SIEMENS

LME75/LME76
Burner control

Basic Documentation

The LME75/LME76 and this basic documentation are intended for original equipment manufacturers (OEMs) using the LME75/LME76 in or on their products.

Software version V03.00 or higher

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Supplementary documentation

Product type	Designation	Documentation type	Documentation number
PME75.231Ax	Program module	User Documentation	A7156.7
PME75.811Ax	Program module	User Documentation	A7156.1
PME75.812Ax	Program module	User Documentation	A7156.3
PME75.831Ax	Program module	User Documentation	A7156.4
PME76.231Ax	Program module	User Documentation	A7156.8
PME76.811Ax	Program module	User Documentation	A7156.2
PME76.812Ax	Program module	User Documentation	A7156.6
PME76.831Ax	Program module	User Documentation	A7156.5
LME	Burner control	Environmental declaration	E7105 *)
LME	Burner control	Product range overview	Q7101
LME75/LME76	Burner control	Data sheet	N7156
PME	Program module	Environmental declaration	E7105.1 *)

*) On request only

> **Note!**
> This document only refers to the product type – not the *product designation*. See the table below for details.

Product type	Product designation
AZL2	Display and operating unit
LFS1	External flame safeguard
QRA7	UV flame detector
QRI	Infrared flame detector
SQN7	Actuator
SQM4	Actuator
SQM5	Actuator
QPL	Pressure switch
AGG3	Connector set
AGG9	Connector set
OCI410	BC interface
ACS410	PC software (on request)
ASZ	Potentiometer

Overview

1 Typographical conventions

1.1 Safety notes

This basic documentation contains notes that must be observed to ensure your personal safety and to prevent material damage. 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. |

| | **Caution** | means that minor personal injury or property damage **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. |

1.2 Qualified personnel

Only **qualified personnel** are allowed to start up and operate the unit. Qualified personnel in the context of the safety-related notes contained in this basic documentation are persons who are authorized to commission, ground, and tag units, systems, and electrical circuits in compliance with established safety practices and standards.

1.3 Correct use

Note the following:

The unit may only be used for 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 with care.

2 Overview

2.1 System makeup / Description of functions

The LME75/LME76 is a microprocessor-based burner control with matching system components for controlling and supervision of forced draft burners of medium to large capacity.

The LME75/LME76 is responsible for starting up and supervising 1-stage or 2-stage forced draft burners or forced draft burners with pneumatic/mechanical ratio control modulation in continuous operation.

Depending on the LME75 / LME76, flame supervision takes place during continuous operation with the following detectors or safeguards devices:

Continuous operation		
LME75	LME76	
●	---	QRA7 UV flame detector
●	---	QRI infrared flame detector
●	●	Ionization probe
---	●	LFS1 flame safeguard with RAR or ionization probe

Intermittent operation		
LME75	LME76	
---	●	LFS1 flame safeguard with QRA2/QRA4/QRA10 UV flame detector
---	●	LFS1 flame safeguard with QRA2/QRA4/QRA10 UV flame detector and ionization probe

- Applications in accordance with EN 267: Forced draft burner for liquid fuels
- Applications in accordance with EN 676: Forced draft burner for gaseous fuels
- Applications in accordance with EN 746-2: Industrial thermoprocessing equipment
  – Part 2: Safety requirements for combustion and fuel handling systems
- Type-tested and approved in accordance with DIN EN 298
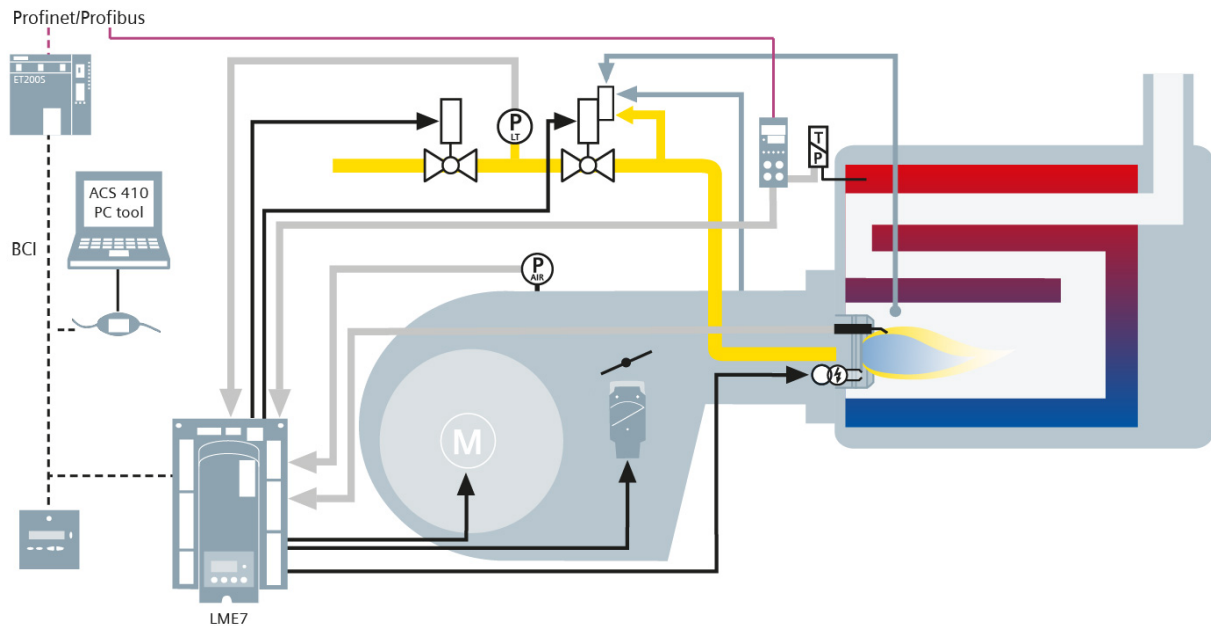
Figure 1: Example: Modulating gas burner

The diagram shows the maximum functionality of the LME75/LME76. The actual functions are to be determined based on the respective execution or configuration.

The system components for the LME75/LME76 (AZL2) are connected directly to the LME75/LME76 via the BC interface. All safety-related digital inputs and outputs of the system are monitored by a contact feedback network. For continuous operation, the ionization probe, QRA7, QRI, or LFS1 (including its flame detector RAR or ionization probe) can be used in connection with the LME75/LME76. The LME75/LME76 are operated and parameterized via the AZL2 or ACS410. The AZL2 features an LCD and menu-driven operation, offering straightforward operation and targeted diagnostics. When making diagnostics, the display shows operating states and the type of error. Passwords protect the different parameter levels of the burner/boiler manufacturer and heating engineer against unauthorized access. Simple settings that the plant operator can make on site do not require a password.

2.2 Indication and diagnostics

- Multicolor indication for operating state and fault status messages via 3-color LED
- Diagnostics of cause of error via blink code
- Extensive service, fault, and status information via built-in 3 x 7-segment display
- Extensive operating, fault, and status information via BCI and AZL2

2.3 Features

- Undervoltage detection
- Electrical remote lockout reset facility
- Accurate control sequence thanks to digital signal handling
- Multicolor indication of fault status and operating status messages
- Air pressure supervision with function check of air pressure switch during start and operation (depending on PME75/PME76 and the respective parameterization)
- Limitation of restarts
- Parameterizable, controlled intermittent operation after a maximum 24 hours of continuous operation (parameter 239 = 1) e.g., for applications involving an LFS1 flame safeguard and its QRA2/QRA4/QRA10 flame detector
- Continuous operation (parameter 239 = 0)
- BC interface
- The parameters for the LME75/LME76 can be set via the display or the ACS410
- Plug-in space for PME75/PME76

The following items are integrated into the LME75/LME76:
- BC interface for connecting a AZL2 or PC
- Lockout reset button (info button)
- 3-multi color signal lamp (LED) for operating status and fault status messages (lockout reset button (info button) and 3 additional buttons for operation in connection with 3 x 7-segment display)
- Analog inputs for load controller 0…10 V DC, DC 0/4…20 mA, 0…135 Ω
- Interface for PME75/PME76
- 3 x 7-segment display for service, fault and status information
- Control for one actuator
- Control for a PWM fan motor (depending on PME75/PME76 and the respective parameterization)

2.4 LME75/LME76

Parameterized LME75/LME76 for the supervision of multistage or modulating forced draft oil/gas burners and atmospheric burners of medium to large capacity in continuous operation. With controlled air damper control.

Article no.	S55333-B201-A100	S55333-B203-A100	S55333-B202-A100	S55333-B204-A100
Type	LME75.000A1	LME76.000A1	LME75.000A2	LME76.000A2
Mains voltage 120 V AC	●	●	---	---
Mains voltage 230 V AC	---	---	●	●
Pressure switch-min / pressure switch-max or POC → Depending on the PME75/PME76 and respective parameterization	●	●	●	●
Pressure switch valve proving → Depending on the PME75/PME76 and respective parameterization	●	●	●	●
Air pressure switch	●	●	●	●
Ionization probe	●	●	●	●
QRA7	●	---	●	---
QRI	●	---	●	---
LFS1	---	●	---	●
Load controller analog input signal (0…10 V, 4…20 mA, 0…135 Ω)	●	●	●	●
Load controller input, 3-position step input or 2-stage	●	●	●	●
Actuator control output	●	●	●	●
Input 0…1 kΩ of the feedback from an actuator with ASZ	●	●	●	●
Output PWM fan motor (on request)	●	●	●	●
Onboard LED 7-segment display	●	●	●	●
BC interface for AZL2 and OCI410 with ACS410	●	●	●	●
Continuous operation (intermittent mode parameterized)	●	●	●	●

2.5 PME75/PME76 for 120 V AC mains voltage

PME75/PME76 for the LME75/LME76, with oil or gas burner program sequences for the LME75/LME76

Example:

	PME75.231A1	PME75.811A1	PME75.812A1	PME75.831A1	PME76.231A1	PME76.811A1	PME76.812A1	PME76.831A1
Article no.	S55333-B301-A100	S55333-B303-A100	S55333-B305-A100	S55333-B307-A100	S55333-B309-A100	S55333-B311-A100	S55333-B313-A100	S55333-B315-A100
Mains voltage 120 V AC	●	●	●	●	●	●	●	●
For use with LME75.000A1	●	●	●	●	---	---	---	---
For use with LME76.000A1	---	---	---	---	●	●	●	●
Forced draft burner gas program	---	●	●	●	---	●	●	●
Atmospheric burner gas program	---	●	●	●	---	●	●	●
Forced draft oil burner	●	---	---	●	●	---	---	●
1-stage or 1-stage modulating	---	●	●	●	---	●	●	●
2-stage or 1-stage modulating	●	●	●	●	●	●	●	●
Simultaneous pilot burners	---	●	●	---	---	●	●	---
Alternating pilot burners	●	●	●	●	●	●	●	●
Modulating via actuator (pneumatic or mechanical fuel-air ratio control)	●	●	●	●	●	●	●	●
Actuator control via analog signal or 3-position step signal for actuator with ASZ → depending on the parameterization	●	●	●	●	●	●	●	●
3-position signal for actuator without ASZ	●	●	●	●	●	●	●	●
Control sequence programmable time	●	●	●	●	●	●	●	●
POC → depending on the parameterization	●	●	●	---	●	●	●	---
Leakage control → depending on the parameterization	---	●	---	●	---	●	---	●

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Article no.	S55333-B301-A100	S55333-B303-A100	S55333-B305-A100	S55333-B307-A100	S55333-B309-A100	S55333-B311-A100	S55333-B313-A100	S55333-B315-A100
Type	PME75.231A1	PME75.811A1	PME75.812A1	PME75.831A1	PME76.231A1	PME76.811A1	PME76.812A1	PME76.831A1
Valve proving input ON/OFF (via external switch) $\rightarrow$ depending on the parameterization	---	---	---	●	---	---	---	●
Gas pressure switch-max $\rightarrow$ depending on the parameterization	---	●	●	●	---	●	●	●
Oil pressure switch-min / oil pressure switch-max $\rightarrow$ depending on the parameterization	●	---	---	---	●	---	---	---
Oil preheater / oil temperature limiter $\rightarrow$ depending on the parameterization	●	---	---	---	●	---	---	---

2.6 PME75/PME76 for 230 V AC mains voltage

PME75/PME76 for the LME75/LME76, with oil or gas burner program sequences for the LME75/LME76

Example:

	S55333-B302-A100 PME75.231A2	S55333-B304-A100 PME75.811A2	S55333-B306-A100 PME75.812A2	S55333-B308-A100 PME75.831A2	S55333-B310-A100 PME76.231A2	S55333-B312-A100 PME76.811A2	S55333-B314-A100 PME76.812A2	S55333-B316-A100 PME76.831A2
Article no. / Type								
Mains voltage 230 V AC	●	●	●	●	●	●	●	●
For use with LME75.000A2	●	●	●	●	---	---	---	---
For use with LME76.000A2	---	---	---	---	●	●	●	●
Forced draft burner gas program	---	●	●	●	---	●	●	●
Atmospheric burner gas program	---	●	●	●	---	●	●	●
Forced draft oil burner	●	---	---	●	●	---	---	●
1-stage or 1-stage modulating	---	●	●	●	---	●	●	●
2-stage or 1-stage modulating	●	●	●	●	●	●	●	●
Simultaneous pilot burners	---	●	●	---	---	●	●	---
Alternating pilot burners	●	●	●	●	●	●	●	●
Modulating via actuator (pneumatic or mechanical fuel-air ratio control)	●	●	●	●	●	●	●	●
Actuator control via analog signal or 3-position step signal for actuator with ASZ → depending on the parameterization	●	●	●	●	●	●	●	●
3-position signal for actuator without ASZ	●	●	●	●	●	●	●	●
Control sequence programmable time	●	●	●	●	●	●	●	●
POC → depending on the parameterization	●	●	●	---	●	●	●	---
Leakage control → depending on the parameterization	---	●	---	●	---	●	---	●
Valve proving input ON/OFF (via external switch) → depending on the parameterization	---	---	---	●	---	---	---	●

Article no.	S55333-B302-A100	S55333-B304-A100	S55333-B306-A100	S55333-B308-A100	S55333-B310-A100	S55333-B312-A100	S55333-B314-A100	S55333-B316-A100
Type	PME75.231A2	PME75.811A2	PME75.812A2	PME75.831A2	PME76.231A2	PME76.811A2	PME76.812A2	PME76.831A2
Gas pressure switch-max → depending on the parameterization	---	●	●	●	---	●	●	●
Oil pressure switch-min / oil pressure switch-max → depending on the parameterization	●	---	---	---	●	---	---	---
Oil preheater / oil temperature limiter → depending on the parameterization	●	---	---	---	●	---	---	---

2.7 Display units / operating units and accessories

Article no.	Type	
BPZ:AZL21.00A9	AZL21.00A9	Display and operating unit • Seperat unit for a choice of mounting methods featuring LCD • 8 digits • 5 buttons • BC interface for LME75/LME76 • Protection type IP40. Refer to data sheet N7542
BPZ:AZL23.00A9	AZL23.00A9	Display and operating unit • Seperat unit for a choice of mounting methods featuring LCD • 8 digits • 5 buttons • BC interface for LME75/LME76 • Protection type IP54. Refer to data sheet N7542
---	---	3-color LED • Installed in LME75/LME76 • Lockout reset button (info button) • 3 other buttons for operation in connection with 3 x 7-segment display
BPZ:AGV50.100	AGV50.100	Signal cable for AZL2 • With RJ11 connector • Cable length 1 m • Packs of 10 pieces Every LME75/LME76 must come complete with a cable to connect it to the AZL2.

2.8 LFS1

☞ Note!
Depending on the flame detector used.

LME76 only
External flame safeguard with approval for continuous operation for the supervision of oil and gas flames.
Refer to data sheet N7782

Article no.	ASN	Flame detector	Operating mode	
BPZ:LFS1.11A1 BPZ:LFS1.11A2	LFS1.11A1 LFS1.11A2	RAR9	Continuous operation	
BPZ:LFS1.21A1 BPZ:LFS1.21A2	LFS1.21A1 LFS1.21A2	Ionization probe	Continuous operation	
BPZ:LFS1.21A1 BPZ:LFS1.21A2	LFS1.21A1 LFS1.21A2	QRA2/QRA4/QRA10	Intermittent	
BPZ:LFS1.21A1 BPZ:LFS1.21A2	LFS1.21A1 LFS1.21A2	Ionization probe + QRA2/QRA4/QRA10	Intermittent	

2.9   QRA7

UV flame detector for use with Siemens burner controls for the supervision of gas and oil flames. Refer to data sheet N7712.

Article no.	Type	Mains voltage	Detector tube length
BPZ:QRA73.A17	QRA73.A17	120 V AC	125 mm
BPZ:QRA73.A27	QRA73.A27	230 V AC	125 mm
BPZ:QRA75.A17	QRA75.A17	120 V AC	69 mm
BPZ:QRA75.A27	QRA75.A27	230 V AC	69 mm

2.10 QRI

Infrared flame detector for use with Siemens burner controls for the supervision of gas, oil and other flames that emit infrared light.
Refer to data sheet N7719.

Article no.	Type	
BPZ:QRI2A2.B180B	QRI2A2.B180B	• Frontal illumination • Cable length 180 cm • Stripped
BPZ:QRI2B2.B180B	QRI2B2.B180B	• Lateral illumination • Cable length 180 cm • Stripped
BPZ:QRI2B2.B180B1	QRI2B2.B180B1	• Lateral illumination • Cable length 180 cm • Stripped • Accessory 4 241 8855 0 Flange with radius and clamp

2.11 Ionization probe

Article no.	Type	
Supplied by customer	Supplied by customer	Ionization probe for use with Siemens burner controls for the supervision of gas flames.

2.12 SQN70/SQN71

Electromotoric actuators for air dampers and control valves for oil and gas burners of small to medium capacity.
Holding torque 0.7 Nm to 2.5 Nm.
Running time from 2.5 s to 30 s.
Refer to data sheet N7804 for other types.

Article no.	Type	
BPZ:SQN70.664A20	**SQN70.664A20**	- Diagram no. 6 - Shaft no. 0 - Running time 30 s - Operating torque 2.5 Nm - Holding torque 1.3 Nm - Without potentiometer - Direction of rotation left 230 V AC
BPZ:SQN71.664A10	**SQN71.664A10**	- Diagram no. 6 - Shaft no. 0 - Running time 30 s - Operating torque 2.5 Nm - Holding torque 1.3 Nm - Without potentiometer - Direction of rotation right 120 V AC
BPZ:SQN71.664A20	**SQN71.664A20**	- Diagram no. 6 - Shaft no. 0 - Running time 30 s - Operating torque 2.5 Nm - Holding torque 1.3 Nm - Without potentiometer - Direction of rotation right 230 V AC

2.13 SQN72

Electromotoric actuators for air dampers and control valves for oil and gas burners of small to medium capacity.
Holding torque 0.7 Nm to 2.5 Nm.
Running time from 4 s to 30 s.
Refer to data sheet N7802 for other types.

Article no.	Type	
BPZ:SQN72.6C4A20	**SQN72.6C4A20**	- Diagram C - Shaft no. 1 - Running time 30 s - Operating torque 2.5 Nm - Holding torque 1.3 Nm - With potentiometer - Direction of rotation left 230 V AC

2.14 Actuator SQM40

Electromotoric actuators for air dampers and control valves for oil and gas burners of small to medium capacity.
Holding torque 5 Nm to 10 Nm. Running time from 15 s to 30 s.
Refer to data sheet N7817 for other types.

Article no.	Type	
BPZ:SQM40.281A20	**SQM40.281A20**	• Direction of rotation left • Torque 10 Nm • Running time 30 s • Diagram 8 • 3-position step modulation • Shaft no. 1 • European version • 230 V AC • Without potentiometer
BPZ:SQM40.285R11	**SQM40.285R11**	• Direction of rotation left • Torque 10 Nm • Running time 30 s • Diagram 8 • 3-position step modulation • Shaft no. 5 • US version / Canadian version • 120 V AC • With 90° double potentiometer
BPZ:SQM40.387A20	**SQM40.387A20**	• Direction of rotation left • Torque 18 Nm • Running time 65 s • Diagram 8 • 3-position step modulation • Shaft no. 7 • European version • 230 V AC • Without potentiometer

2.15 Actuator SQM41

Electromotoric actuators for air dampers and control valves for oil and gas burners of small to medium capacity.
Holding torque 5 Nm to 10 Nm. Running time from 15 s to 30 s.
Refer to data sheet N7817 for other types.

Article no.	Type	
BPZ:SQM41.285R11	SQM41.285R11	• Direction of rotation right • Torque 10 Nm • Running time 30 s • Diagram 8 • 3-position step modulation • Shaft no. 5 • US version / Canadian version • 120 V AC • With 90° double potentiometer
BPZ:SQM41.367A21	SQM41.367A21	• Direction of rotation right • Torque 18 Nm • Running time 65 s • Diagram 6 • 3-position step modulation • Shaft no. 7 • European version • 230 V AC • With 90° double potentiometer
BPZ:SQM41.387R11	SQM41.387R11	• Direction of rotation right • Torque 18 Nm • Running time 65 s • Diagram 8 • 3-position step modulation • Shaft no. 7 • US version / Canadian version • 120 V AC • With 90° double potentiometer

2.16 Actuator SQM5

Electromotoric actuators for air dampers and control valves for oil and gas burners of medium to large capacity.
Holding torque 10 Nm to 40 Nm.
Running time from 15 s to 60 s.
By exchanging the 2 motor connecting cables, the actuator's direction of rotation can be changed from counterclockwise to clockwise (factory settings: counterclockwise).
Refer to data sheet N7815 for other types.

