setting	Password level reading from level	Password level writing from level
			Min.	Max.				
700	Error history							
701	Current error: 00: Error code 01: Startup meter reading 02: HMI phase 03: Power value	Read only	2 0 --- 0%	255 999999 --- 100%	1 1 --- 1	---	Service	---
702	Error history former 1: 00: Error code 01: Startup meter reading 02: HMI phase 03: Power value	Read only	2 0 --- 0%	255 999999 --- 100%	1 1 --- 1	---	Service	---
• • •								
711	Error history former 10: 00: Error code 01: Startup meter reading 02: HMI phase 03: Power value	Read only	2 0 --- 0%	255 999999 --- 100%	1 1 --- 1	---	Service	---
900	Process data							
936	Normalized speed	Read only	0%	100%	0.01%	---	Service	---
951	Mains voltage	Read only	0 V	LME72.000A1: 175 V LME72.000A2: 350 V	1 V	---	Service	---
954	Flame intensity	Read only	0%	100%	1%	---	Service	---

13 Error code list

Error code	Clear text	Possible cause
AZL2...		
Loc: 2	No establishment of flame at the end of safety time	<ul style="list-style-type: none"> - Faulty or soiled fuel valves - Faulty or soiled flame detector - Poor adjustment of burner, no fuel - Faulty ignition equipment
Loc: 3	Air pressure faulty (air pressure switch welded in no-load position, decrease to specified time (air pressure switch flame-on response time))	<ul style="list-style-type: none"> Air pressure switch faulty - Loss of air pressure signal after specified time - Air pressure switch has welded in no-load position
Loc: 4	Extraneous light	Extraneous light during burner startup
Loc: 5	Air pressure faulty, air pressure switch welded in working position	<ul style="list-style-type: none"> Time supervision air pressure switch - Air pressure switch has welded in working position
Loc: 6	Fault of actuator	<ul style="list-style-type: none"> - Actuator faulty or blocked - Faulty connection - Wrong adjustment
Loc: 7	Loss of flame	<ul style="list-style-type: none"> Too many losses of flame during operation (limitation of repetitions) - Faulty or soiled fuel valves - Faulty or soiled flame detector - Poor adjustment of burner
Loc: 10	Error not relatable (application), internal error	Wiring error or internal error, output contacts, other faults
Loc: 14	POC error	Error valve closure control POC
Loc: 22	Safety loop open	<ul style="list-style-type: none"> - Gas pressure switch-max open - Safety limit thermostat cut out
Loc: 138	Restore process successful	Restore process successful
Loc: 139	No program module detected	No program module plugged in
Loc: 167	Manual locking	Manual locking
Loc: 206	AZL2... incompatible	Use the latest version
rSt Er1	Error in compatibility program module to basic unit during restore process	- Program sequence of program module does not match the basic unit
rSt Er2	Error in compatibility program module to basic unit during restore process	- Hardware of basic unit does not match the program module
rSt Er3	Error during restore process	<ul style="list-style-type: none"> - Program module faulty - Program module removed during restore process
bAC Er3	Fault of compatibility program module to basic unit during backup process	Program sequence of program module does not match the basic unit
Err PrC	Fault of program module	<ul style="list-style-type: none"> - Error in data content of program module - No program module fitted

14 Legend

AL	Alarm device
Dbr...	Wire link
	Lockout reset button (info button)
EK2	Remote lockout reset button
FSV	Flame signal amplifier
ION	Ionization probe
K...	Relay contact
LED	3-color signal lamp
LP	Air pressure switch
LR	Load controller
LR-OPEN	Load controller OPEN position
LR-CLOSED	Load controller CLOSED position
M	Fan motor
NT	Power supply unit
Pmax	Pressure switch-max
Pmin	Pressure switch-min
POC	Valve closure control (proof of closure)
PV	Pilot valve
R	Control thermostat or pressurestat
SA	Actuator
SA-KL	Actuator low-fire
SA-NL	Actuator high-fire
SA-R	Actuator feedback
SA-CLOSED	Actuator CLOSED
SA-ZL	Actuator ignition load
SK	Safety Loop
SV	Safety valve
V1	Fuel valve
V2	Fuel valve
Z	Ignition transformer
	Input/output signal 1 (ON)
	Input/output signal 2 (OFF)
	Permissible input signal 1 (ON) or 0 (OFF)

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