Article no.	Type	
BPZ:SQM50.480A1	SQM50.480A1	• Torque / holding torque 15 Nm • Running time 34 s at 90° • Running time 49 s at 130° • 120 V AC
BPZ:SQM50.480A2	SQM50.480A2	• Torque / holding torque 15 Nm • Running time 34 s at 90° • Running time 49 s at 130° • 230 V AC
BPZ:SQM50.680A1	SQM50.680A1	• Torque / holding torque 15 Nm • Running time 68 s at 90° • Running time 98 s at 130° • 120 V AC
BPZ:SQM53.480A1	SQM53.480A1	• Torque / holding torque 25 Nm • Running time 30 s at 90° • Running time 43 s at 130° • 120 V AC
BPZ:SQM53.580A1	SQM53.580A1	• Torque / holding torque 25 Nm • Running time 45 s at 90° • Running time 65 s at 130° • 120 V AC
BPZ:SQM54.480A2	SQM54.480A2	• Torque / holding torque 25 Nm • Running time 30 s at 90° • Running time 43 s at 130° • 230 V AC
BPZ:SQM54.580A2	SQM54.580A2	• Torque / holding torque 25 Nm • Running time 45 s at 90° • Running time 65 s at 130° • 230 V AC
BPZ:SQM56.680A1	SQM56.680A1	• Torque / holding torque 40 Nm • Running time 60 s at 90° • Running time 87 s at 130° • 120 V AC
BPZ:SQM56.680A2	SQM56.680A2	• Torque / holding torque 40 Nm • Running time 60 s at 90° • Running time 87 s at 130° • 230 V AC

2.17 QPL pressure switch

The pressure switch is used to supervise gas or air pressure.
Refer to data sheet N7221.

QPLx5 with automatic reset:

Pressure range	O-Ring connection	
	Type	Article no.
0.1…0.3 kPa	QPL15.003B	S55722-S106-A100
0.2…1 kPa	QPL15.010B	S55722-S107-A100
0.5…5 kPa	QPL15.050B	S55722-S108-A100
0.5…15 kPa	QPL15.150B	S55722-S109-A100
10…50 kPa	QPL15.500B	S55722-S110-A100

Pressure range	¼" connection	
	Type	Article no.
0.1…0.3 kPa	QPL25.003B	S55722-S101-A100
0.2…1 kPa	QPL25.010B	S55722-S102-A100
0.5…5 kPa	QPL25.050B	S55722-S103-A100
0.5…15 kPa	QPL25.150B	S55722-S104-A100
10…50 kPa	QPL25.500B	S55722-S105-A100

2.18 Dummy plug for RJ11

Article no.	Type	
---	---	• For 6-pin modular plug (RJ11) • Supplier recommendation: • Molex, order number: 085 999 3256

2.19 AGG3 connector sets for LME75/LME76

Article no.	Type		
BPZ:AGG3.710	**AGG3.710**	• Complete connector set • RAST5 and RAST3.5 • Single pack See parts list C7105 (74 319 0642 0)	Example: Terminal X5-03
BPZ:AGG3.720	**AGG3.720**	• 10 complete standard connector sets • RAST5 and RAST3.5 • Packing in bags of 10 pieces for each connector type See parts list C7105 (74 319 0642 0)	

2.20 AGG9 connector sets for LME75/LME76

The individual connectors are delivered in packages of up to 200 pieces each.

Article no.	Type	
BPZ:AGG9.201	AGG9.201	Terminal X2-09B (RAST5)
BPZ:AGG9.203	AGG9.203	Terminal X3-02 (RAST5)
BPZ:AGG9.209	AGG9.209	Terminal X10-06 (RAST5)
BPZ:AGG9.301	AGG9.301	Terminal X2-01 (RAST5)
BPZ:AGG9.302	AGG9.302	Terminal X2-03 (RAST5)
BPZ:AGG9.304	AGG9.304	Terminal X4-02 (RAST5)
BPZ:AGG9.306	AGG9.306	Terminal X5-01 (RAST5)
BPZ:AGG9.309	AGG9.309	Terminal X6-03 (RAST5)
BPZ:AGG9.310	AGG9.310	Terminal X7-01 (RAST5)
BPZ:AGG9.311	AGG9.311	Terminal X7-02 (RAST5)
BPZ:AGG9.313	AGG9.313	Terminal X9-04 (RAST5)
BPZ:AGG9.401	AGG9.401	Terminal X2-02 (RAST5)
BPZ:AGG9.403	AGG9.403	Terminal X5-03 (RAST5)
BPZ:AGG9.405	AGG9.405	Terminal X7-04 (RAST5)
BPZ:AGG9.501	AGG9.501	Terminal X3-04 (RAST5)
BPZ:AGG9.504	AGG9.504	Terminal X10-05 (RAST5)
BPZ:AGG9.601	AGG9.601	Terminal X2-09A (RAST5)
BPZ:AGG9.822	AGG9.822	Terminal 65, 2-pole (RAST3.5)
BPZ:AGG9.831	AGG9.831	Terminal 66, 3-pole (RAST3.5)
BPZ:AGG9.841	AGG9.841	Terminal 76, 4-pole (RAST3.5)

Example: X5-03

2.21 OCI410 service tools

Service tool between burner control and PC.
Facilitates viewing, processing, and recording of setting parameters on site using the ACS410.
Refer to data sheet N7616.

Article no.	Type	
BPZ:OCI410.30	**OCI410.30**	• Heating engineer version (standard) • Parameter change possible for the *heating engineer* password level
BPZ:OCI410.40	**OCI410.40**	• OEM version • Parameter change possible for the *OEM and heating engineer*

2.22 PC software ACS410

PC software for parameterization and visualization of the burner control.
On request.
Refer to software documentation J7352.

3 Mounting/assembly

3.1 Mounting notes

- Ensure that the relevant national safety regulations are complied with
- In the geographical areas where DIN regulations are in use, the requirements of VDE must be complied with, especially DIN/VDE 0100, 0550 and DIN/VDE 0722
- The LME75/LME76 must be secured with fixing screws M4 (UNC32) or M5 (UNC24), observing a maximum tightening torque of 1.8 Nm at all 3 fixing points. The additional mounting surfaces on the housing are provided to improve mechanical stability. These must fully rest on the mounting surface to which the unit is secured. The flatness of that mounting surface must be within a tolerance band of 0.3 mm
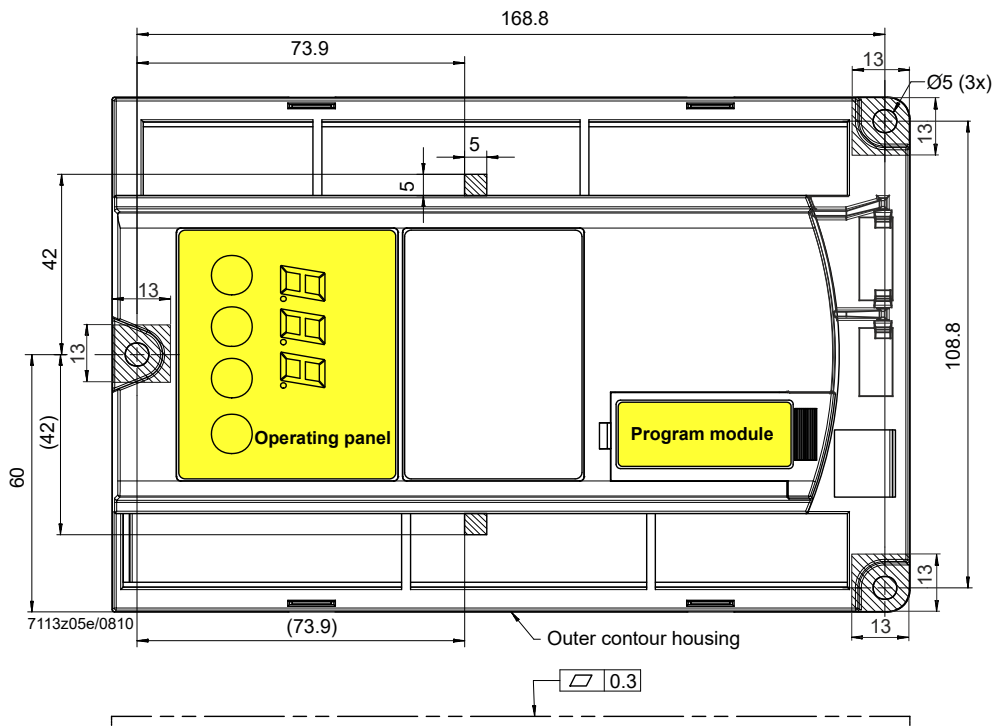
Figure 2: Mounting – mounting surfaces

Mounting surfaces

3.2 Standards and certificates

Applied directives:

- Low Voltage Directive 2014/35/EU
- Pressure Equipment Directive 2014/68/EU
- Electromagnetic Compatibility EMC (immunity) *) 2014/30/EU
- Gas Appliances Regulation .... (EU) 2016/426

*) The compliance with EMC emission requirements must be checked after the burner control is installed in the equipment

Compliance with the regulations of the applied directives is verified by the adherence to the following standards/regulations:

- Automatic burner control systems for burners and appliances burning gaseous or liquid fuels .... DIN EN 298
- Safety and control devices for gas burners and gas-burning appliances – Valve proving systems for automatic shutoff valves .... DIN EN 1643
- Safety and control devices for gas burners and gas-burning appliances – General requirements .... DIN EN 13611
- Automatic electrical controls for household and similar use Parts 2–5: Special requirements on automatic electric burner control and monitoring systems .... DIN EN 60730-2-5

The edition of the standards that applies in each case can be found in the declaration of conformity.

☞ Note on **DIN EN 60335-2-102**!
Household and similar electrical appliances – Safety – Part 2-102: Particular requirements for gas, oil and solid-fuel burning appliances having electrical connections. The electrical connections of the LME75/LME76 comply with the requirements of EN 60335-2-102.

EAC Conformity (Eurasian Conformity)

ISO 9001:2015
ISO 14001:2015
OHSAS 18001:2007

China RoHS
Hazardous substances table:
http://www.siemens.com/download?A6V10883536

DVGW   TÜV SÜD …   DIN Geprüft   c CSA us

120 V AC variants only

FM Approvals   c UL

SIL3 classification to DIN EN 13611

SIL3

Suitable for use in safety-related, industrial applications up to safety level SIL3 (safety integrity level 3).

The following parameters apply:

Burner control	Flame detector / Flame safeguard	Operating mode	SIL level	PFH$_D$ [1/h]	Total
LME75	Ionization probe	Continuous operation	SIL3	$3.0 \cdot 10^{-8}$	97%
LME75	Ionization probe and QRI	Continuous operation	SIL3	$3.1 \cdot 10^{-8}$	97%
LME75	Ionization probe and QRA7	Continuous operation	SIL3	$4.0 \cdot 10^{-8}$	99%
LME76	Ionization probe	Continuous operation	SIL3	$3.0 \cdot 10^{-8}$	97%
LME76	LFS1.11Ax with RAR9	Continuous operation	SIL3	$4.3 \cdot 10^{-8}$	97%
LME76	LFS1.21Ax with ionization probe	Continuous operation	SIL3	$4.3 \cdot 10^{-8}$	97%

⚠️ **Caution!**
Only permitted in intermittent operation (where continuous operation is < 24 hours)
Parameter 239 = 1 and parameter 218 = 80050.31 seconds
or with external control via heat request of no more than 24 hours.

LME76	LFS1.21Ax with QRA2 / QRA4 / QRA10	Intermittent (< 24 hours)	SIL2	$2.5 \cdot 10^{-7}$	99%
LME76	LFS1.21Ax with ionization probe and QRA2 / QRA4 / QRA10	Intermittent (< 24 hours)	SIL2	$2.5 \cdot 10^{-7}$	99%

⚠️ **Caution!**
Only permitted with a maximum operating duration in intermittent mode (< 1 hour of continuous operation)
Parameter 239 = 1 and parameter 218 = 3589.7 seconds
or with external control via heat request of no more than 1 hour.

LME76	LFS1.21Ax with QRA2 / QRA4 / QRA10	Maximum operating duration in intermittent mode (< 1 hour)	SIL3	$6.3 * 10^{-8}$	99%

4 Safety notes
4.1 Warning notes

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

The LME75/LME76 is a safety device. Do not open, interfere with or modify the unit. Siemens does not assume responsibility for damage resulting from unauthorized interference!

This document also contains additional warning notes that must be observed.

- All activities (mounting, installation, service work, etc.) must be performed by qualified staff
- The burner or boiler manufacturer must ensure degree of protection IP40 for the LME75/LME76 as per DIN EN 60529 through proper installation. Failure to observe this information poses a risk of electric shock
- Before carrying out any wiring changes in the connection area, isolate the plant from power supply (all-polar disconnection). Ensure that the plant cannot be inadvertently switched on again and that it is indeed dead. Failure to observe this information poses a risk of electric shock
- Take suitable measures to provide protection against accidental contact at the electrical connections. All connections must be fitted with corresponding AGG plugs. Failure to observe this information poses a risk of electric shock
- Ensure protection against electric shock on the LME75/LME76 and on all connected electrical components through proper installation. In terms of design, stability, and protection, covers must conform to EN 60730. Failure to observe this information poses a risk of electric shock
- The area around the PME75/PME76 is defined as plugging space and therefore protected against brush contact when the PME75/PME76 is not plugged in
- Each time work has been carried out (mounting, installation, service work, etc.), check to ensure that wiring and parameterization is in an orderly state and perform the safety checks as described in chapter 7.1 "Startup notes". Failure to observe this poses a risk of damaging the safety functions and the risk of electric shock
- If the housing or the area near the operating panel is damaged, the unit must be taken out of operation immediately. Failure to observe this information poses a risk of electric shock
- Only press the buttons on the operating panel manually, without using any tools or pointed objects. Damage to the film poses a risk of electric shock
- The data line for the AZL2 or other accessories, such as the OCI410 (plugs into the BC interface), must only be connected or disconnected when the unit is dead (all-polar disconnection), since the BC interface does not ensure safe separation from the mains voltage. Failure to observe this information poses a risk of electric shock
- If the BC interface (jack RJ11) is not used, protection against electric shock hazard must be provided (jack must be covered up). Failure to observe this information poses a risk of electric shock
- Units must not be put into operation after a fall or shock, as this can adversely affect the safety functions even if the units do not exhibit any external signs of damage. Failure to observe this poses a risk of damaging the safety functions and the risk of electric shock
- To ensure protection against electric shock hazard, make certain that, prior to switching on the mains power, the signal cable AGV50 is correctly connected to the AZL2
- The ionization probe is not protected against electric shock hazard. Protection against accidental contact must be ensured. Failure to observe this information poses a risk of electric shock

To ensure safety and reliability of the LME75/LME76, the following points must also be observed:

- Avoid condensation and damp environments. If such conditions do occur, make sure that the unit is completely dry before switching on again. Failure to observe this information poses a risk of electric shock
- Static charges must be avoided since they can damage the electronic components on contact.
  Recommendation: Use ESD equipment

4.2 Installation notes

- Always run the high-voltage ignition cables separately from the unit and other cables while observing the greatest possible distances
- Do not mix up phase and neutral conductors
- Install switches, fuses and grounding in accordance with local regulations
- Risk of damage to the switching contacts!
  If the external primary fuse (Si) is blown due to overload or short-circuit at the terminals, the LME75/LME76 must be replaced.
- The connection diagrams show the LME75/LME76 with earthed neutral conductor. When monitoring ionization currents in earth-free mains, connect terminal X10-06 pin 1 to burner ground. It is essential to ensure that local regulations are complied with (e.g., protection against electric shock) since 230 V AC (50/60 Hz) mains voltage produces a leakage current of 2.7 mA
- Do not exceed the maximum permissible current rating of the connection terminals
- Ensure that the electrical wiring inside the burner complies with national and local regulations
- Do not feed external (mains) voltage to the control outputs of the LME75/LME76. When checking the functions of the burner components controlled by the LME75/LME76 (fuel valves or similar), the LME75/LME76 must not be connected to the burner components
- Mains power may only be supplied via *L* and *N*. There must be no difference in potential between the neutral conductor *N* and protective earth *PE*
- Make certain that strain relief of the connected cables is in compliance with the relevant standards (e.g., as per DIN EN 60730 and DIN EN 60335)
- Ensure that spliced wires cannot come into contact with neighboring terminals. Use suitable ferrules. Failure to observe this information poses a risk of loss of safety functions and a risk of electric shock
- Unused connections on the LME75/LME76 must be fitted with a corresponding AGG plug by the burner manufacturer
- The connectors on the connecting cables for the LME75/LME76 may only be removed or replaced when the plant is shut down (all-polar disconnection), since the connections – particularly the BC interface – do not provide safe separation from the mains voltage
- The mechanical coupling between the actuators and the controlling elements for fuel and combustion air, or any other controlling elements, must be rigid
- Since the BC interface has no safe separation from mains voltage, the signal cable AGV50 from the LME75/LME76 to the AZL2 must conform to certain specifications. Siemens has specified the signal cable AGV50 for use under the burner hood; refer to *Technical data*. When using other signal cables, it is not guaranteed that the required cable features will be available
- Do not lay the signal cable AGV50 from the LME75/LME76 to the AZL2 together with other cables
- Service operation with a longer signal cable from the LME75/LME76 to the AZL2 or from the LME75/LME76 to OCI410.
  If a longer signal cable is required for service work, for example (short-time, < 24 hours), note that the above usage under the burner hood no longer applies and, for this reason, the signal cable can be subjected to increased mechanical stress. Extra cable sheathing is therefore required
- Both the signal cable AGV50 and the AZL2 must be shipped and stored so that no damage due to dust and water can occur when used in the plant later on
- The AZL2 must be used in a dry and clean environment
- Check the connecting cables for the supervision device inputs (e.g., the air pressure switch) for signs of a short circuit

4.3   Electrical connection of the flame detectors

It is important to achieve practically disturbance-free and loss-free signal transmission:
- Never run the detector cable together with other cables
  – Line capacitance reduces the magnitude of the flame signal
  – Use a separate cable
- Observe the permissible detector cable lengths; refer to the *Technical data*
- The ionization probe is not protected against electric shock hazard. Protection against accidental contact must be ensured
- Position the ignition electrode and the ionization probe in such a way that the ignition spark cannot arc over to the ionization probe (risk of electrical overloads) or adversely affect the ionization supervision process
- Insulation resistance
  – Must be > 50 MΩ between ionization probe and ground
  – Soiled detector holders reduce the insulation resistance, thus supporting creepage currents
- Earth the burner in compliance with the relevant regulations; earthing the boiler alone does not suffice
- The QRA7 or QRI must not be connected to the LME76. Failure to observe this information will result in the LME76, QRA7 or QRI becoming defective
- In the case of simultaneous operation of the ionization probe, QRA7, QRI, or LFS1, it is essential to observe the settings for the parameters outlined in chapter 10.4 "Ionization probe terminal X10-06", chapter 0 "

- QRA7/QRI terminal X10-05 (LME75 only)", and chapter 10.6 "LFS1 terminal X10-05 (LME76 only)"! Failure to observe this information poses a risk of damaging the safety functions
- An LFS1 or the connection between terminal X10-05 pin 5 and terminal X10-05 pin 1 must not be connected to the LME75. Failure to observe this information will result in the LME75 becoming defective

4.4   Disposal notes

The unit contains electrical and electronic components and must not be disposed of together with domestic waste.
Local and currently valid legislation must be complied with.

5 Lifetime

The LME75/LME76 has a designed lifetime* of 250,000 burner startup cycles which, under normal operating conditions in heating mode, corresponds to approx. 10 years of usage (starting from the date of manufacture on the nameplate). This lifetime is based on the endurance tests specified in standard EN 298. A summary of the conditions has been published by the European Control Manufacturers Association (Afecor) (www.afecor.org).

The designed lifetime is based on use of the LME75/LME76 according to the manufacturer's data sheet and the basic documentation. After reaching the designed lifetime in terms of the number of burner startup cycles, or after the corresponding usage time, the LME75/LME76 must be replaced by authorized personnel.

* The designed lifetime is not the warranty time specified in the terms of delivery.

6 Wiring

6.1 Inputs/Outputs
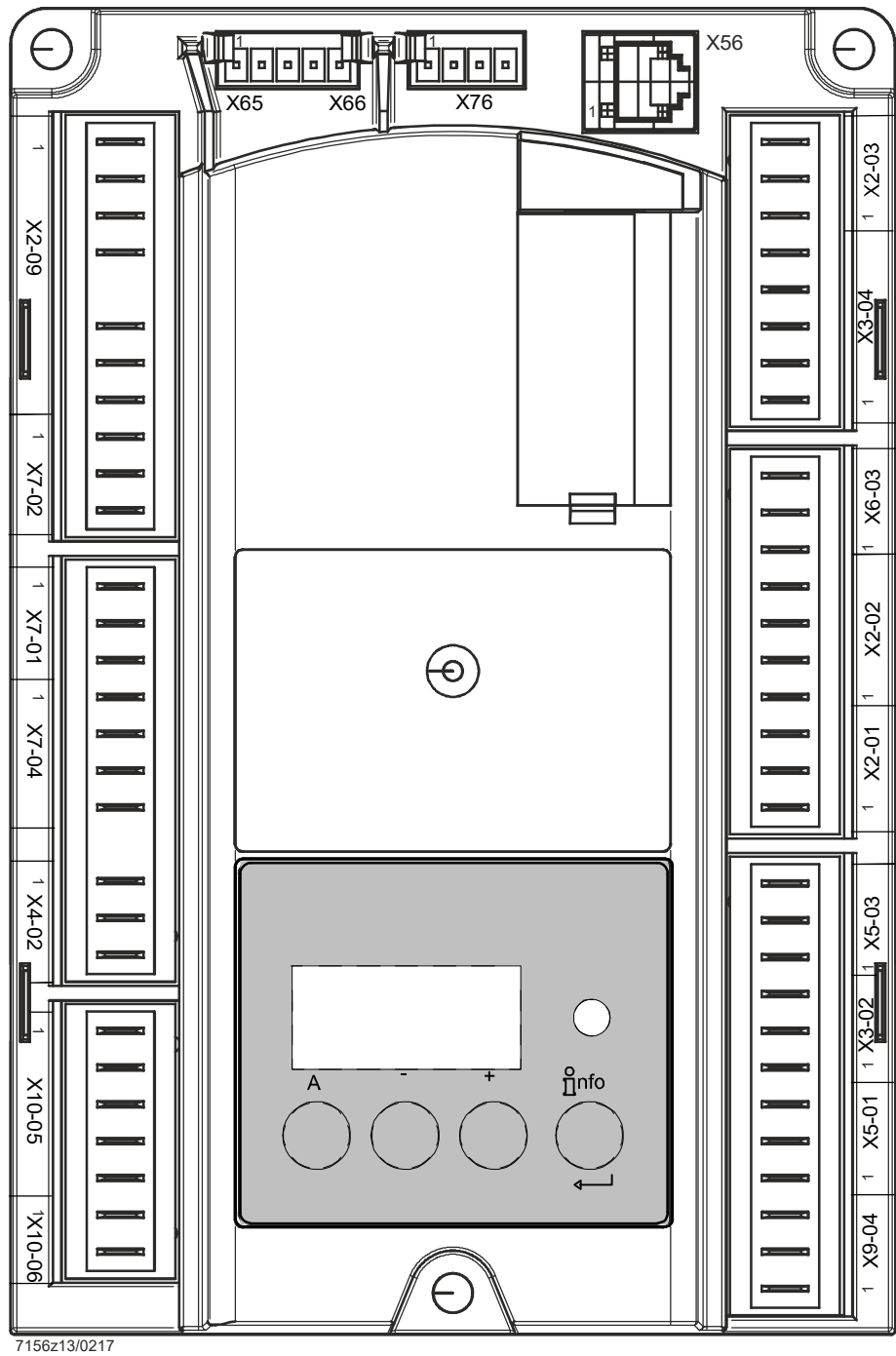
7156z13/0217

Figure 3: Inputs and outputs

6.2 Introduction to wiring

Each specific application of the LME75/LME76 requires a particular type of wiring (refer to the corresponding PME75/PME76 user documentation (A7156.x)).
This section describes the most common applications.

The parameter settings described in the corresponding PME75 / PME76 user documentation (A7156.x) can activate, deactivate, or modify the functionality of various terminals on the LME75/LME76.
Together, the wiring and parameterization ensure that the LME75/LME76 is versatile enough to be used in a range of applications.

The corresponding PME75 / PME76 user documentation (A7156.x) contains connection descriptions and comprehensive connection diagrams that provide a detailed insight into the extensive LME75/LME76 applications.

6.2.1 Terminals

The connection terminals of the LME75/LME76 are a RAST5 mains voltage plug and a RAST3.5 plug (for low-voltage connections).
The mains voltage plugs are coded in such a way that they only fit into one terminal on the LME75/LME76, which eliminates the risk of them being inserted into the incorrect terminal.

Each plug is designed to connect an external unit or small group of external burner components, such as fuel valves, with the LME75/LME76.
Each group of RAST5 plugs on the LME75/LME76 supplies mains voltage.
This means no additional terminal strips are required for the neutral conductor (N) or protective earth (PE).

☞ Note!
All cables, such as protective earth (PE), the neutral conductor (N), and phase conductor (L) are fed together inside the LME75/LME76.

Example for RAST5

X3-	04	4
Connector group	Connector number inside the connector group	Pin number

Figure 4: Numbering scheme for the *mains voltage* (RAST5) terminal on the LME75/LME76

Example for RAST3.5

X65.	2
Connector group	Pin number

Figure 5: Numbering scheme for the *low-voltage* (RAST3.5) terminal on the LME75/LME76

The terminal descriptions are provided in a list that clearly indicates the cables and low-voltage plugs (see chapter 6.3 "Description of the terminals").

Pin 1 is marked on the housing of the LME75/LME76 for each plug.

6.2.2 Earthing

The LME75/LME76 has 2 different types of earthing:
- Protective earth **PE**
- Functional earth **FE**

Protective earth (PE)

The protective earth (PE) for the LME75/LME76 must be connected.
The purpose of protective earth (PE) is to provide a protective conductor connection for all connected units/components.

Functional earth (FE)

The functional earth (FE) conductor at terminal X10-06 pin 1 is connected to reference ground by means of capacitors on the LME75/LME76 PCB. When monitoring the ionization current in earth-free mains, terminal X10-06 pin 1 must be connected to burner ground.

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6.3 Description of the terminals

Key

Terminal	Terminal markings on LME75/LME76 housing
Coding	Plug-in space coding
ASN	Product designation for 200 packaging units
Pin	Connection PIN
Input	Input terminals (mains voltage)
Output	Output terminals (mains voltage)
Function	Functional description
Current	Maximum permissible current rating (refer to *Technical Data*)
Parameter	Parameter number impacting the function or behavior of the inputs/outputs

6.3.1 Terminal X2-03 / X3-04
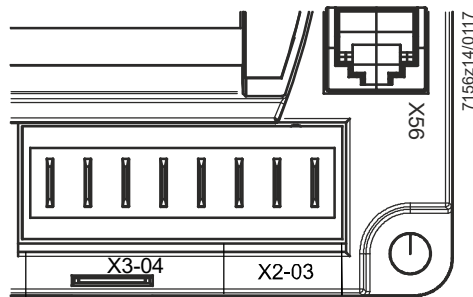
Figure 6: Description of terminal X2-03 / X3-04

Terminal	Coding	ASN	Pin	Input	Output	Function	Current (max.)	Parameter
X2-03	03K15	AGG9.302	1	●	---	Remote lockout reset input	2.5 mA peak (peak value)	---
			2	---	●	N	1 A	---
			3	---	●	Alarm	1 A	---
X3-04	05K30	AGG9.501	1	●	---	Safety loop feedback	5 A	215.00 215.01
			2	---	●	Safety loop power supply	5 A	---
			3	---	●	PE	---	---
			4	---	●	N	5 A	---
			5	---	●	L	5 A	---

☞ **Note!**
The total current for all components connected to the LME75/LME76 flows through the connections and components in the safety loop.

⚠ **Caution!**
In the safety loop, temporarily switching (< 1 second) contacts, buttons or similar must not be wired.

6.3.2 Terminal X2-01 / X2-02 / X6-03
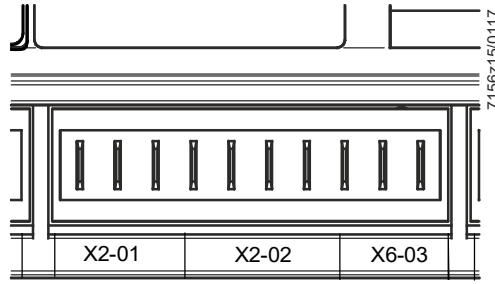
Figure 7: Description of terminal X2-01 / X2-02 / X6-03

Terminal	Coding	ASN	Pin	Input	Output	Function	Current (max.)	Parameter
X2-01	03K105	AGG9.301	1	---	●	PE	---	---
			2	---	●	N	2 A (15 A max. 0.5 s)	225.00 225.01 226 234.00 234.01
			3	---	●	Fan motor	2 A (15 A max. 0.5 s)	222
X2-02	04K22	AGG9.401	1	---	●	PE	---	237.00 237.01 241 241.00 241.01 241.02 285.00 285.01 296
			2	---	●	N	2 A	
			3 *)	---	●	Valve proving power supply ON/OFF or PWM fan motor power supply POC power supply Pressure switch-max power supply Oil preheater / oil temperature limiter power supply	2 A	
			4 *)	●	---	Feedback valve proving ON/OFF. POC or pressure switch-max Oil preheater / oil temperature limiter feedback	2.5 mA peak (peak value)	
X6-03	03K57	AGG9.309	1	---	●	PE	---	---
			2	---	●	N	1.5 A	---
			3	---	●	Extra valve (Optional: safety valve)	1.5 A	---

*) Depending on the PME75/PME76 and respective parameterization

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6.3.3 Terminal X3-02 / X5-01 / X5-03 / X9-04
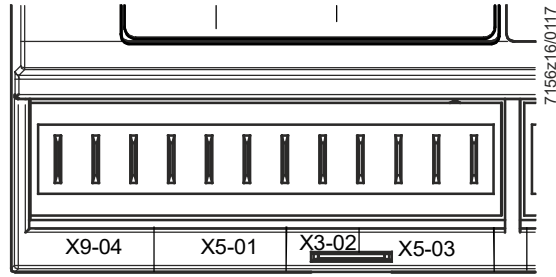
Figure 8: Description of terminal X3-02 / X5-01 / X5-03 / X9-04

Terminal	Coding	ASN	Pin	Input	Output	Function	Parameter
X3-02	02K02	AGG9.203	1	●	---	Air pressure switch feedback	222
			2	---	●	Air pressure switch power supply	224 225.00 225.01 234.00 234.01 235.00 235.01 264 265.00 265.01 266.00 266.01 274.00 274.01 275.00 275.01
X5-01	03K54	AGG9.306	1	---	●	PE	223
			2	●	---	Feedback pressure switch-min	236
			3	---	●	Pressure switch-min power supply	276
X5-03	04K01	AGG9.403	1	●	---	Control thermostat or temperature limiter	212
			2	●	---	Load controller CLOSED	232 234.00
			3	●	---	Load controller OPEN	234.01
			4	---	●	Load controller / control thermostat / temperature limiter power supply	272 274.00 274.01 515.00 515.01 560 563 654

Terminal	Coding	ASN	Pin	Input	Output	Function	Parameter
X9-04	03K30	AGG9.313	1	---	●	PE	237.00
			2	●	---	Feedback for valve proving pressure switch Pressure switch-max	237.01 241 241.00
			3	---	●	Valve proving pressure switch power supply Pressure switch-max	241.01 241.02 242 243 244 245 277

6.3.4 Terminal X10-05 / X10-06
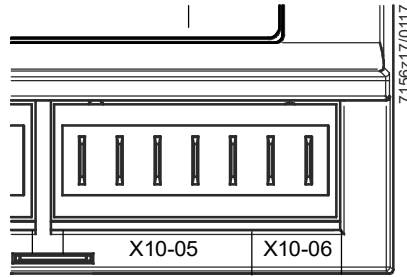
Figure 9: Description of terminal X10-05 / X10-06

Terminal	Coding	ASN	Pin	Input	Output	Function	Parameter
Connector assignment for LME75							
X10-05	05K37	AGG9.504	1	●	---	QRI flame signal (connecting cable)	179
			2	---	●	QRI supply voltage / detector test (brown connecting cable)	180 216
			3	---	●	Not used	217.00
			4	---	●	QRI neutral conductor (N) (blue connecting cable)	217.01 220
			5	---	●	Not used	240 280 954.01
X10-05	05K37	AGG9.504	1	●	---	QRA7 flame signal Label " 4" of the black connecting cable for the AGG9.504	179 180 216 217.00 217.01 220 240 280 954.01
			2	---	●	QRA7 detector test Label " 3" of the black connecting cable for the AGG9.504	
			3	---	●	QRA7 protective earth (PE) Green/yellow connecting cable for AGG9.504	
			4	---	●	QRA7 neutral conductor (N) Label " 2" and " 5" of the black connecting cable for the AGG9.504	
			5	---	●	QRA7 phase conductor (L) Label " 1" of the black connecting cable for the AGG9.504	
Connector assignment for LME76							
X10-05	05K37	AGG9.504	1	●	---	LFS1 flame signal path NC contact	179
			2	---	●	LFS1 flame safeguard test	216 217.00
			3	●	---	LFS1 flame signal path NO contact	217.01
			4	---	●	N	240 280
			5	---	●	L	954.01

Terminal	Coding	ASN	Pin	Input	Output	Function	Parameter
Connector assignment for LME75/LME76							
X10-06	02K43	AGG9.209	1	---	●	Burner ground (in earth-free mains)	179
			2	●	---	Ionization probe	180 216 217.00 217.01 220 240 280 954.00

6.3.5 Terminal X4-02 / X7-01 / X7-04
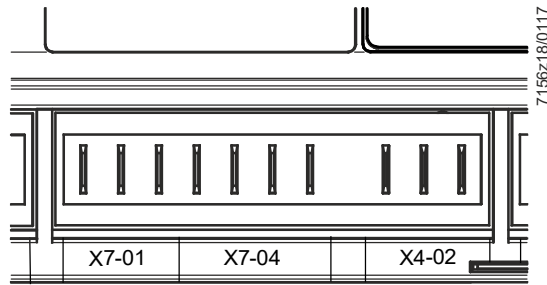
Figure 10: Description of terminal X4-02 / X7-01 / X7-04

Terminal	Coding	ASN	Pin	Input	Output	Function	Current (max.)	Parameter
X4-02	03K66	AGG9.304	1	---	●	PE	---	201
			2	---	●	N	2 A	226
								257
			3	---	●	Ignition transformer	2 A	266.00
								266.01
								295
X7-01	03K34	AGG9.310	1	---	●	PE	---	201
			2	---	●	N	1 A	230
								231
			3	---	●	Fuel valve V2a / pilot valve PV	1 A	232
								247
								257
								270
								271
								272
								295
X7-04	04K77	AGG9.405	1	---	●	PE	---	201
			2	---	●	N	2 A / 1 A (with valve proving)	230
								231
			3	---	●			232
						Pilot valve PV / fuel valve V1 (option available to connect to pin 3 or pin 4)		240
							2 A / 1 A (with valve proving)	257
								270
								271
			4	---	●			272
								280
								295

6.3.6 Terminal X2-09 / X7-02
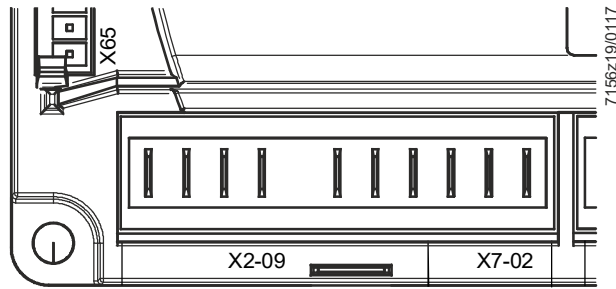
Figure 11: Description of terminal X2-09 / X7-02

Terminal	Coding	ASN	Pin	Input	Output	Function	Current (max.)	Parameter
X2-09A	06K39	AGG9.601	1	---	●	Actuator CLOSED	0.1 A	123
			2	---	●	Actuator low-fire / ignition load	0,1 A	212
			3	---	●	Actuator high-fire	0.1 A	234.00
			4	●	---	Actuator feedback	2.5 mA peak (peak value)	234.01 259 259.00 259.01
			5	---	---	Not used	---	259.02
			6	---	●	N	0.1 A	260 272
X2-09B	02K04	AGG9.201	7		●	Actuator cam ignition load	1 A	274.00
			8	●	---	Actuator cam ignition load	1 A	274.01 298 299 515.00 515.01 560 563 654
X7-02	03K10	AGG9.311	1	---	●	PE	---	230
			2	---	●	N	2 A / 1 A (with valve proving)	231 232 270
			3	---	●	Fuel valve V1/V2	2 A / 1 A (with valve proving)	271 272 563

6.3.7 Terminal X56 / X65 / X66 / X76
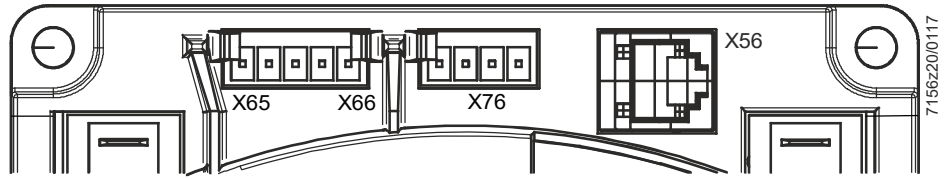
Figure 12: Description of terminal X56 / X65 / X66 / X76

Terminal	Coding	ASN	Pin	Input	Output	Function	Current (max.)	Parameter
X56	---	---	1	●	---	BC interface: Supply voltage	5 V DC 25 mA	---
			2	---	●	BC interface: TXD	---	
			3	●	---	BC interface: RXD	---	
			4	---	●	BC interface: GND	---	
X65	---	AGG9.822	1	●	---	Load controller (analog)	0...10 V DC 0/4...20 mA DC 0...135 Ω	140 515.01 560 563 654
			2	---	●	GND load controller	---	
X66	---	AGG9.831	1	---	●	ASZ supply voltage	5 V DC 5 mA	140 515.01 560 563 654
			2	●	---	Actuator position feedback via ASZ	---	
			3	---	●	GND	---	
X76	---	AGG9.841	1	---	---	Not used (PWM power supply)	24 V DC 10 mA	All 4xx All 5xx All 6xx 920 936
			2	---	---	Not used (PWM output signal)	12 V DC 0.5 mA	
			3	---	---	Not used (Hall input signal)	12...24 V DC 0.4...1 mA	
			4	---	---	Not used (GND)	---	

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6 Wiring

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6.4 Assignment of terminals for plug AGG9
6.4.1 LME75
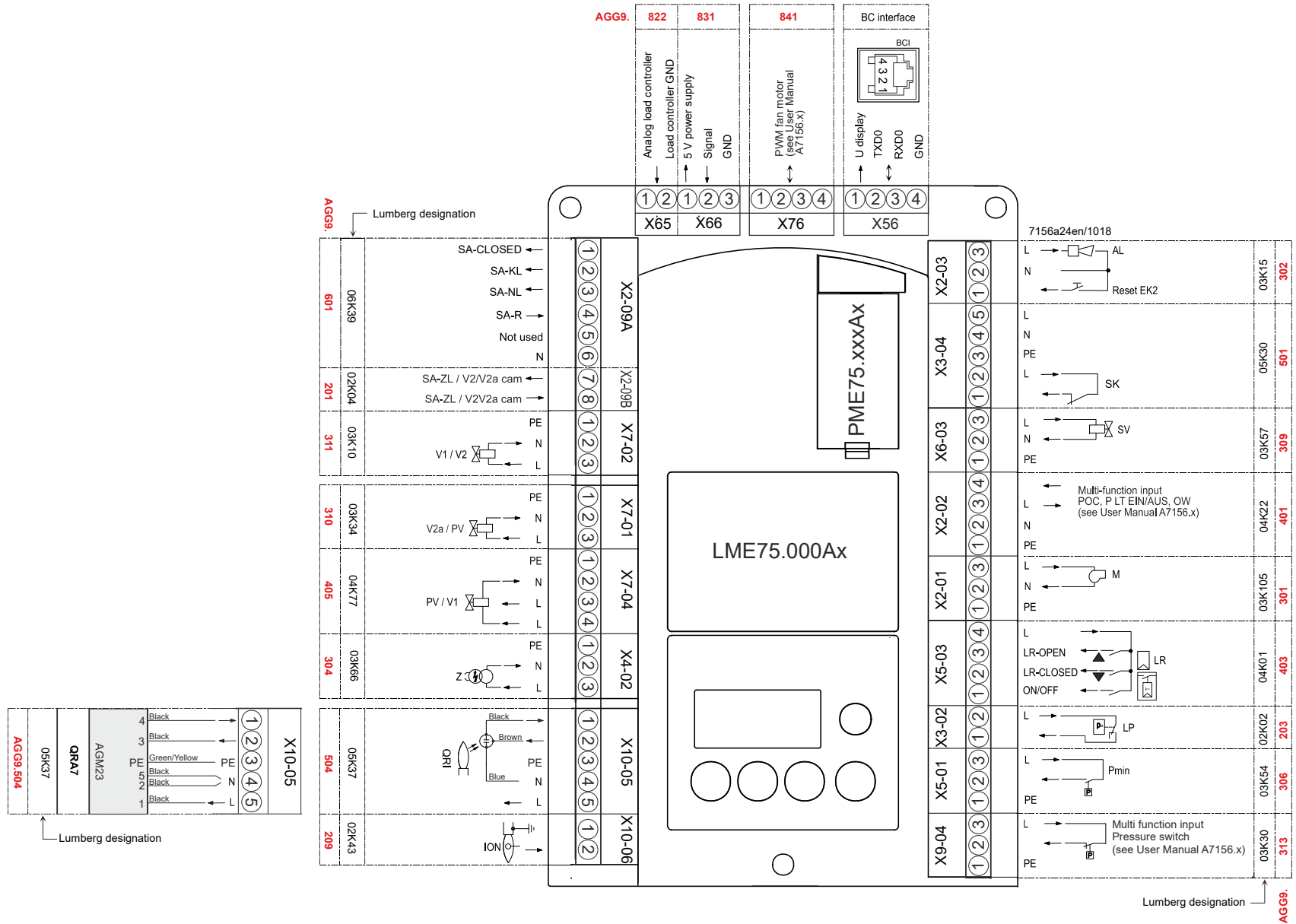
Figure 13: Assignment of terminals for LME75 → AGG9

6.4.2 LME76
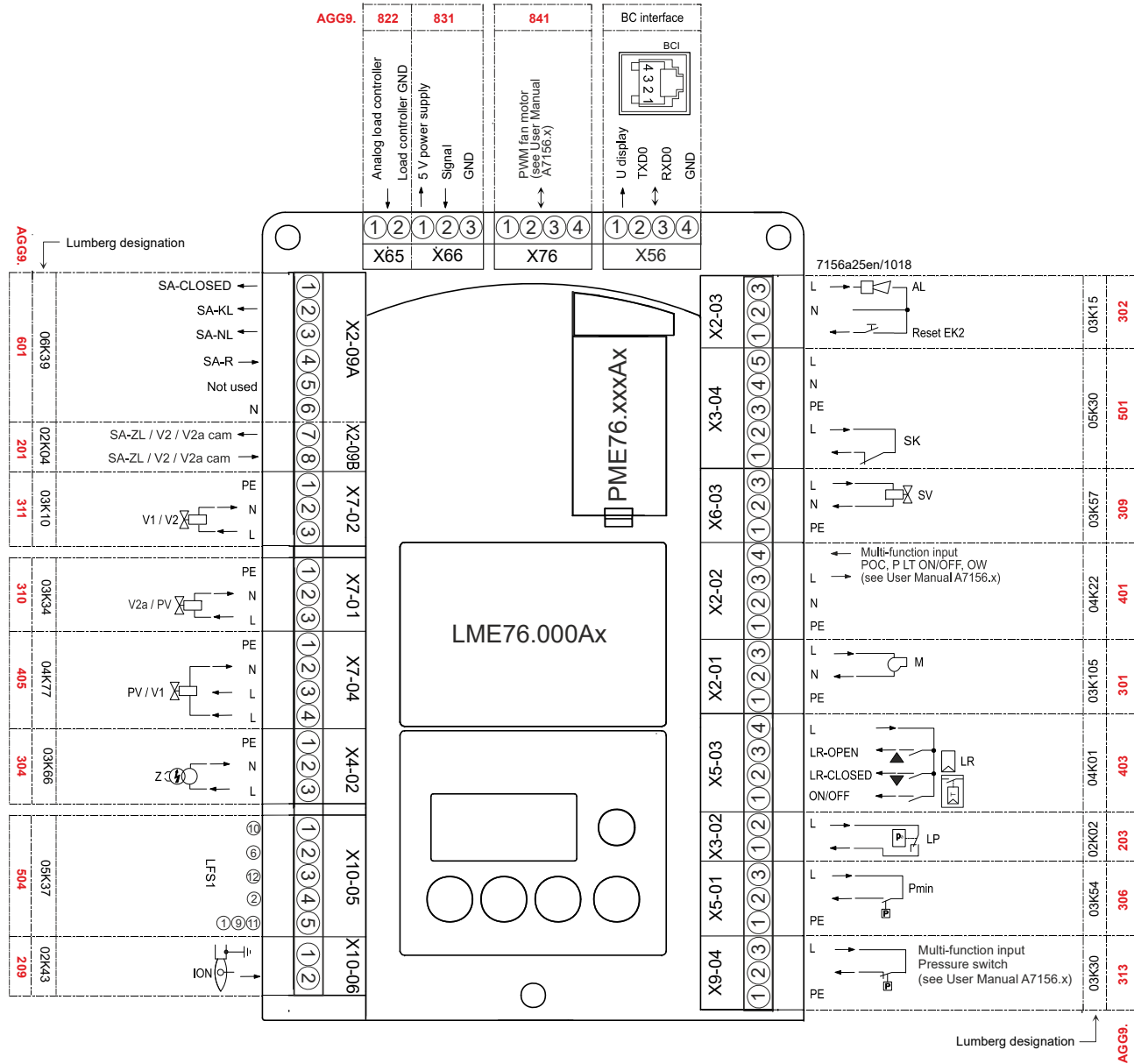
Figure 14: Assignment of terminals for LME76 → AGG9

7   Startup
7.1   Startup notes

Prior to startup, the following points must be checked:
- The correct assignment of the fuel valves to the valve outputs on the LME75/LME76
  - $\rightarrow$ depending on the PME75/PME76 and respective parameterization, refer to the accompanying user documentation (A7156.x).
- The correct time parameter settings, especially the settings of the safety and prepurge times
- The correct functioning of the flame detector in the event of loss of flame during operation (including the response time); with extraneous light during the prepurge time and when there is no establishment of flame at the end of the safety time
- During startup, check **all safety functions**
- There is no absolute protection against incorrect use of the RASTx connectors. For this reason, prior to starting up the equipment, the correct assignment of the plug connectors must be checked
- Electromagnetic emissions must be checked on an application-specific basis

The following general conditions apply to the flame display on the AZL2:
- The display is subject to various component tolerances, with the result that deviations of ±10% are possible
- It should furthermore be noted that, for physical reasons, there is no linear connection between the display and detector signal values

The functions of the following available or required input state signals must be checked:
- Air pressure
- Minimum and maximum gas pressure or POC
- Safety loop (e.g., safety temperature limiter)

Duties of the expert when carrying out the approval tests

	Action	Check / response
a)	Burner startup with disconnected flame detector	Non-alterable lockout at the end of the first safety time
b)	Burner startup with flame detector exposed to extraneous light, e.g., to incandescent light with flame detectors for visible radiation, quartz-halogen bulb or cigarette lighter flame with flame detectors for UV radiation	Non-alterable lockout during the prepurge time
c)	Simulation of loss of flame during operation, which involves disconnecting the flame detector in the operating position and maintaining that state	Non-alterable lockout or restart, depending on the configuration of the LME75/LME76
d)	Check the plant response time with loss of flame during operation, which involves manually disconnecting the fuel valves from power and checking the time from this moment to the time required by the LME75/LME76 to turn off power to the fuel valve	Turning off power to the fuel valves by the LME75/LME76 within the period of time permitted for the respective plant

Further checks may be required, depending on the field of use and the relevant standards.

After installation and startup of a plant, the parameterized values and settings must be **documented** by the person/heating engineer responsible for the plant. This data can be printed out with the help of the ACS410, for example, or else must be written down. This document must be kept in a safe place and checked by the expert.

> **Warning!**
> **On the OEM access level of the LME75/LME76, it is possible to make parameter settings that differ from application standards. When setting the parameters, it is important to ensure that the application will run safely in accordance with legal requirements. Failure to observe this information poses a risk of damaging the safety functions.**

8 Technical data

8.1 LME75/LME76

	120 V AC	230 V AC
Mains voltage	120 V AC	230 V AC
Mains frequency	50/60 Hz	50/60 Hz
External primary fuse	Max. 6.3 A, slow	Max. 6.3 A, slow

⚠️ **Caution!**
Risk of damage to the switching contacts!
If the external primary fuse (Si) is blown due to overload or short-circuit at the terminals, the LME75/LME76 must be replaced.

Power consumption	< 10 W, typically	< 10 W, typically
Safety class	I with parts according to II and III in accordance with DIN EN 60730-1	
Degree of protection	IP00	

👉 **Note**
The burner or boiler manufacturer must ensure degree of protection IP40 in accordance with DIN EN 60529 for burner controls through adequate installation of the LME75/LME76.

Rated surge voltage Category III (DIN EN 60664)	
• LME75/LME76	4 kV
• Creepage distances and air gaps	2.5 kV due to voltage limitation measures
Pollution degree	2 in accordance with DIN EN 60730-1
Software class	Class C in accordance with DIN EN 60730-1:2012 / DIN EN 60730-2-5:2015 2-channel structure
Response time in the event of loss of flame	Depending on parameter 217.01 (see *Factory settings*)
Permissible mounting position	Optional
Weight	Approx. 490 g

8.2 Terminal loading: *Inputs*

Mains supply: The input current for the power supply is dependent on the operating status of the LME75/LME76

Undervoltage	U_Mains 120 V	U_Mains 230 V
• Safety shutdown from the operating position at mains voltage	≤ 75 V AC	≤ 165 V AC
• Restart is initiated when mains voltage exceeds	≥ 100 V AC	≥ 195 V AC

The remote lockout reset (terminal X2-03 pin 1), temperature controller or temperature limiter (terminal X5-03 pin 1), load controller (terminal X5-03 pin 2/3), POC/CPI (terminal X2-02 pin 4), pressure switch (terminal X5-01 pin 2), air pressure switch (terminal X3-02 pin 1), and actuator (terminal X2-09 pin 4) are used for system supervision and require mains-related input voltage

• Terminal X3-04 pin 1/pin 2: Safety loop input	Refer to *Terminal loading: Outputs*	
• Input currents and input voltages		
- UeMax	U_N +10%	U_N +10%
- UeMin	U_N -15%	U_N -15%
- IeMax	2.5 mA (peak value)	2.5 mA (peak value)
- IeMin	0.8 mA (peak value)	0.8 mA (peak value)
• Contact material recommended for external signal sources (air pressure switch, pressure switch-min, pressure switch-max, etc.)	Gold-plated silver contacts	
• Transition / settling behavior / bounce - Permissible bounce time of contacts when switching on/off	Max. 50 ms (after the bounce time, the contact must stay closed or open)	
• UN	120 V AC	230 V AC
• Voltage detection		
- ON	> 60 V AC	> 120 V AC
- OFF	< 40 V AC	< 80 V AC
Terminal X65: Analog input	0…10 V DC / DC 0/4…20 mA / 0…135 Ω	

8.3 Terminal loading: *Outputs*

Total contact loading:

		120 V AC, 50/60 Hz	230 V AC, 50/60 Hz
•	Rated voltage	120 V AC, 50/60 Hz	230 V AC, 50/60 Hz
•	Terminal X3-04: LME75/LME76 input current	Max. 5 A	Max. 5 A

> ☞ **Note**
> The input current for the LME75 / LME76 at terminal X3-04 pin 5 also flows through safety loop terminal X3-04 pin 1 / pin 2.
> The power supply in the LME75 / LME76 to the fan motor, ignition transformer, fuel valves, and actuators is interrupted as soon as one of the components opens the safety loop circuit.

Individual contact loading:

Terminal X2-01 pin 3: Fan motor

•	Rated voltage	120 V AC, 50/60 Hz	230 V AC, 50/60 Hz
•	Rated current	2 A (15 A max. 0.5 s)	2 A (15 A max. 0.5 s)
•	Power factor	Cosφ ≥0.4	Cosφ ≥0.4

Terminal X2-02 pin 3: PWM fan motor or oil preheater (depending on the fuel train, refer to User Documentation A7156.x)

•	Rated voltage	120 V AC, 50/60 Hz	230 V AC, 50/60 Hz
•	Rated current	2 A	2 A
•	Power factor	Cosφ ≥0.4	Cosφ ≥0.4

> ⚠ **Caution!**
> **Maximum permissible current load may be exceeded!**
> If terminal X2-02 pin 3 is used as the connection for supplying the PWM fan motor, no other motor may be connected on terminal X2-01 pin 3.

Terminal X2-03 pin 3: Alarm output

•	Rated voltage	120 V AC, 50/60 Hz	230 V AC, 50/60 Hz
•	Rated current	1 A	1 A
•	Power factor	Cosφ ≥0.6	Cosφ ≥0.6

Terminal X2-09 pin 7: Output relay contact K2/2 (actuator cam ZL, V2a)

•	Rated voltage	120 V AC, 50/60 Hz	230 V AC, 50/60 Hz
•	Rated current	1 A	1 A
•	Power factor	Cosφ ≥0.4	Cosφ ≥0.4

Terminal X3-04 pin 2: Safety loop

•	Rated voltage	120 V AC, 50/60 Hz	230 V AC, 50/60 Hz
•	Total current	2 A	2 A
•	Power factor	Cosφ ≥0.4	Cosφ ≥0.4

Terminal X4-02 pin 3: Ignition transformer

•	Rated voltage	120 V AC, 50/60 Hz	230 V AC, 50/60 Hz
•	Rated current	2 A	2 A
•	Power factor	Cosφ ≥0.4	Cosφ ≥0.4

Terminal X6-03 pin 3: Safety valve

•	Rated voltage	120 V AC, 50/60 Hz	230 V AC, 50/60 Hz
•	Rated current	1.5 A	1.5 A
•	Power factor	Cosφ ≥0.6	Cosφ ≥0.6

Terminal X7-01 pin 3: Fuel valves or pilot valve
(depending on the fuel train, see User Manual A7156.x)

•	Rated voltage	120 V AC, 50/60 Hz	230 V AC, 50/60 Hz
•	Rated current	1 A	1 A
•	Power factor	Cosφ ≥0.4	Cosφ ≥0.4

Terminal X7-02 pin 3: Fuel valve
(depending on the fuel train, see User Manual A7156.x)

•	Rated voltage	120 V AC, 50/60 Hz	230 V AC, 50/60 Hz
•	Rated current		
	- Valve proving inactive	2 A	2 A
	- Valve proving active	1 A	1 A
•	Power factor	Cosφ ≥0.4	Cosφ ≥0.4

Terminal X7-04 pin 4: Fuel valve or pilot valve
(depending on the fuel train, see User Manual A7156.x)

•	Rated voltage	120 V AC, 50/60 Hz	230 V AC, 50/60 Hz
•	Rated current		
	- Valve proving inactive	2 A	2 A
	- Valve proving active	1 A	1 A
•	Power factor	Cosφ ≥0.4	Cosφ ≥0.4

☞ Note!
When activating valve proving (e.g., on shutdown), the load on the valve terminals is restricted. If the load is not reduced, the design lifetime is about 100,000 burner start cycles!

8.4 Cable lengths

Terminal X2-01: Fan motor	Max. 30 m (100 pF/m), unshielded
Terminal X2-02: Multi-function input (POC, pressure switch valve proving, oil preheater), see User Manual A7156.x	Max. 30 m (100 pF/m), unshielded
Terminal X2-03 Pin 1 / 2: Remote lockout reset (laid separately)	Max. 30 m (100 pF/m), unshielded
Terminal X2-03 Pin 2 / 3: Alarm	Max. 30 m (100 pF/m), unshielded
Terminal X3-02: Air pressure switch	Max. 30 m (100 pF/m), unshielded
Terminal X3-04 Pin 1 / 2: Safety loop	Max. 30 m (100 pF/m), unshielded
Terminal X3-04 Pin 3…5: Mains supply line	Max. 100 m (100 pF/m)
Terminal X4-02 Pin 1…3: Ignition transformer	Max. 30 m (100 pF/m), unshielded
Terminal X5-01: Pressure switch-min	Max. 30 m (100 pF/m), unshielded
Terminal X5-03 Pin 1…4: Load controller	Max. 30 m (100 pF/m), unshielded
Terminal X6-03 Pin 1…3: Safety valve	Max. 30 m (100 pF/m), unshielded
Terminal X7-01 Pin 1…3 / X7-02 Pin 1…3 / X7-04 Pin 1…4: Fuel valve	Max. 30 m (100 pF/m), unshielded
Terminal X7-01 Pin 1…3 / X7-04 Pin 1…4: Pilot valve	Max. 30 m (100 pF/m), unshielded
Terminal X9-04: Multi-function input (pressure switch), see User Manual A7156.x	Max. 30 m (100 pF/m), unshielded
Terminal X10-05 / X10-06: Flame detector	Refer to the *Flame supervision* chapter
Terminal X56: BC Interface	For use under the burner hood or in a control panel Max. 1 m (100 pF/m), unshielded
Terminal X65: Load controller analog input	Max. 30 m (100 pF/m), use a shielded cable >10 m, unshielded
Terminal X66: Actuator potentiometer feedback	Max. 30 m (100 pF/m), unshielded
Terminal X76: PWM fan motor	Max. 30 m (100 pF/m), unshielded

Specifications as per EN 60730-1

Type of shutdown or interruption for each circuit	
Shutdown with micro switch	1-pole
Mode of operation	Type 2 B

8.5 Actuators

CLOSED / Ignition position / OPEN Terminal X2-09 pin 1, Terminal X2-09 pin 2, Terminal X2-09 pin 3	1 million switching cycles	1 million switching cycles
• Rated voltage	120 V AC, 50/60 Hz	230 V AC, 50/60 Hz
• Rated current	0.1 A	0.1 A
• Power factor	Cosφ ≥0.6	Cosφ ≥0.6
Output K2/2 terminal X2-09 pin 7	120 V AC, 50/60 Hz	230 V AC, 50/60 Hz
• Rated current	Max. 1 A	Max. 1 A
• Power factor	Cosφ > 0.4	Cosφ > 0.4

Feedback via input terminal X2-09 pin 8 on the LME75/LME76 depending on the current load of the actuator switching contact used (e.g., cam V2/V2a).

8.6 Cross-sectional areas

The cross-sectional areas of the mains power lines (L, N, and PE) and, if required, the safety loop (safety temperature limiter, water shortage, etc.) must be sized for rated currents according to the selected external primary fuse. The cross-sectional areas of the other cables must be sized in accordance with the primary fuse for the LME75/LME76 (max. 6.3 AT).

> ⚠️ **Caution!**
> **Risk of damage to the switching contacts!**
> **If the external primary fuse (Si) is blown due to overload or short-circuit at the terminals, the LME75/LME76 must be replaced.**

Minimum cross-sectional area	0.75 mm² (single-core or multi-core in accordance with VDE 0100)

Cable insulation must be suitable for the respective temperatures and environmental conditions.

8.7 RAST5 connector

Mechanical data

Insertion force / contact	≤4 N
Withdrawal force / contact	≥1 N
Tightening torque / screw	0.5 Nm in accordance with DIN EN 60335-1
Contacting with flat pin connector	6.3 x 0.8 mm in accordance with DIN EN 46244 Male multipoint connector in accordance with RAST5 standard
Connection cross sections, conductor screw connection	
• Stranded conductor	Cross section max. 2.5 mm²
• Stranded conductor with ferrule	Cross section max. 2.5 mm²
• Stripping length	Approx. 8 mm

8.8　RAST3.5 connector

Mechanical data

Connection cross sections, conductor screw connection

• Stranded conductor, fine-wired (flexible)	Cross section Min. 0.14 mm² Max. 1.5 mm²
• Stranded conductor, fine-wired (flexible) with ferrule	Cross section Min. 0.25 mm² Max. 1 mm²
• Stripping length	Approx. 7 mm
• Screw tightening torque	0.25 Nm

8.9　Signal cable AGV50

8.9.1　AZL2 / OCI410 → BC interface

Signal cable	Color white Unshielded Conductor 4 x 0.141 mm² With RJ11 connector
Cable length AGV50.100	1 m
Place of installation	Under the burner hood (arrangements for SKII EN 60730-1 additionally required)

8.10 Dummy plug for RJ11

Dummy plug	For 6-pin modular plug (RJ11)
Supplier	Recommendation: Molex Order number: 085 999 3256

8.11 Environmental conditions

Storage	EN 60721-3-1:1997
Climatic conditions	Class 1K3
Mechanical conditions	Class 1M2
Temperature range	-40…+70 °C
Humidity	< 95% r.h.
Transport	EN 60721-3-2:1997
Climatic conditions	Class 2K3
Mechanical conditions	Class 2M2
Temperature range	-40…+70 °C
Humidity	< 95% r.h.
Operation	EN 60721-3-3:1994
Climatic conditions	Class 3K3
Mechanical conditions	Class 3M2
Temperature range	-40…+60 °C
Humidity	< 95% r.h.
Installation altitude	Max. 2,000 m above sea level

⚠️ **Warning!**
Condensation, formation of ice, and ingress of water are not permitted.
Failure to observe this poses a risk of damaging the safety functions and the risk of electric shock.

8.12 Flame supervision

8.12.1 Ionization probe with LME75/LME76 at terminal X10-06

> **Warning!**
> - **Provide protection to prevent people from coming into contact with the ionization probe (risk of electric shock)!**
> - **When monitoring ionization currents in earth-free mains, connect terminal X10-06 pin 1 to burner ground**

Short circuit current	Max. 1 mA AC
Permissible length of flame detector cable (laid separately)	30 m (100 pF/m), unshielded

	At mains voltage 120 V AC / 230 V AC	Flame intensity parameter 954.00
Detector voltage between ionization probe and ground (AC voltmeter Ri ≥ 10 MΩ)	Approx. 300 V AC	
Switching threshold (limit values):		
Switching on (flame ON) (DC ammeter Ri ≤ 5 kΩ)	1.5 µA	20%
Switching off (flame OFF) (DC ammeter Ri ≤ 5 kΩ)	0.5 µA	0%
Recommended detector current for reliable operation	4 µA	> 40%
Switching threshold in the event of poor flame during operation (LED flashes green)	2 µA	Approx. 30%
Possible detector current with flame (typical)	30 µA	100%

> Note!
> As the detector line capacitance (detector line length) increases, the voltage at the ionization probe – and thus the detector current – will drop. Long line lengths and very high-ohmic flames may necessitate the use of a low-capacitance cable (e.g., ignition cable). In spite of special electronic circuits designed to compensate possible adverse effects of the ignition spark on the ionization current, it is important to ensure that the minimum detector current required is already available during the ignition phase. If this is not the case, the primary ignition transformer connections must be interchanged and/or the electrodes relocated.

Connection diagram

ION   **LME75... / LME76...**

X10-06.2

7156a04/0117
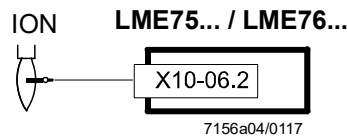
Assignment of terminals for LME75/LME76:
Terminal X10-06 pin 2
Flame signal ionization input

Figure 15: Ionization probe connection diagram

Measuring circuit for detector
current measurement

Ionization probe

LME75... / LME76...

X10-06.2

M   + C   −   ION

X10-06.1

7156v01/0817
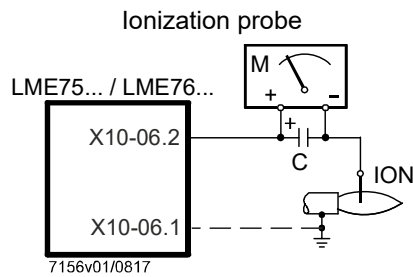
Figure 16: Measuring circuit for ionization probe

Key

C   Electrolytic capacitor 100…470 µF; 10…25 V DC

ION   Ionization probe

M   Micro-ammeter Ri max. 5000 Ω

> **Warning!**
> **In the case of simultaneous operation of the ionization probe, QRA7, QRI, or LFS1, it is essential to observe the parameter settings outlined in chapter 10.4 "Ionization probe terminal X10-06", chapter 0 "**
> **QRA7/QRI terminal X10-05 (LME75** only)**", and chapter 10.6 "LFS1 terminal X10-05 (LME76 only)"!**
> **If this is not observed, there is a risk of device functions being impaired.**

8.12.2 QRA7 with LME75 at terminal X10-05

> ⚠️ **Warning!**
> **The QRA7 must not be connected to the LME76. Failure to observe this instruction will result in the LME76 or QRA7 becoming defective.**

Supply voltage (terminal X10-05 pin 4 / terminal X10-05 pin 5)	
• QRA73A17	120 V AC / 50…60 Hz
• QRA73A27	230 V AC / 50…60 Hz
• QRA75A17	120 V AC / 50…60 Hz
• QRA75A27	230 V AC / 50…60 Hz
Shutter signal for detector test QRA7 in operation (terminal X10-05 pin 2)	
• Operation	14 V DC
• Detector test	21 V DC
Required flame signal voltage (terminal X10-05 pin 1)	Min. 3.5 V DC
Threshold values when flame is supervised by QRA7	
• Start prevention (extraneous light)	Flame intensity > 5% (parameter 954.01)
• Operation	Flame intensity > 50% (parameter 954.01)
Permissible length of detector cable (laid separately)	Max. 100 m
• 6-core cable	> 4 m (signal line and supply line laid separately)
• Supply line no. 1, 2, and PE	Max. 100 m (separate from signal line)
• Signal line no. 3, 4, and 5	Max. 100 m (shielded)

Parameter	Function
954.01	Intensity of flame QRA7 (0…100%)

For more detailed information about QRA7, refer to data sheet N7712.

Connection diagram

Cable AGM23
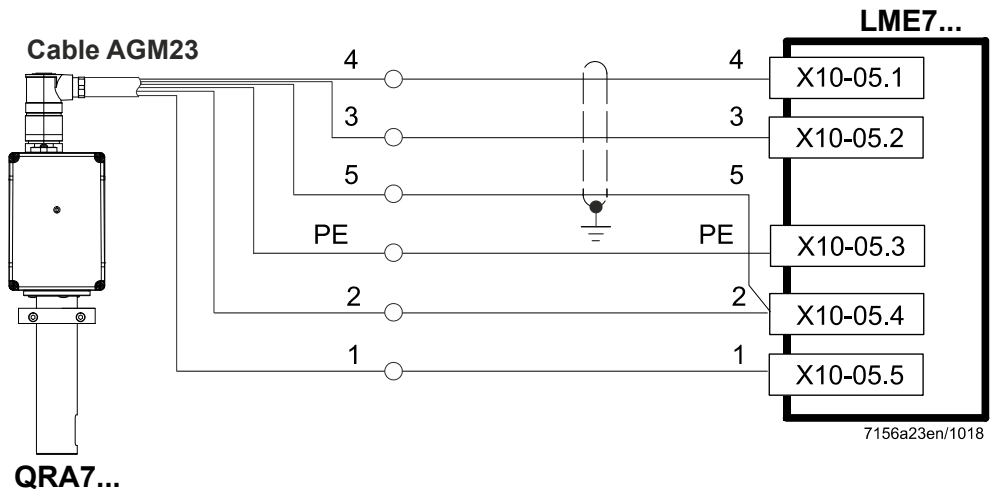
QRA7...

Figure 17: Connection diagram QRA7

Connection diagram
with flame signal
measurement

Ri > 10 MΩ

0...10 V
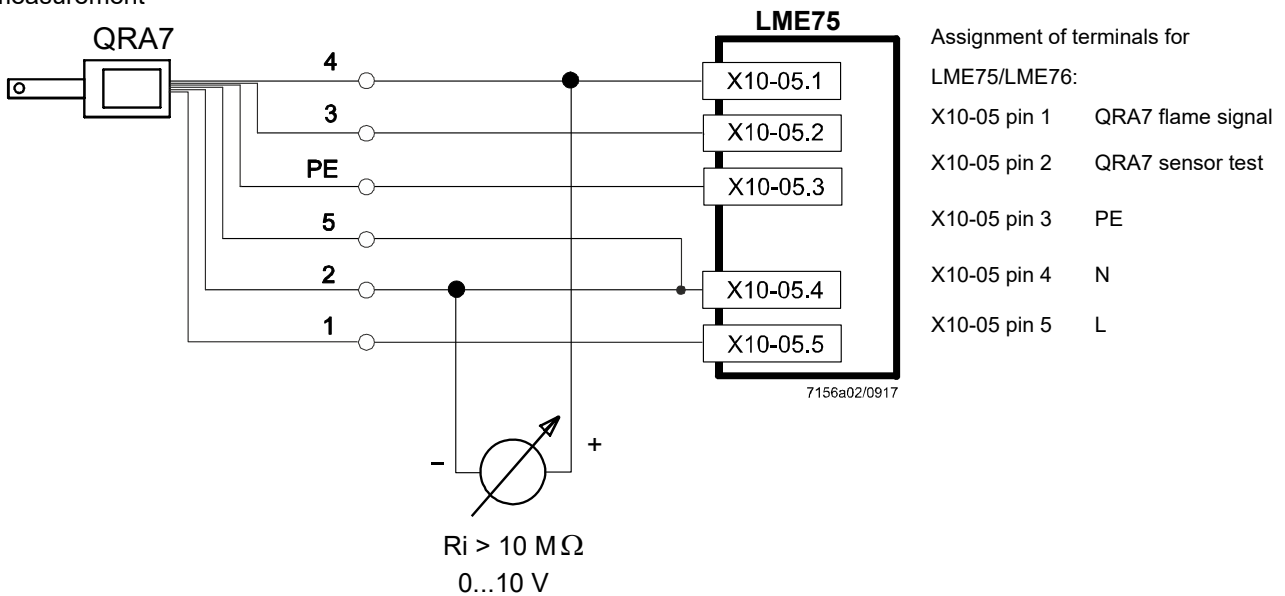
Figure 18: Connection diagram QRA7

Assignment of terminals for
LME75/LME76:

X10-05 pin 1   QRA7 flame signal

X10-05 pin 2   QRA7 sensor test

X10-05 pin 3   PE

X10-05 pin 4   N

X10-05 pin 5   L

> **Warning!**
> - **The output terminal X10-05 pin 2 *QRA7 detector test* is not short-circuit-proof!**
>   **A short-circuit in terminal X10-05 pin 2 to ground can destroy the QRA7 output**
> - **If the ionization probe and QRA7, QRI, or LFS1 are operated simultaneously, the parameter settings in the following chapters must be observed: "Ionization probe terminal X10-06", "QRA7/QRI terminal X10-05 (LME75 only)", and "LFS1 terminal X10-05 (LME76 only)". Failure to observe this information poses a risk of device functions being impaired.**

8.12.3   QRI with LME75 at terminal X10-05

> ⚠️ **Warning!**
> **The QRI must not be connected to the LME76. Failure to observe this instruction will result in the LME76 or QRI becoming defective.**

> ⚠️ **Caution!**
> **All measured voltages refer to connection terminal N (terminal X10-05 pin 4).**

QRI detector test in operation (terminal X10-05 pin 2)	
• Operation	14 V DC
• Detector test	21 V DC
Required flame signal voltage (terminal X10-05 pin 1)	Min. 3.5 V DC
Threshold values when flame is supervised by QRI	
• Start prevention (extraneous light)	Flame intensity > 5% (parameter 954.01)
• Operation	Flame intensity > 50% (parameter 954.01)
Permissible length of detector cable (laid separately)	Max. 100 m, unshielded Min. 3 cm distance to other cables

Parameter	Function
954.01	Intensity of flame QRI (0…100%)

For more detailed information about QRI, refer to data sheet N7719.

Connection diagram
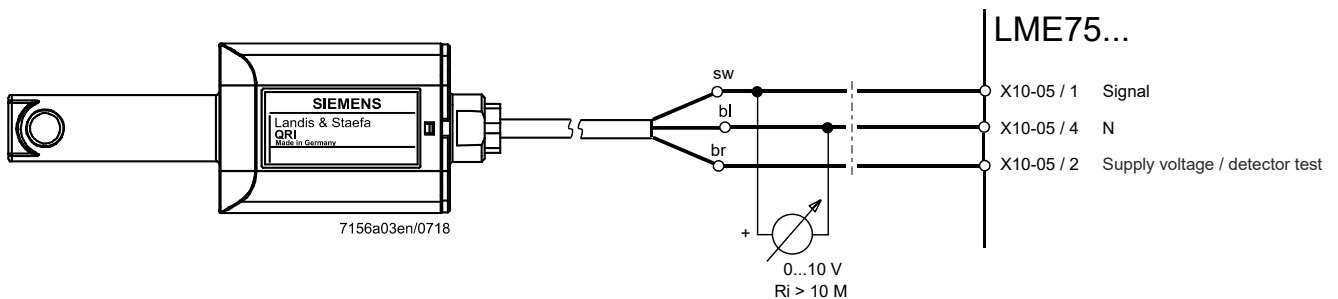
Figure 19: QRI connection diagram

> ⚠️ **Caution!**
> **Ensure the 3 QRI connecting wires are connected properly. If connected incorrectly to terminal X10-05, there is a risk that the LME75 and QRI may malfunction.**

8.12.4 LFS1 with LME76 at terminal X10-05

⚠️ **Warning!**
An LFS1 or the connection between terminal X10-05 pin 5 and terminal X10-05 pin 1 must not be connected to the LME75. Failure to observe this information will result in the LME75 becoming defective.

⚠️ **Caution!**
Continuous operation of the LME76 with LFS1 is only permitted in connection with…
- **LFS1.11Ax and RAR9**
- **LFS1.21Ax and ionization probe**

It is only permitted to operate the LME76 with the LFS1.21Ax and QRA2/QRA4/QRA10 intermittently (with a maximum continuous operation of 24 hours).

Parameter 239 = 1 and parameter 218 = 80050.31 seconds or with external control via heat request < 24 hours.

		Intensity of flame
Required flame signal during operation	Mains voltage at terminal X10-05 pin 3 **and** no mains voltage at terminal X10-05 pin 1	100%
No flame signal during operation	Mains voltage at terminal X10-05 pin 1 **or** no mains voltage at terminal X10-05 pin 3	0%
Extraneous light in standby/startup	Mains voltage at terminal X10-05 pin 3 **or** no mains voltage at terminal X10-05 pin 1	100%
No extraneous light in standby/startup	Mains voltage at terminal X10-05 pin 1 **and** no mains voltage at terminal X10-05 pin 3	0%

Parameter	Function
954.01	Intensity of flame LFS1 (0% or 100%)

For more detailed information on LFS1, refer to data sheet N7782 and user documentation A7782.

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8/13/2018

8.12.4.1 Connection diagram of an ionization probe only without LFS1

LME76

DBR1

| X10-05.1 |
| X10-05.2 |
| X10-05.3 |
| X10-05.4 |
| X10-05.5 |

7156a06/0417
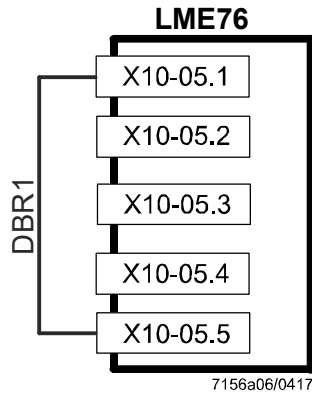
Figure 20: Connection diagram of an ionization probe only without LFS1

8.12.4.2 Connection diagram with LFS1

LFS1   **LME76**

10	—	X10-05.1
6	—	X10-05.2
12	—	X10-05.3
2	—	X10-05.4
1	—	X10-05.5
11
9

7156a05/0817
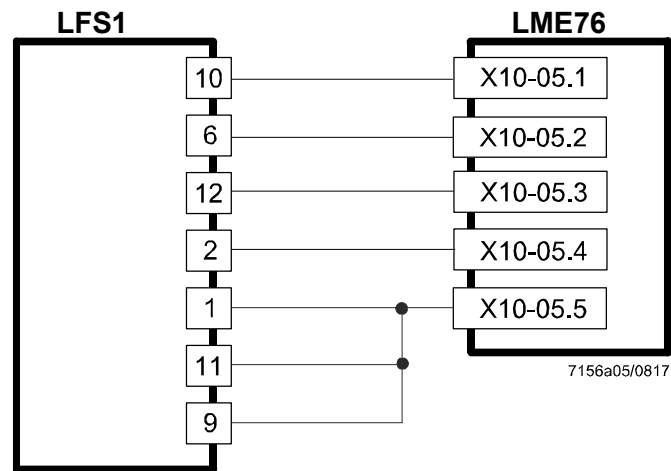
Figure 21: Connection diagram with LFS1

⚠ **Caution!**
Refer to the documentation for the LFS1
→ Data sheet N7782
→ User documentation A7782

⚠ **Caution!**
Refer to the documentation for the PME76
→ User documentation A7156.xx

8.12.4.3 Connection diagram with LFS1 OR operation
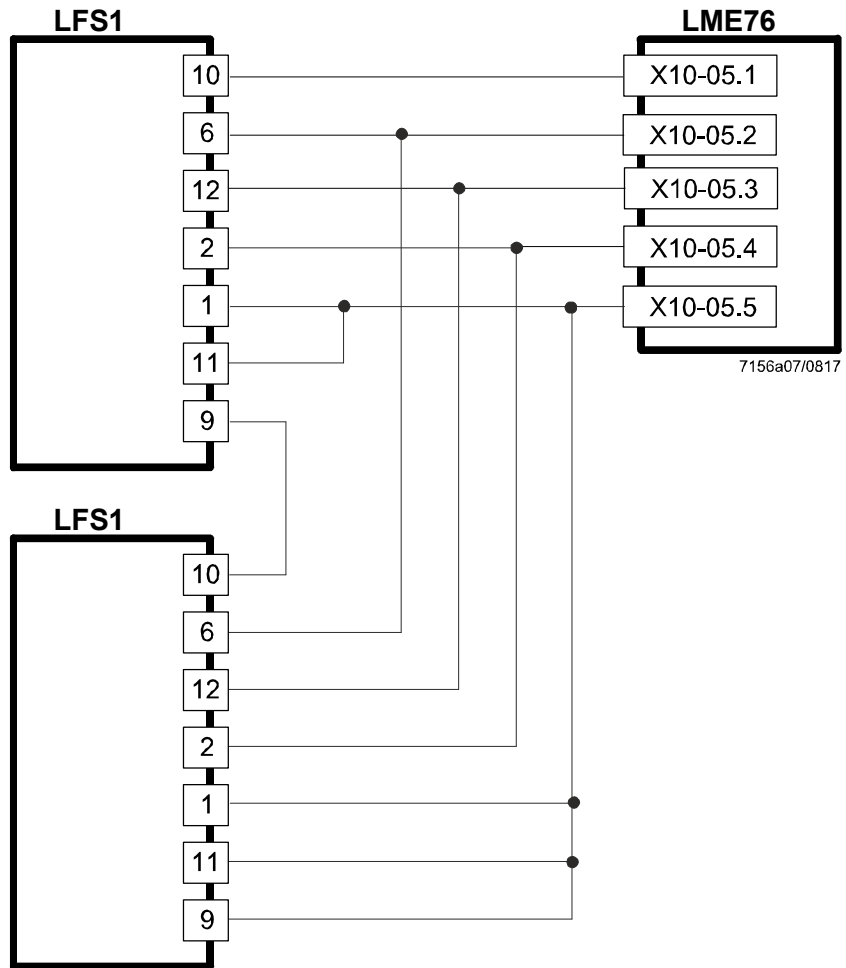
Figure 22: Connection diagram with LFS1 OR operation

⚠️ **Caution!**
Refer to the documentation for the PME76
→ User documentation A7156.xx

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8.12.4.3 Connection diagram with LFS1 AND operation
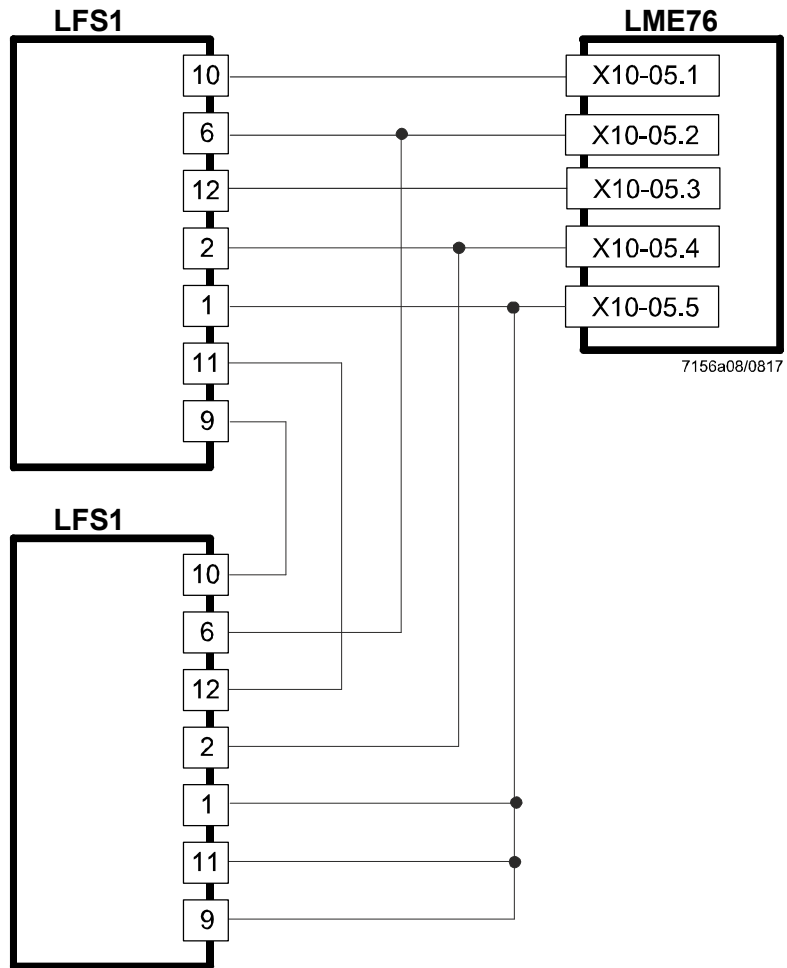
Figure 23: Connection diagram with LFS1 AND operation

> ⚠️ **Caution!**
> **Refer to the documentation for the PME76**
> **→ User documentation A7156.xx**

9 Dimensions

Dimensions in mm

LME75/LME76
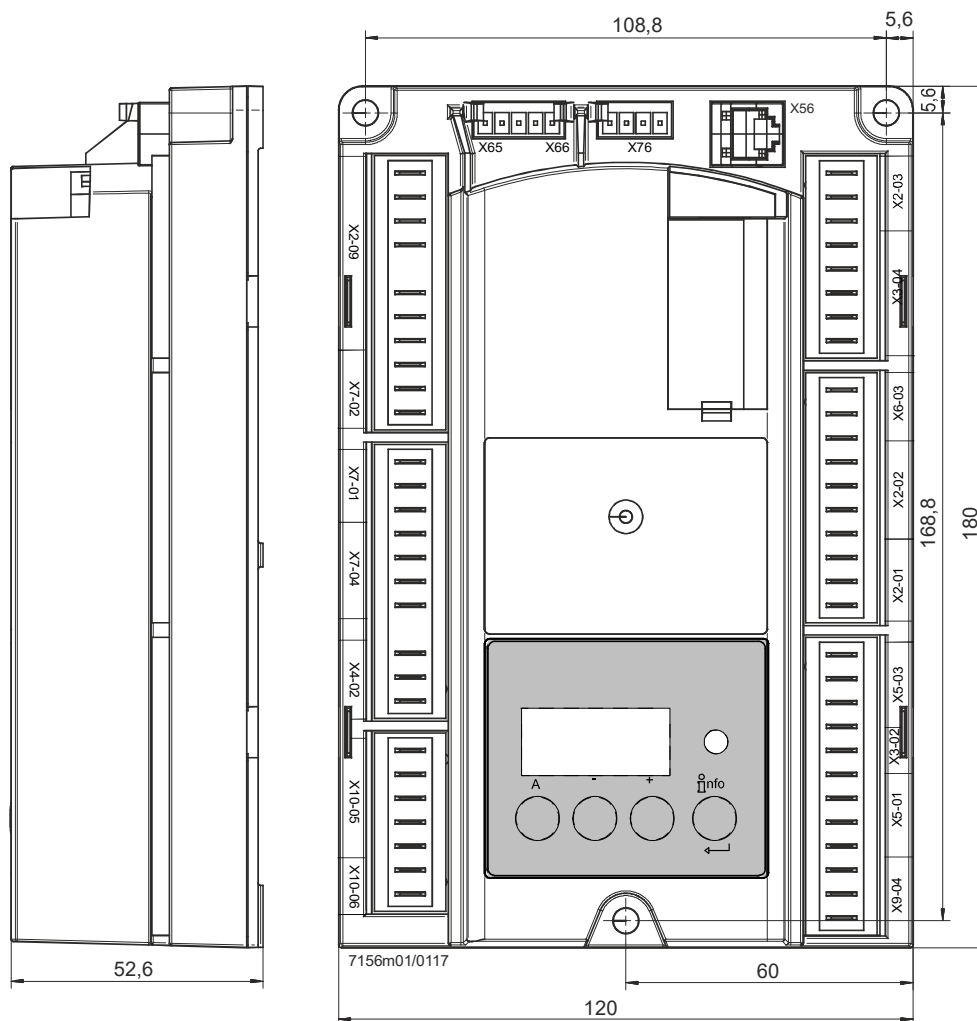
Figure 24: Dimensions of the LME75/LME76

10 Description of inputs on LME75/LME76

☞ Note!
This chapter covers the basic features of the LME75/LME75 inputs. For exact use of the inputs, see the sequence diagrams in the user documentation (A7156.x).

10.1 Air pressure switch terminal X3-02

"L" for air pressure switch (LP)

Air pressure switch (LP)
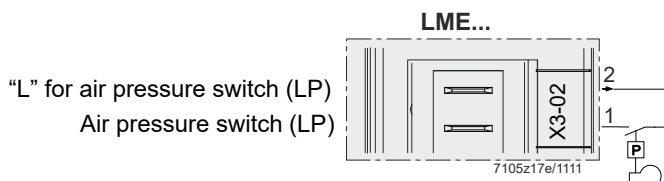
Figure 25: Air pressure switch terminal X3-02

Parameter	Function
222	Gas: Prepurging 0 = inactive 1 = active
224	Gas: Specified time for the air pressure switch
225.00	Gas: Prepurge time (t1)
225.01	Gas: Multiplicator for prepurge time (t1) (extension of prepurge time)
226	Gas: Preignition time (t3)
234.00	Gas: Postpurge time (t8) (no extraneous light test)
234.01	Gas: Multiplicator for postpurge time (t8) (extension of postpuging)

235.00	Gas: Air pressure switch input
	0 = no evaluation of the air pressure switch during operation
	    (evaluation only during prepurging and, if necessary, postpurging)
	1 = evaluation of the air pressure switch during prepurging and
	    postpurging, as well as when in the operating position

235.01	Gas: Air pressure switch – response time to loss 0 = typically 0.7 seconds ≥ 0 = additional delay in reaction to faulty air pressure switch
264	Oil: Specified time for the air pressure switch
265.00	Oil: Prepurge time (t1)
265.01	Oil: Multiplicator of the prepurge time (t1) (extension of prepurge time)
266.00	Oil: Preignition time (t3)
266.01	Oil: Multiplicator for preignition time (t3) (extension of the preignition)
274.00	Oil: Postpurge time (t8)
274.01	Oil: Multiplicator of postpurge time (t8) (extension of postpurge time)
275.00	Oil: Air pressure switch input 0 = no evaluation of the air pressure switch during operation 1 = evaluation of the air pressure switch from fan motor ON
275.01	Oil: Air pressure switch – response time to loss in operation 0 = typically 0.7 seconds ≥ 0 = additional delay in reaction to faulty air pressure switch

Input for connection of an air pressure switch. The air pressure is anticipated after the fan has been switched on, depending on the parameter settings. If no signal is received, this leads to a non-alterable lockout. The air pressure switch must have an NO contact.

> **Warning!**
> **The OEM must check to see whether the burner can be operated without an air pressure switch. This may necessitate a special approval depending on the application.**

10.2 Pressure switch-min terminal X5-01

LME...

"L" for pressure switch-min | | | | | | X9-04 | 3
Feedback input pressure switch-min | | | | 2
Protective earth (PE) | | | | 1

7156z44en/1018
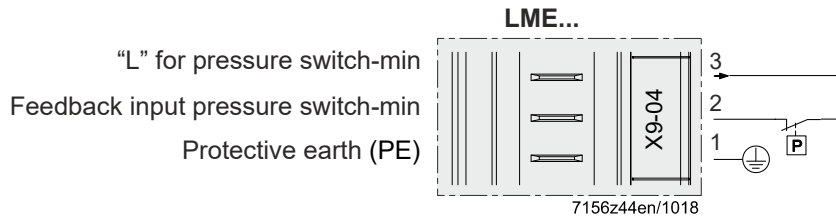
Figure 26: Pressure switch-min terminal X5-01

Parameter	Function
223	Pressure switch-min – reaction to loss 0 = safety shutdown and start prevention 1 = non-alterable lockout
236	Gas: Input pressure switch-min 0 = permanent evaluation 1 = in operation only (after second safety time)
276	Oil: Input pressure switch-min 0 = inactive (no evaluation) 1 = active (evaluation from preignition time [t3])

Input for connection of a pressure switch-min. The minimum pressure is checked depending on the parameter settings. If no signal is received, this leads to a non-alterable lockout. The pressure switch-min must have a normally closed contact.

10.3 Pressure switch-max, POC/CPI, valve proving ON/OFF or oil temperature limiter terminal X2-02

Feedback for pressure switch-max, POC/CPI, valve proving ON/OFF or oil temperature limiter

Power supply for pressure switch-max, POC/CPI, valve proving ON/OFF or oil temperature limiter
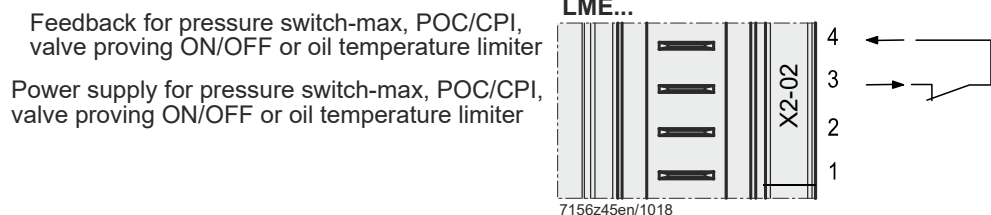
Figure 27: Pressure switch-max, POC/CPI, valve proving ON/OFF or oil temperature limiter terminal X2-02

Parameter	Function
237.00	Gas: Function input terminal X2-02 **OR** Gas: Input for POC / CPI (with PME75.811Ax / PME76.811Ax only) 0 = inactive → Input does not need to be connected 1 = active (test during startup and shutdown (not safety relevant)) → POC is checked for closed during startup and shutdown. This means that the POC can be replaced with a wire link Dbr1. 2 = active (test during startup and shutdown, as well as when switching to operating mode (safety relevant)) → POC is checked for closed during startup and shutdown and checked for open when switching to operating mode. This means that a signal change must take place by switching the POC.
237.01	Gas: Function input terminal X2-02 0 = function input for valve proving ON/OFF via external switching contact (with PME75.831Ax / PME76.831Ax only) 1 = function input for pressure switch-max 0 = pressure switch-max inactive **OR** Function input POC or gas pressure switch-max terminal X2-02 0 = input for POC 1 = input for gas pressure switch-max. **OR** Function input valve proving or gas pressure switch-max terminal X2-02 0 = deactivation of valve proving (via external switching contact) 1 = input for gas pressure switch-max
241 241.00	Gas: Valve proving 0: OFF 1: ON
241.01	Gas: Valve proving (PME75.831Ax / PME76.831Ax only) 0: During prepurge time 1: During postpurge time
241.02	Gas: Valve proving (PME75.831Ax / PME76.831Ax only) 0: According to parameter 241.01 1: During prepurge time and postpurge time

Parameter	Function
285.00	Oil: Function input for terminal X2-02, oil temperature limiter / POC 0 = inactive 1 = POC input (valve closing control) 2 = Oil temperature limiter input
285.01	Oil: Evaluation of the oil temperature limiter 0 = inactive during operation 1 = active during operation
296	Oil preheater waiting time (timeout) 600 seconds (factory setting)

Various functions can be activated or deactivated via function input terminal X2-02 pin 3 / pin 4, depending on the PME75/PME76 in use and the settings for parameters 237.00 and 237.01.

☞ Note!
Only one function can be selected at function input terminal X2-02 during the running time.

	POC/CPI	Valve proving ON/OFF	Function input Pressure switch-max	Oil temperature limiter
PME75.231Ax	●	---	---	●
PME76.231Ax	●	---	---	●
PME75.811Ax	●	---	●	---
PME76.811Ax	●	---	●	---
PME75.812Ax	●	---	---	---
PME76.812Ax	●	---	---	---
PME75.831Ax	---	●	●	---
PME76.831Ax	---	●	●	---

⚠ **Warning!**
Where parameter 237.01 = 0, only one external switch may be connected to deactivate the valve proving.
It is not permitted to have a POC/CPI or pressure switch-max.
Failure to observe this information poses a risk of the safety functions of the valve proving function being impaired.

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10.3.1 Pressure switch valve proving or pressure switch-max terminal X9-04

LME...

"L" for pressure switch-max

Pressure switch valve proving

Protective earth (PE)

7156z46en/1018
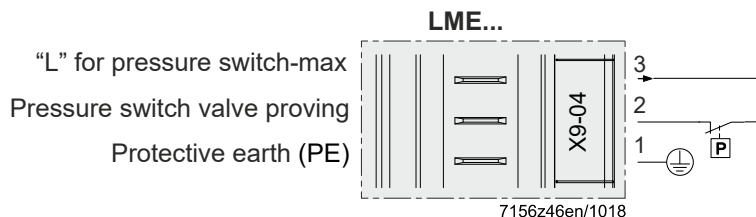
Figure 28: Pressure switch valve proving or pressure switch-max terminal X9-04

Parameter	Function
237.00	Gas: Function input terminal X2-02 **OR** Gas: Input for POC / CPI (with PME75.811Ax / PME76.811Ax only) 0 = inactive → Input does not need to be connected 1 = active (test during startup and shutdown (not safety relevant)) → POC is checked for closed during startup and shutdown. This means that the POC can be replaced with a wire link Dbr1. 2 = active (test during startup and shutdown, as well as when switching to operating mode (safety relevant)) → POC is checked for closed during startup and shutdown and checked for open when switching to operating mode. This means that a signal change must take place by switching the POC.
237.01	Gas: Function input terminal X9-04 0 = function input for valve proving ON/OFF via external switching contact (with PME75.811Ax / PME76.811Ax only) 1 = function input for pressure switch-max 2 = pressure switch-max inactive **OR** Function input for gas pressure switch-max terminal X9-04 0 = inactive 1 = active **OR** Function input terminal X9-04 0 = deactivation of valve proving (via external switching contact) 1 = input for gas pressure switch-max
241 241.00	Gas: Valve proving 0: OFF 1: ON
241.01	Gas: Valve proving (PME75.811Ax / PME76.811Ax only) 0: During prepurge time 1: During postpurge time
241.02	Gas: Valve proving (PME75.811Ax / PME76.811Ax only) 0: According to parameter 241.01 1: During prepurge time and postpurge time
242	Gas: Valve proving – test space evacuating (td4)
243	Gas: Valve proving – test time atmospheric pressure (td1)

Parameter	Function
244	Gas: Valve proving – test space filling (td3)
245	Gas: Valve proving – test time gas pressure (td2)
277	Oil: Input for pressure switch-max 0 = inactive (no evaluation) 1 = active (evaluation from preignition time [t3])

Input for connection of a pressure switch for valve proving or a pressure switch-max. The maximum pressure is checked depending on the parameter settings. If no signal is received, this leads to a non-alterable lockout. The pressure switch-max must have a normally closed contact.

⚠️ **Warning!**
The OEM must set the evacuation, filling, and test times for atmospheric or mains pressure on every plant in compliance with the requirements of EN 1643. Failure to observe this information poses a risk of damaging the safety functions.

10.4 Ionization probe terminal X10-06
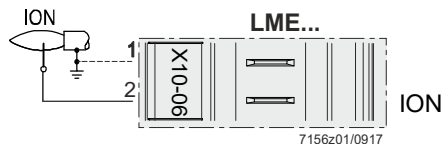
Figure 29: Ionization probe terminal X10-06

Parameter	Function
179	Gas: Logical combination of both flame signal amplifier channels 0 = flame signal amplifier channels are logically combined with an **OR** operation (ionization **OR** QRA7/QRI/LFS1) 1 = flame signal amplifier channels are logically combined with an **AND** operation (ionization **AND** QRA7/QRI/LFS1)
216	Oil: Extraneous light tolerance time in standby
217.00	Flame signal flame-on response time (extension) (not adjustable) 0 = maximum 1 second with ionization, maximum 2 seconds with LFS1
217.01	Flame signal flame-out response time (extension) 0 = maximum 1 second with ionization, maximum 2 seconds with LFS1 ≥ 0 = additional extension to reaction to a flame fault
220	Oil: Reaction to extraneous light in standby or extraneous light test in the prepurging 0 = start prevention 1 = non-alterable lockout
240	Gas: Restart in the event of loss of flame during operation and in the event of no flame at the end of the safety time 0 = no restart 1 = no restart 2 = 1x restart 3 = 2x restart 4 = 3x restart

280	Oil:
	• Flame supervision with ionization probe:
	  Restart at loss of flame during interval (t4) and second safety time (t9)
	• Flame supervision with QRA7/QRI:
	  Restart at loss of flame during interval (t5) and in operation
	0 = no restart
	1 = no restart
	2…255 = 1…254 x restart

954.00	Intensity of flame for ionization probe (0…100%)

Input for connection of an ionization probe. The signal for the ionization probe is checked depending on the parameter settings. If no signal is received, this leads to a non-alterable lockout.

⚠ **Caution!**
Ensure the ionization probe connecting wires are connected properly.
If connected incorrectly to terminal X10-05, there is a risk that the LME76 and ionization probe may malfunction.

10.5 QRA7/QRI terminal X10-05 (LME75 only)
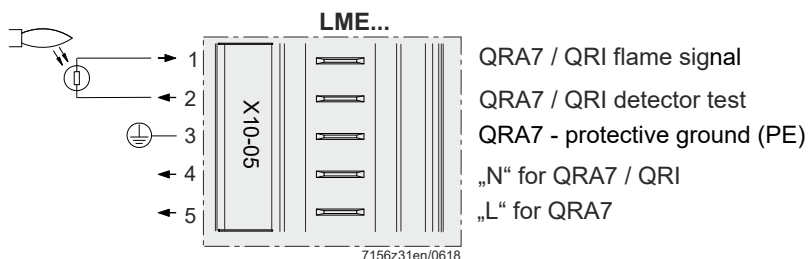
Figure 30: QRA7/QRI terminal X10-05

Parameter	Function
179	Gas: Logical combination of both flame signal amplifier channels 0 = flame signal amplifier channels are logically combined with an **OR** operation (ionization **OR** QRA7/QRI) 1 = flame signal amplifier channels are logically combined with an **AND** operation (ionization **AND** QRA7/QRI)
180	Test interval for flame detector QRA7/QRI 0 = $\leq$5 minutes 1 = $\leq$5 seconds
216	Oil: Extraneous light tolerance time in standby
217.00	Flame signal flame-out response time (extension) (not adjustable) 0 = maximum 1 second with ionization, maximum 2 seconds with LFS1
217.01	Flame signal flame-out response time (extension) 0 = maximum 1 second with ionization, maximum 2 seconds with LFS1 $\geq$ 0 = additional extension to reaction to a flame fault
220	Oil: Reaction to extraneous light in standby or extraneous light test in the prepurging 0 = start prevention 1 = non-alterable lockout
240	Gas: Restart in the event of loss of flame during operation and in the event of no flame at the end of the safety time 0 = no restart 1 = no restart 2 = 1x restart 3 = 2x restart 4 = 3x restart

280	Oil:
	• Flame supervision with ionization probe:
	  Restart at loss of flame during interval (t4) and second safety time (t9)
	• Flame supervision with QRA7/QRI:
	  Restart at loss of flame during interval (t5) and in operation
	0 = no restart
	1 = no restart
	2…255 = 1…254 x restart

954.01	Intensity of flame QRA7/QRI (0…100%) **OR** Intensity of flame LFS1 (0% or 100%)

Input for connection of a QRA7/QRI. The signal for the QRA7/QRI is checked depending on the parameter settings. If no signal is received, this leads to a non-alterable lockout.

> ⚠️ **Warning!**
> **Risk of mixing up with LME71/LME73.**
> **Only QRA7 or QRI may be connected to connection terminal X10-05.**
> **Only an ionization probe may be connected to connection terminal X10-06.**
> **Failure to observe this information poses a risk of loss of device functions or a fault in the LME75 equipment.**

> ⚠️ **Warning!**
> **The QRA7 input is not short-circuit-proof.**
> **A short circuit in terminal X10-05 pin 2 to ground can destroy the QRA7 input.**
> **Failure to observe this information poses a risk of loss of device functions.**

> ⚠️ **Warning!**
> **It is not permitted to connect the LFS1. Failure to observe this information poses a risk of damaging the LME75.**

> ☞ Note!
> If an ionization probe is operated simultaneously with a QRA7 or QRI, be sure to note the parameter settings.

> ⚠️ **Caution!**
> **Ensure the QRA7/QRI connection wires are connected properly and in-phase. If connected incorrectly to terminal X10-05, there is a risk that the LME75 and QRA7/QRI may malfunction.**

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10.6 LFS1 terminal X10-05 (LME76 only)

LME...

1 LFS1 flame signal path NC contact
2 LFS1 flame safeguard test
3 LFS1 flame signal path NO contact
4 "N" for LFS1
5 "L" for LFS1

7156z35en/0618
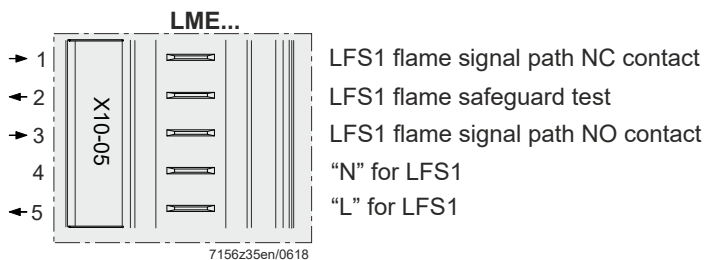
Figure 31: LFS1 terminal X10-05

Parameter	Function
179	Gas: Logical combination of both flame signal amplifier channels 0 = flame signal amplifier channels are logically combined with an **OR** operation (ionization **OR** LFS1) 1 = flame signal amplifier channels are logically combined with an **AND** operation (ionization **AND** LFS1)
216	Extraneous light tolerance time in standby
217.00	Flame signal flame-out response time (extension) (not adjustable) 0 = maximum 1 second with ionization, maximum 2 seconds with LFS1
217.01	Flame signal flame-out response time (extension) 0 = maximum 1 second with ionization, maximum 2 seconds with LFS1 ≥ 0 = additional extension to reaction to a flame fault
240	Gas: Restart in the event of loss of flame during operation and in the event of no flame at the end of the safety time 0 = no restart 1 = no restart 2 = 1x restart 3 = 2x restart 4 = 3x restart
280	Restart in the loss of flame during operation 0 = no restart 1 = no restart 2…255 = 1…254 x restart
954.01	Intensity of flame LFS1 (0% or 100%)

Input for connection of an LFS1. The signal for the LFS1 is checked depending on the parameter settings. If no signal is received, this leads to a non-alterable lockout.

> **Warning!**
> **In the event of flame supervision with LFS1, the *flame signal flame-out-response time* (flame fault response time) must be observed.**

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10.6.1 Flame safeguard test

During the prepurging, the LFS1 is in test mode (flame safeguard test output X10-05 pin 2 inactive).
During operation (from the first safety time), the LFS1 is in operating mode (flame safeguard test output X10-05 pin 2 active).

Warning!
Risk of mixing up with LME71/LME73.
Only LFS1 may be connected to connection terminal X10-05.
Only an ionization probe may be connected to connection terminal X10-06.
Failure to observe this information poses a risk of loss of device functions or a fault in the LME76 equipment.

Caution!
Ensure the LFS1 connection wires are connected properly and in-phase. If connected incorrectly to terminal X10-05, there is a risk that the LME75 and LFS1 may malfunction.

Note!
If an ionization probe is operated with an LFS1 simultaneously, be sure to note the parameter settings.

Caution!
The response time with LFS1 is ≤ 2 seconds.

Caution!
Continuous operation of the LME76 with LFS1 is only permitted in connection with…
- **LFS1.11Ax and RAR9**
- **LFS1.21Ax and ionization probe**

It is only permitted to operate the LME76 with the LFS1.21Ax and QRA2/QRA4/QRA10 intermittently (with a maximum continuous operation of 24 hours).

Parameter 239 = 1 and parameter 218 = 80050.31 s or with external control via heat request < 24 hours.

Note!
An **OR** operation is always used for extraneous light detection in the startup and shutdown phases.
This means that, as soon as a flame signal is detected at one of the two flame signal inputs during extraneous light detection (phase 30), a non-alterable lockout is performed (Loc: 4).

10.7 Analog input load controller terminal X65
PME75
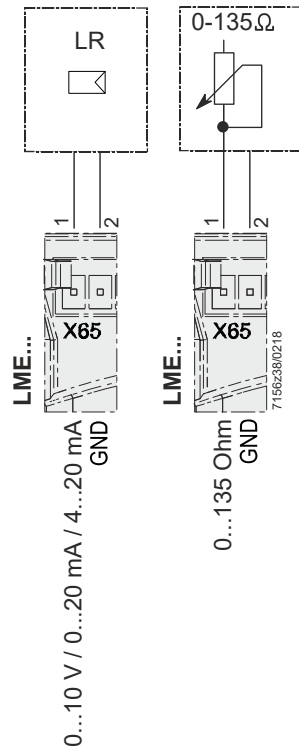
Figure 32: Analog input for load controller terminal X65

Parameter	Function
140	Mode display in the 7-segment display 1 = standard (program phase) 2 = flame 1 (ionization) 3 = flame 2 (QRA7/QRI or LFS1) 4 = active power (power value)
515.01	Actuator control 0 = OFF 1 = ON
	☞ **Note!** Operation without actuator control (parameter 515.01 = 0)! No actuators may be connected and parameter 560 must be set to 0. Depending on the program sequence of the PME75 / PME76, a Dbr3 wire link at terminal X2-09B from pin 7 to pin 8 is required during operation without actuator. Further details can be found in the respective A7156.x user documentation under chapter *Operation without actuator*.
560	Pneumatic combustion control 0 = OFF / 3-position step modulation 1 = PWM fan motor / analog modulation
	☞ **Note!** Setting = 1 No function. This selection puts the LME75 / LME76 in lockout position.
	2 = Air damper / analog modulation (ASZxx.3x feedback required)

Parameter	Function
563	Oil: Operating mode of the ratio control 0 = modulating 1 = multistage
654	Only in modulating operation (parameter 560 = 2) Analog input (ASZxx.3x feedback required) 0 = 3-position step input 1 = 0…10 V 2 = 0…135 Ω 3 = 0…20 mA 4 = 4…20 mA with a non-alterable lockout at I < 4 mA 5 = 4…20 mA without a non-alterable lockout at I < 4 mA

Input for connection of an analog load controller. The analog signal for the load controller is checked depending on the parameter settings. If no signal is received, this leads to a non-alterable lockout.

Note!
Shielded cables must be used if cables are > 10 m.

Note!
Load control via analog input terminal X65 always requires an actuator with a built-in ASZ for position feedback.

10.8 External load controller (ON/OFF) terminal X5-03

"L" for load controller management

External load controller OFF

External load controller CLOSED

Input temperature controller or limit thermostat
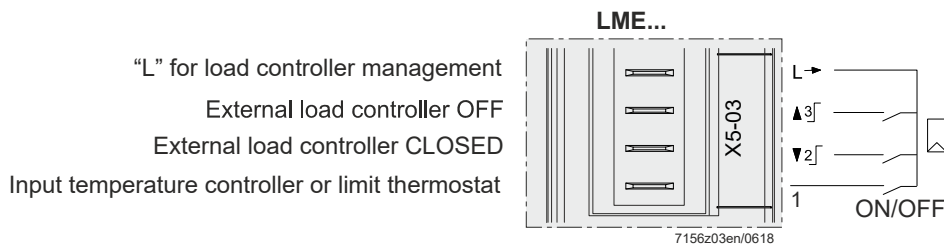
Figure 33: External load controller ON/OFF terminal X5-03

Parameter	Function

212	Gas: Running time of the actuator to the low-fire position on shutdown
	  0 seconds: Shutdown in the final actuator position
	> 0 seconds: Actuator travels to low-fire position
	                       → shutdown takes place

232	Gas: Interval (t5): Stabilization time main flame
234.00	Gas: Postpurge time (t8) (no extraneous light test)
234.01	Gas: Multiplicator for postpurge time (t8) (extension of postpuging)
272	Oil: Interval (t5): Stabilization time main flame
274.00	Oil: Postpurge time (t8)
274.01	Oil: Multiplicator for postpurge time (t8) (extension of the postpurge process)
515.00	Oil: Actuator position during postpurge time (t8) 0 = Purging in low-fire 1 = Purging in high-fire
515.01	Actuator control 0 = OFF 1 = ON
	☞ Note! Operation without actuator control (parameter 515.01 = 0)! No actuators may be connected and parameter 560 must be set to 0. Depending on the program sequence of the PME75 / PME76, a Dbr3 wire link at terminal X2-09B from pin 7 to pin 8 is required during operation without actuator. Further details can be found in the respective A7156.x user documentation under chapter *Operation without actuator*.
560	Pneumatic combustion control 0 = OFF / 3-position step modulation 1 = PWM fan motor / analog modulation
	☞ Note! Setting = 1 No function. This selection puts the LME75 / LME76 in lockout position.
	2 = Air damper / analog modulation (ASZxx.3x feedback required)

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Parameter	Function	
563	Oil: Operating mode of the ratio control 0 = modulating 1 = multistage	
654	Only in modulating operation (parameter 560 = 2) Analog input (ASZxx.3x feedback required) 0 = 3-position step input 1 = 0…10 V 2 = 0…135 Ω 3 = 0…20 mA 4 = 4…20 mA with a non-alterable lockout at I < 4 mA 5 = 4…20 mA without a non-alterable lockout at I < 4 mA	

Input for connection of an external load controller with 3-point step control and a temperature controller or temperature limiter. The signal for the external load controller with 3-position step control is checked depending on the parameter settings. If no signal is received, this leads to a non-alterable lockout.

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10.9 Safety loop terminal X3-04
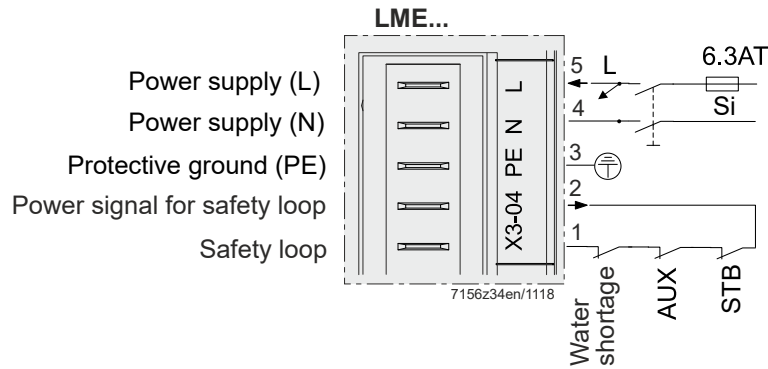
Figure 34: Safety loop terminal X3-04

Parameter	Function
215.00	Response when opening the safety loop (safety loop failure) 0 = safety shutdown and start prevention 1 = safety shutdown followed by non-alterable lockout
215.01	Tolerance time for safety loop during heat request (start of startup sequence after standby)

Input for the safety loop. When any of the series-connected contacts included in the loop opens, power supply to the fuel valves, the fan, and the ignition is instantly cut.

The following contacts are included in the safety loop:
- Safety limiter / safety pressure limiter
- External limit thermostat and/or pressure switch, if required
- Water shortage switch

For diagnostic purposes, the contacts of the components included in the safety loop are combined for delivering the *safety loop* signal.
If the safety loop is not closed during a heat request (load controller ON/OFF at terminal X5-01 pin 3), a non-alterable lockout is performed with error code **Loc: 22**.

☞ Note!
The power signal for the safety loop is only active if a heat request (load controller ON/OFF) is present at terminal X5-01 pin 3. In the lockout position, the power signal switches off too.

⚠ Warning!
The in-phase connection of the power supply must be observed. Failure to observe this information poses a risk of loss of device functions.

11 Description of outputs on LME75/LME76

11.1 Fan motor terminal X2-01

Figure 35: Fan motor terminal X2-01

Parameter	Function
222	Gas: Prepurging 0 = inactive 1 = active

Output for connection of a fan motor.

11.2 Oil temperature limiter or PWM fan motor terminal X2-02

"L" for oil temperature limiter or PWM fan motor

"N" for oil temperature limiter or PWM fan motor
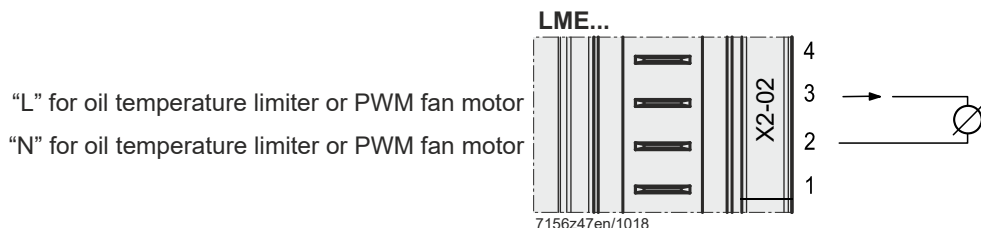
Figure 36: Oil temperature limiter or PWM fan motor terminal X2-02

Parameter	Function

237.00	Gas: Function input terminal X2-02
	OR
	Gas: Input for POC / CPI (with PME75.811Ax / PME76.811Ax only)
	0 = inactive
	   → Input does not need to be connected
	1 = active
	   (test during startup and shutdown (not safety relevant))
	   → POC is checked for closed during startup and shutdown.
	     This means that the POC can be replaced with a wire link Dbr1.
	2 = active
	   (test during startup and shutdown, as well as when switching to operating mode (safety relevant))
	   → POC is checked for closed during startup and shutdown and checked for open when switching to operating mode.
	     This means that a signal change must take place by switching the POC.

237.01	Gas: Function input terminal X2-02 0 = function input for valve proving ON/OFF via external switching contact (with PME75.831Ax / PME76.831Ax only) 1 = function input for pressure switch-max 0 = pressure switch-max inactive **OR** Function input POC or gas pressure switch-max terminal X2-02 0 = input for POC 1 = input for gas pressure switch-max. **OR** Function input leakage control or gas pressure switch-max terminal X2-02 0 = deactivation of valve proving (via external switching contact) 1 = input for gas pressure switch-max
241 241.00	Gas: Valve proving 0: OFF 1: ON
241.01	Gas: Valve proving (PME75.831Ax / PME76.831Ax only) 0: During prepurge time 1: During postpurge time
241.02	Gas: Valve proving (PME75.831Ax / PME76.831Ax only) 0: According to parameter 241.01 1: During prepurge time and postpurge time

Parameter	Function
285.00	Oil: Function input for terminal X2-02, oil temperature limiter / POC 0 = inactive 1 = POC input (valve closing control) 2 = Oil temperature limiter input
285.01	Oil: Evaluation of the oil temperature limiter 0 = inactive during operation 1 = active during operation
296	Oil preheater waiting time (timeout) 600 seconds (factory setting)

An oil preheater or PWM fan motor is controlled via terminal X76.

Caution!
A PWM fan motor can only be used in connection with pneumatic ratio control.

Caution!
If terminal X2-02 pin 3 is used as the connection for supplying the PWM fan motor, no other motor may be connected on terminal X2-01.

11.3 PWM fan motor control terminal X76
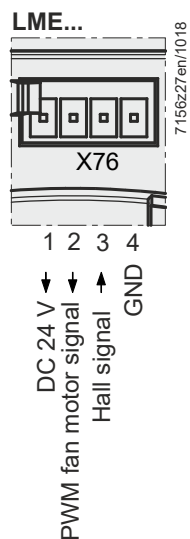
Figure 37: PWM fan motor control terminal X76

Parameter	Function
Every 4xx	Ratio control (operation)
Every 5xx	Ratio control
Every 6xx	Power setting
920	Current signal of PWM fan motor
936	Standardized speed of PWM fan motor

Output for connection of a PWM fan motor (DC).

☞ Note!
The function of the PWM fan motor is dependent on the PME75/PME76 and the respective parameterization.

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11.4 Alarm / remote lockout reset terminal X2-03
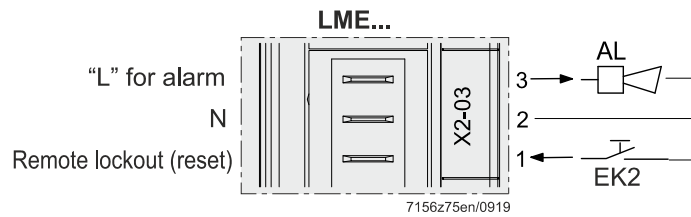
Figure 38: Alarm / remote lockout reset terminal X2-03

11.4.1 Alarm terminal X2-03 pin 3

Output at terminal X2-03 pin 3 for connection of an alarm lamp or horn.
The output is activated when the LME75/LME76 is in the lockout position.

☞ Exception!
The output is deactivated (alarm lamp OFF), when the LME75/LME76 is in the lockout position (lockout code Loc: 10) due to an error in the output contacts (welded contact of an output relay).

11.4.2 Remote lockout (reset) terminal X2-03 pin 1

Input at terminal X2-03 pin 1 for connecting a lockout reset button between pin 2 and pin 1. The LME75/LME76 can be reset with this button (non-volatile lockout position). Press and hold the button for 1 to 3 seconds to reset.

11.5 Actuator terminal X2-09
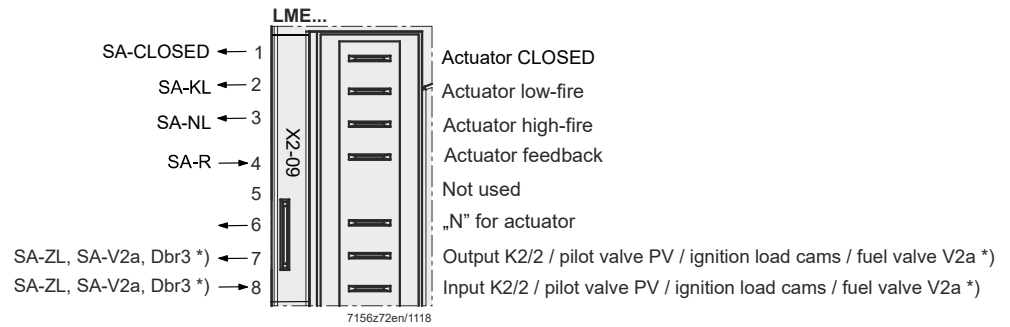
*) Depending of the fuel train, see User Manual A7156.x

Figure 39: Actuator terminal X2-09

Parameter	Function
123	Minimum power adjustment
212	Gas: Running time of the actuator to the low-fire position on shutdown 　0 seconds: Shutdown in the final actuator position > 0 seconds: Actuator travels to low-fire position 　　　　　　　　→ shutdown takes place
234.00	Gas: Postpurge time (t8) (no extraneous light test)
234.01	Gas: Multiplicator for postpurge time (t8) (extension of postpuging)
259	Gas: Opening time of actuator (timeout)
259.00	Gas: Opening time of actuator (timeout)
259.01	Gas: Travel time of actuator (for PME75.831Ax / PME76.831Ax only) → Ignition load position to low-fire position
259.02	Gas: Travel time of actuator (for PME75.831Ax / PME76.831Ax only) → Low-fire position to ignition load position
260	Gas: Closing time of actuator (timeout)
272	Oil: Interval (t5): Stabilization time main flame
274.00	Oil: Postpurge time (t8)
274.01	Oil: Multiplicator for postpurge time (t8) (extension of the postpurge time
298	Oil: Opening time of actuator (timeout)
299	Oil: Closing time of actuator (timeout)

Parameter	Function
515.00	(For PME75.831Ax / PME76.831Ax only) Actuator position during prepurge time 0 = purging in low-fire 1 = purging in high-fire
	(For PME75.231Ax / PME76.231Ax only) Actuator position during postpurge time 0 = purging in low-fire 1 = purging in high-fire
515.01	Actuator control 0 = OFF 1 = ON
	☞ Note! Operation without actuator control (parameter 515.01 = 0)! No actuators may be connected and parameter 560 must be set to 0. Depending on the program sequence of the PME75 / PME76, a Dbr3 wire link at terminal X2-09B from pin 7 to pin 8 is required during operation without actuator. Further details can be found in the respective A7156.x user documentation under chapter *Operation without actuator*.
560	Pneumatic combustion control 0 = OFF / 3-position step modulation 1 = PWM fan motor / analog modulation
	☞ Note! Setting = 1 No function. This selection puts the LME75 / LME76 in lockout position.
	2 = Air damper / analog modulation (ASZxx.3x feedback required)
563	Operating mode of the ratio control 0 = modulating 1 = multistage
654	Only in modulating operation (parameter 560 = 2) Analog input (ASZxx.3x feedback required) 0 = 3-position step input 1 = 0…10 V 2 = 0…135 Ω 3 = 0…20 mA 4 = 4…20 mA with a non-alterable lockout at I < 4 mA 5 = 4…20 mA without a non-alterable lockout at I < 4 mA

The actuators are powered by mains voltage delivered directly via the LME75/LME76.

11.5.1 Connection of feedback actuator position with ASZ in actuator at terminal X66

LME...

7156z32en/0618

X66

1 2 3

5 V power supply
Signal
GND
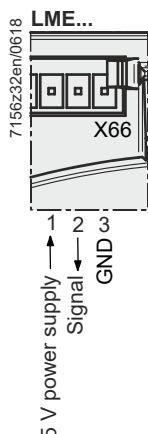
Figure 40: Actuator terminal X66

Parameter	Function
140	Mode display in the 7-segment display 1 = standard (program phase) 2 = flame 1 (ionization) 3 = flame 2 (QRA7/QRI or LFS1) 4 = active power (power value)
515.01	Actuator control 0 = OFF 1 = ON
	☞ **Note!** Operation without actuator control (parameter 515.01 = 0)! No actuators may be connected and parameter 560 must be set to 0. Depending on the program sequence of the PME75 / PME76, a Dbr3 wire link at terminal X2-09B from pin 7 to pin 8 is required during operation without actuator. Further details can be found in the respective A7156.x user documentation under chapter *Operation without actuator*.
560	Pneumatic combustion control 0 = OFF / 3-position step modulation 1 = PWM fan motor / analog modulation
	☞ **Note!** Setting = 1 No function. This selection puts the LME75 / LME76 in lockout position.
	2 = Air damper / analog modulation (ASZxx.3x feedback required)
563	Operating mode of the ratio control 0 = modulating 1 = multistage

Parameter	Function
654	Only in modulating operation (parameter 560 = 2) Analog input (ASZxx.3x feedback required) 0 = 3-position step input 1 = 0…10 V 2 = 0…135 Ω 3 = 0…20 mA 4 = 4…20 mA with a non-alterable lockout at I < 4 mA 5 = 4…20 mA without a non-alterable lockout at I < 4 mA

Type	Terminal X66			Direction of rotation	
	Pin 1 (5 V signal)	Pin 2 (Signal)	Pin 3 (GND)	Clockwise	Counterclockwise
ASZ	a	b	c	●	---
ASZ	c	b	a	---	●
	Terminal ASZxx30 (1 kΩ conductive plastic 90°)				

11.6 Ignition transformer terminal X4-02

LME...

Protective conductor (PE)

N

"L" for ignition transformer

7156z07en/0618
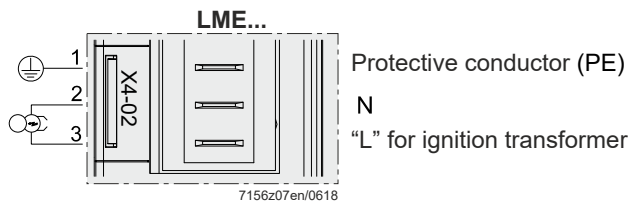
Figure 41: Ignition transformer terminal X4-02

Parameter	Function
201	Oil: Fuel train 0 = direct oil ignition 1 = gas pilot ignition
226	Gas: Preignition time (t3)
257	Gas: Postignition time +0.3 seconds
266.00	Oil: Preignition time (t3)
266.01	Oil: Multiplicator for preignition time (t3) (extension of the preignition)
295	Oil: Postignition time

Output for the connection of ignition transformers or electronic ignition modules.

11.7 Safety valve terminal X6-03

LME...

"L" for safety valve

SV

N

Protective conductor (PE)

7156z08en/0618
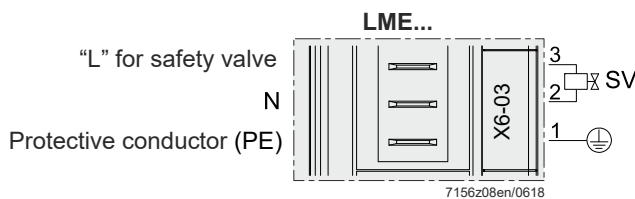
Figure 42: Safety valve terminal X6-03

Output for connection of a safety valve, e.g., for liquefied gas.

> **Note!**
> The safety valve is only active if a heat request (load controller ON/OFF) is present at terminal X5-01 pin 3.

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11.8 Fuel valve V2a / pilot valve PV terminal X7-01 / X7-04

→ For fuel trains **Gp1**

Protective conductor (PE)

N

"L" for fuel valve V2a / pilot valve PV
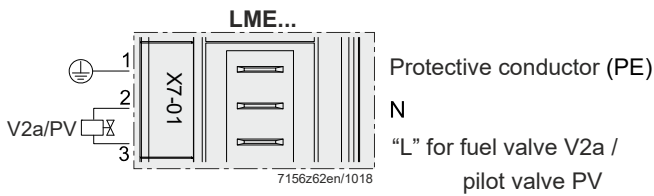
Figure 43: Fuel valve V2a, pilot valve PV terminal X7-01

→ For fuel trains **Gp2**

Schutzleiter (PE)

N

„L" für Pilotventil PV
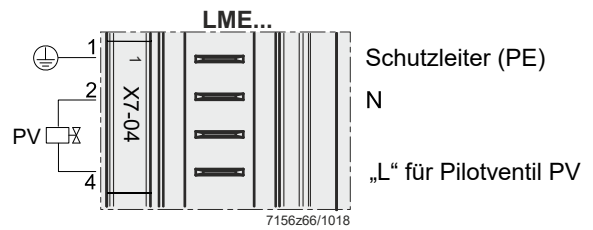
Figure 44: Pilot valve PV terminal X7-04

Parameter	Function
201	Oil: Fuel train 0 = direct oil ignition 1 = gas pilot ignition
230	Interval (t4): Stabilization time pilot flame
231	Interval (t9): Second safety time
232	Gas: Interval (t5): Stabilization time main flame
247	Gas: Continuous pilot 0 = pilot valve until end of second safety time 1 = continuous pilot during operation
257	Gas: Postignition time +0.3 seconds
270	Oil: Interval (t4): Stabilization time pilot flame
271	Oil: Interval (t9): Second safety time
272	Oil: Interval (t5): Stabilization time main flame
295	Oil: Postignition time

Output for connection of the fuel valve V2a / pilot valve PV depending on the selected fuel train (see chapter in the A7156.x user documentation for the PME75/PME76 in use).

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11.9 Fuel valve V1 terminal X7-02 / X7-04

→ For fuel trains **Gp2**

Protective conductor (PE)

N
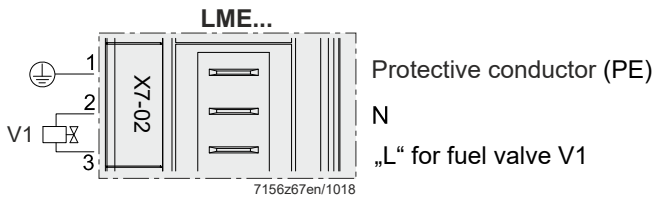
„L" for fuel valve V1

Figure 45: Fuel valve V1 terminal X7-02

→ For fuel trains **G / Gp1**

Protective conductor (PE)

N
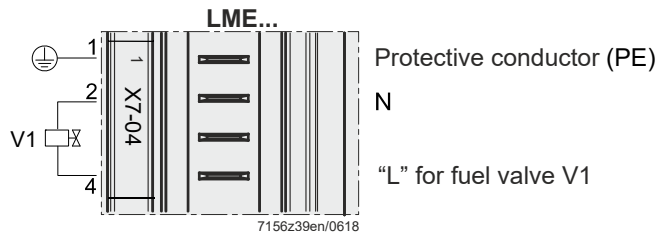
"L" for fuel valve V1

Figure 46: Fuel valve V1 terminal X7-04

Parameter	Function
201	Oil: Fuel train 0 = direct oil ignition 1 = gas pilot ignition
230	Interval (t4): Stabilization time pilot flame
231	Interval (t9): Second safety time
232	Gas: Interval (t5): Stabilization time main flame
240	Gas: Restart in the event of loss of flame during operation and in the event of no flame at the end of the safety time 0 = no restart 1 = no restart 2 = 1x restart 3 = 2x restart 4 = 3x restart
257	Gas: Postignition time +0.3 seconds
270	Oil: Interval (t4): Stabilization time pilot flame
271	Oil: Interval (t9): Second safety time
272	Oil: Interval (t5): Interval (t5): Stabilization time main flame

280	Oil:
	• Flame supervision with ionization probe:
	  Restart at loss of flame during interval (t4) and second safety time (t9)
	• Flame supervision with QRA7/QRI:
	  Restart at loss of flame during interval (t5) and in operation
	0 = no restart
	1 = no restart
	2…255 = 1…254 x restart

295	Oil: Postignition time

Output for connection of the fuel valve V1 depending on the selected fuel train (see chapter in the A7156.x user documentation for the PME75/PME76 in use).

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11.10 Fuel valve V2 terminal X7-01 / X7-02

→ For fuel trains **G**
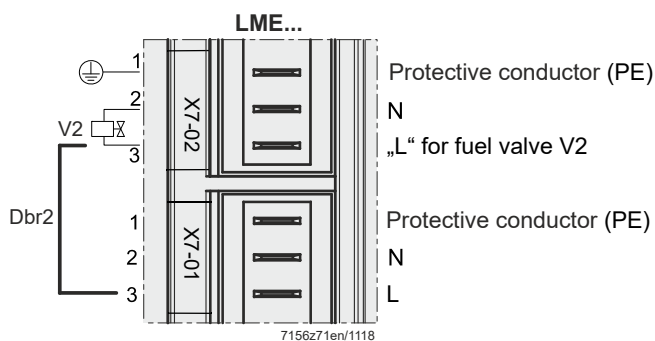
Figure 47: Fuel valve V2 terminal X7-01

→ For fuel trains **Gp1**
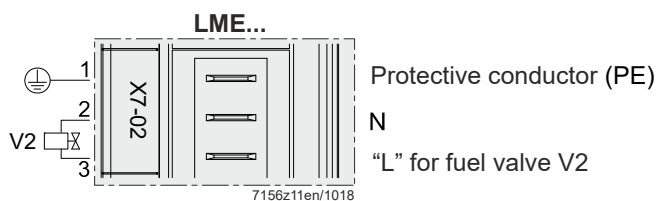
Figure 48: Fuel valve V2 terminal X7-02

Parameter	Function
230	Interval (t4): Stabilization time pilot flame
231	Interval (t9): Second safety time
232	Gas: Interval (t5): Stabilization time main flame
270	Oil: Interval (t4): Stabilization time pilot flame
271	Oil: Interval (t9): Second safety time
272	Oil: Interval (t5): Interval (t5): Stabilization time main flame
563	Oil: Operating mode of the ratio control 0 = modulating 1 = multistage

Output for connection of the fuel valve V2 depending on the selected fuel train (see chapter in the A7156.x user documentation for the PME75/PME76 in use).

11.11 BC interface terminal X56

Connection of the OCI410 to the BC interface

Without using an extension, connect the OCI410 to the USB interface on your PC according to the following example design.

LME...
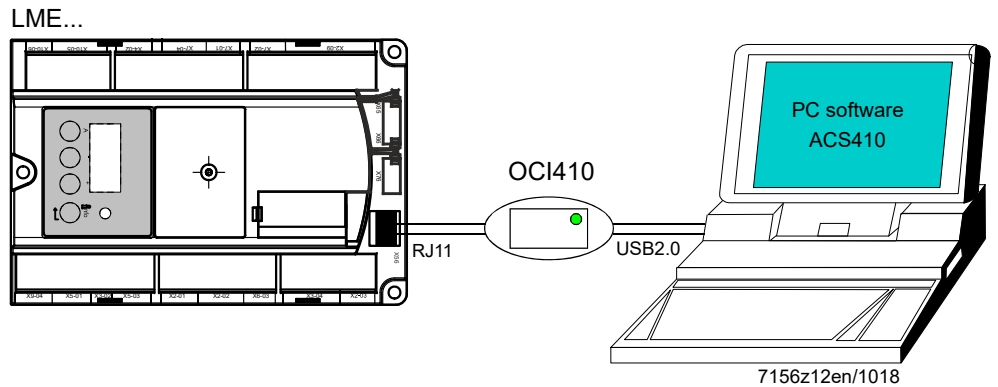
Figure 49: BC interface terminal X56

- If the BC interface (jack RJ11) is not used, protection against electric shock hazard must be provided (jack must be covered up)
- The AZL2 signal cable or other accessories like the OCI410 (plugged into the RJ11 jack), may only be plugged in or disconnected when the unit is dead (all-polar disconnection), since the BC interface does not provide safe separation from mains voltage
- The AZL2 is connected directly to the integrated jack RJ11 on the LME75/LME76
- The signal cable from LME75/LME76 to AZL2 must conform to certain specifications. Siemens has specified the signal cable AGV50 for use under the burner hood; refer to *Technical data*. When using other signal cables, it is not guaranteed that the required cable features will be available
- Do not lay the signal cable from the LME75/LME76 to the AZL2 together with other cables. Use a separate cable
- Service operation with a longer signal cable from the LME75/LME76 to the AZL2 If a longer signal cable is required for service work, for example (short-time, < 24 hours), please note that the above usage under the burner hood no longer applies and, for this reason, the signal cable can be subject to increased mechanical stress. Extra cable sheathing is therefore required
- Both the signal cable and the AZL2 must be shipped and stored so that no damage due to dust and water can occur when used in the plant later on
- To ensure protection against electric shock hazard, make certain that, prior to switching on power, the signal cable is correctly connected to the AZL2
- The AZL2 must be used in a dry and clean environment

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12 Function

12.1 Preconditions for startup

- LME75/LME76 is reset
- All contacts in the line are closed, heat request
- No undervoltage
- Air pressure switch or POC in no-load position or Dbr1 connected to terminal X2-02 (depending on PME75/PME76 and respective parameterization)
- Flame detector darkened, no extraneous light
- All contacts in the safety loop are closed

12.2 Undervoltage

- Safety shutdown from the operating position takes place should mains voltage drop below about 75 V AC (at UN = 120 V AC)

- Restart is initiated when mains voltage exceeds about 100 V AC (at UN = 120 V AC)

- Safety shutdown from the operating position takes place should mains voltage drop below about 165 V AC (at UN = 230 V AC)

- Restart is initiated when mains voltage exceeds about 195 V AC (at UN = 230 V AC)

12.3 Controlled intermittent operation (optional)

Depending on the PME75/PME76 and respective parameterization, refer to the *User documentation*.

An automatic controlled shutdown with subsequent restart (< 24 hours) can be parameterized).

12.4 Control sequence in the event of fault

If a non-alterable lockout occurs, the outputs for the fuel valves, the burner motor and the ignition equipment are always deactivated.

Cause	Response
Mains voltage failure	Restart
Voltage below undervoltage threshold	Safety shutdown
Voltage above undervoltage threshold	Restart
Extraneous light before safety time	Non-alterable lockout
Extraneous light during waiting time	Start prevention, a non-alterable lockout occurs after a maximum of 30 seconds
No flame at end of safety time	Depending on the PME75/PME76 and respective parameterization: • Non-alterable lockout • Restart
Flame is lost during operation	Depending on the PME75/PME76 and respective parameterization: • Non-alterable lockout • Restart
Air pressure switch welded in operating position	Start prevention, a non-alterable lockout occurs after a maximum of 30 seconds
Air pressure switch welded in no-load position	Non-alterable lockout at the end of the specified time
Loss of air pressure signal after specified time	Depending on the PME75/PME76 and respective parameterization: • Non-alterable lockout, with breakdown time ≥ 0.3 seconds
POC contact is open during startup	Non-alterable lockout, approx. 5 seconds after control thermostat or pressurestat or pressure switch ON
Pressure switch-min: Failure during operation	Depending on the PME75/PME76 and respective parameterization: • Shutdown and start prevention

In the event of a non-alterable lockout, the LME75/LME76 remains locked and the red fault signal lamp (LED) lights up permanently.
This state will also be maintained in the event of power failures.
The cause of the fault is shown on the 7-segment display and AZL2.

12.5 Resetting the LME75/LME76

After a non-alterable lockout, a reset can be carried out immediately.
Press and hold the lockout reset button (info button) for about 1 second (< 3 seconds).
The LME75/LME76 can only be reset when all contacts in the line are closed and there is no undervoltage.

12.6 Operation, indication, diagnostics

12.6.1 Operation
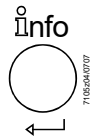
Info

The lockout reset button (Info button) is the key operating element for resetting the burner control and for activating / deactivating the diagnostics functions.

Red
Yellow
Green
LED
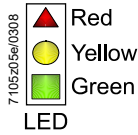
The multicolor signal lamp (LED) is the key indicating element for visual diagnostics.

Both elements (lockout reset button / signal lamp) are located in the control panel.

There are 2 diagnostics options:
1.   Visual diagnostics: Operating display or diagnostics of cause of error
2.   Diagnostics: Via the BC interface to AZL2 or ACS410/OCI410

A description of the visual diagnostics is provided below. In normal operation, the different operating states are indicated in the form of color codes according to the color code table.

12.6.2 Operating display

During startup, the operating status is displayed according to the following table:

Color code table for the multicolor signal lamp (LED)		
Status	**Color code**	**Color**
Waiting time, other waiting statuses	○..	OFF
Ignition phase, ignition controlled	○○●○○○○●○○○	Flashing yellow
Operation, flame OK	▪..	Green
Operation, flame not OK	○▪○▪○▪○▪○▪○	Flashing green
Extraneous light in standby	▪▲▪▲▪▲▪▲▪▪	Green-red
Undervoltage	●▲●▲●▲●▲●▲	Yellow-red
Error, alarm	▲..	Red
Error code output; refer to *Error code table*	○▲○▲○▲○▲○▲○	Flashing red
Interface diagnostics	▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲	Red flickering light
Heat request, prepurging	●..	Yellow
New program card	●●▲●●▲●●▲●▲	Yellow-yellow-red

Key

...... Steady on

○ OFF

▲ Red

● Yellow

▪ Green

12.7 Diagnostics of cause of error

After a non-alterable lockout, the red fault signal lamp (LED) lights up.
In this status, visual diagnostics of the cause of the error according to the error code table can be activated by pressing the lockout reset button (info button) for more than 3 seconds. Pressing the lockout reset button (info button) again for at least 3 seconds activates interface diagnostics. If the interface diagnostics have been activated by accident – in which case the slightly red light of the signal lamp (LED) flickers – it can be deactivated by pressing the lockout reset button (info button) again for more than 3 seconds. The moment of switching over is indicated by a yellow light pulse.

The following sequence activates diagnostics of the cause of the error:
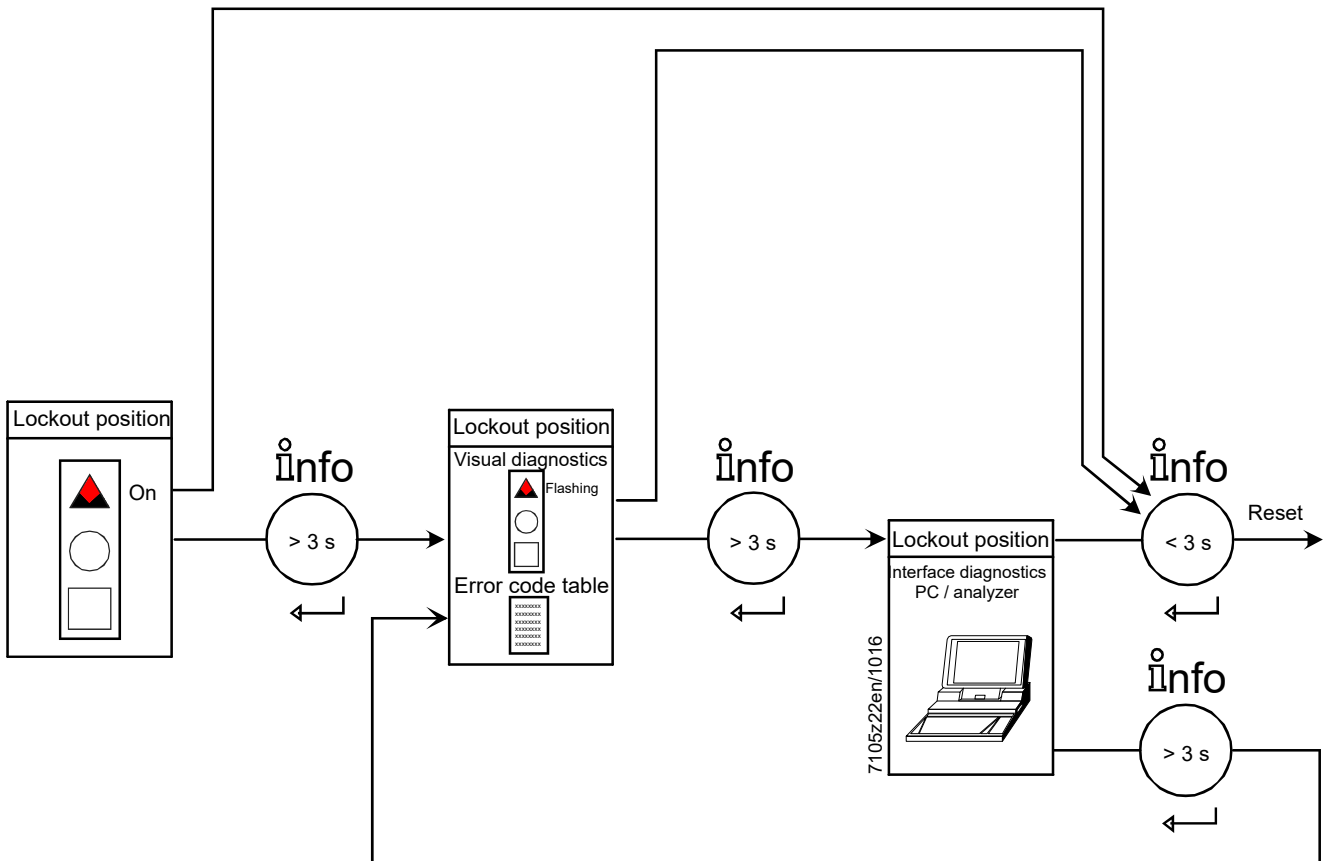
Figure 50: Diagnostics of cause of error

Error code table	
Red blink code of fault signal lamp (LED)	**Possible cause**
2 flashes	No establishment of flame at end of safety time • Faulty or soiled fuel valves • Defective, soiled or incorrectly connected flame detector • Poor adjustment of burner, no fuel • Faulty ignition
3 flashes	Air pressure switch faulty • Loss of air pressure signal after specified time • Air pressure switch welded in no-load position
4 flashes	Extraneous light during burner startup / standby
5 flashes	Time supervision air pressure switch • Air pressure switch welded in operating position
6 flashes	Actuator position not reached • Actuator fault • Incorrect cam settings • Actuator faulty or blocked • Faulty connection • Faulty adjustment
7 flashes	Too many losses of flame during operation (limitation of restarts) • Faulty or soiled fuel valves • Faulty or soiled flame detector • Poor adjustment of burner
8 flashes	Faulty oil temperature limiter
9 flashes	Free
10 flashes	Non-volatile lockout with alarm output switched on at terminal X2-03 pin 3 (fault lamp ON) • Wiring error or internal error, other errors Non-volatile lockout with alarm output switched off at terminal X2-03 pin 3 (fault lamp OFF) • Output contact error (welded contact of an output relay)
12 flashes	Valve proving • Fuel valve V1 leaking
13 flashes	Valve proving • Fuel valve V2 leaking
14 flashes	Fault valve closing control POC
15 flashes	Error code ≥ 15, depending on PME75/PME76 and respective parameterization e.g., lockout code 20: pressure switch-min failure e.g., lockout code 21: pressure switch-max failure e.g., lockout code 22: safety loop error e.g., lockout code 31: flame safeguard error in LME76

During the time the cause of error is diagnosed, the control outputs are dead
• The burner remains shut down
• The external fault indication (alarm) at terminal X2-03 pin 3 is steady on

Reset to quit the diagnostics of the cause of the error and switch the burner on again.
Press the lockout reset button (info button) for about 1 second (< 3 seconds).

13 Multistage or modulating operation with actuator

Parameter	Function
201	Oil: Fuel train 0 = direct oil ignition 1 = gas pilot ignition
123	Minimum power adjustment
259	Gas: Opening time of actuator (timeout)
259.00	Gas: Opening time of actuator (timeout)
259.01	Gas: Travel time of actuator (for PME75.831Ax / PME76.831Ax only) → Ignition load position to low-fire position
259.02	Gas: Travel time of actuator (for PME75.831Ax / PME76.831Ax only) → Low-fire position to ignition load position
260	Gas: Closing time of actuator (timeout)
298	Oil: Opening time of actuator (timeout)
260	Oil: Closing time of actuator (timeout)
515.00	Actuator position during prepurge time (with PME75.831Ax / PME76.831Ax only) 0 = purging in low-fire 1 = purging in high-fire
515.00	Oil: Actuator position during postpurge time (with PME75.231Ax / PME76.231Ax only) 0 = purging in low-fire 1 = purging in high-fire
515.01	Actuator control 0 = OFF 1 = ON
	☞ **Note!** Operation without actuator control (parameter 515.01 = 0)! No actuators may be connected and parameter 560 must be set to 0. Depending on the program sequence of the PME75 / PME76, a Dbr3 wire link at terminal X2-09B from pin 7 to pin 8 is required during operation without actuator. Further details can be found in the respective A7156.x user documentation under chapter *Operation without actuator*.
560	Pneumatic combustion control 0 = OFF / 3-position step modulation 1 = PWM fan motor / analog modulation
	☞ **Note!** Setting = 1 No function. This selection puts the LME75 / LME76 in lockout position.
	2 = Air damper / analog modulation (ASZxx.3x feedback required)
563	Operating mode of the ratio control 0 = modulating 1 = multistage

Parameter	Function
654	Only in modulating operation (parameter 560 = 2) Analog input (ASZxx.3x feedback required) 0 = 3-position step input 1 = 0…10 V 2 = 0…135 Ω 3 = 0…20 mA 4 = 4…20 mA with a non-alterable lockout at I < 4 mA 5 = 4…20 mA without a non-alterable lockout at I < 4 mA

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13.1 Actuators

The LME75/LME76 has terminals for connecting electromotoric actuators to control air dampers and regulate dampers for oil and gas burners.

Possible actuator types:

Product no.	Data sheet	Operating mode [1] multistage/modulating via 3-position step input Terminal X5-03	Operating mode [1] modulating via analog input signal terminal X65	ASZxx.3x
SQN3	N7808	●	●	●
SQN7	N7804	●	●	●
SQM2	N7812	●	●	●
SQM40 SQM41	N7817	●	●	●
SQM5	N7815	●	●	●

[1]) Depending on the program sequence in the LME75/LME76 or PME75/PME76

13.2   Function

The internal program cycle time of the LME75/LME76 is about 0.147 seconds ($\approx$ 0.15 seconds). In each program sequence, each input is read, and the outputs are switched on or off accordingly.

13.3 Load controller inputs
13.3.1 Analog input terminal X65

The LME75/LME76 handles the analog input signals with the help of an 8-bit A/D converter.

13.3.2 Setting the maximum running time of the actuator (parameter 259.00 / parameter 260 timeout)

Parameter	Function
123	Minimum power adjustment
259	Gas: Opening time of actuator (timeout)
259.00	Gas: Opening time of actuator (timeout)
259.01	Gas: Travel time of actuator (for PME75.831Ax / PME76.831Ax only) → Ignition load position to low-fire position
259.02	Gas: Travel time of actuator (for PME75.831Ax / PME76.831Ax only) → Low-fire position to ignition load position
260	Gas: Closing time of actuator (timeout)
298	Oil: Opening time of actuator (timeout)
260	Oil: Closing time of actuator (timeout)
515.00	Actuator position during prepurge time (with PME75.831Ax / PME76.831Ax only) 0 = purging in low-fire 1 = purging in high-fire
515.00	Oil: Actuator position during postpurge time (with PME75.231Ax / PME76.231Ax only) 0 = purging in low-fire 1 = purging in high-fire
515.01	Actuator control 0 = OFF 1 = ON
	☞ Note! Operation without actuator control (parameter 515.01 = 0)! No actuators may be connected and parameter 560 must be set to 0. Depending on the program sequence of the PME75 / PME76, a Dbr3 wire link at terminal X2-09B from pin 7 to pin 8 is required during operation without actuator. Further details can be found in the respective A7156.x user documentation under chapter *Operation without actuator*.
560	Pneumatic combustion control 0 = OFF / 3-position step modulation 1 = PWM fan motor / analog modulation
	☞ Note! Setting = 1 No function. This selection puts the LME75 / LME76 in lockout position.
	2 = Air damper / analog modulation (ASZxx.3x feedback required)

| Parameter	Function
563	Operating mode of the ratio control 0 = modulating 1 = multistage
654	Only in modulating operation (parameter 560 = 2) Analog input (ASZxx.3x feedback required) 0 = 3-position step input 1 = 0…10 V 2 = 0…135 Ω 3 = 0…20 mA 4 = 4…20 mA with a non-alterable lockout at I < 4 mA 5 = 4…20 mA without a non-alterable lockout at I < 4 mA

Parameters 259 and 260 are used to set the actuator running time in accordance with the type of actuator used. The set time must at least correspond to the running time required by the actuator to travel from the CLOSED position to the high-fire position (e.g., 30 seconds for 90° or more). If the actuator does not reach its position within this period of time, a non-alterable lockout (Loc: 6) will be triggered in the LME75/LME76.

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13.4 Multistage/modulating mode via 3-position step input terminal X5-03

The signal time for a control pulse is a minimum of 147 ms.

13.4.1 Maximum possible resolution

The maximum possible resolution via 3-position step input terminal X5-03 is calculated according to the following formula:

$$\frac{\text{Working range in angular degrees x 0.147 s}}{\text{Running time in seconds}} = \text{maximum possible resolution in angular degrees}$$

Example: Actuator, 30 seconds running time for 90°

$$\frac{90° \text{ x } 0.147 \text{ s}}{30 \text{ s}} = 0.441° \approx 0.5°$$

13.5 Modulating mode via analog input signal terminal X65

13.5.1 Maximum possible resolution

Parameter	Meaning
123	Minimum power adjustment

For the maximum possible resolution, refer to chapter 13.6 "Setting the minimum power adjustment (dead band) (parameter 123) in modulating mode via analog input signal terminal X65".

13.5.2 Standardization of modulation range

The analog input signal is standardized in the modulation range. This means that the low-fire position corresponds to a preset output of 0% = 0 V input signal / 0 mA input signal / 4 mA input signal / 0 Ω input signal; the high-fire position corresponds to a preset output of 100% = 10 V input signal / 20 mA input signal / 135 Ω input signal. The modulation range in angular degrees corresponds to the angular range between the low-fire and high-fire position.

Calculation: High-fire position - low-fire position = modulation range

13.6 Setting the minimum power adjustment (dead band) (parameter 123) in modulating mode via analog input signal terminal X65
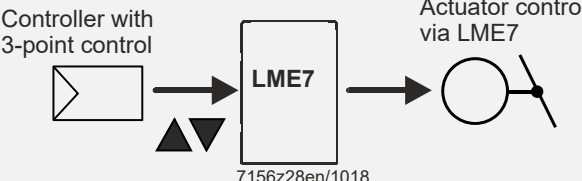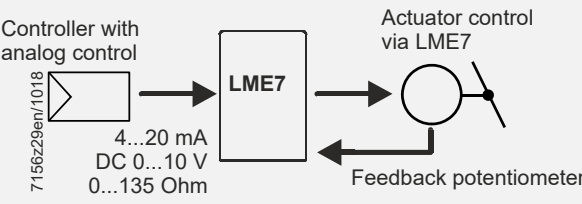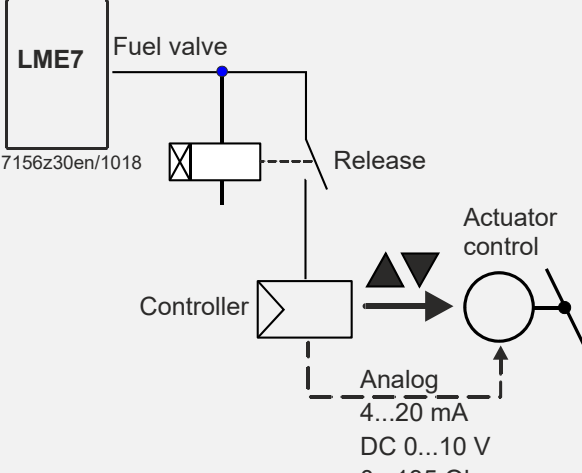
Parameter	Meaning
123	Minimum power adjustment

The minimum power adjustment must be ≥ the percentage proportion of the maximum resolution of the entire modulation range and dependent on the actuator running time (protection against oscillating).

Typical actuator values and settings:

Actuator specifications				Parameter			Comment
Low-fire cam position in °	High-fire cam position in °	Maximum working range in °	Actuator running time in s	Settings for parameter 123 in %	Typical number of steps (between low-fire cam position and high-fire cam position)		
0	90	90	15	2.1	27		Actuator runtime with 50 Hz mains frequency
0	90	90	30	1.3	43		
0	90	90	60	1.0	55		
20	90	90	15	2.1	21		
20	90	90	30	1.3	33		
20	90	90	60	1.0	43		
0	90	90	12.5	2.4	24		Actuator runtime with 60 Hz mains frequency
0	90	90	24	1.5	37		
0	90	90	50	1.1	51		
20	90	90	12.5	2.4	19		
20	90	90	24	1.5	29		
20	90	90	50	1.1	40		
0	135	135	45	1.1	50		Actuator runtime with 50 Hz mains frequency
20	135	135	45	1.1	43		
0	135	135	38	1.2	47		Actuator runtime with 60 Hz mains frequency
20	135	135	38	1.2	40		

Application limits/examples

Application	Typical resolution	Typical degree of modulation
Controller with 3-point control — LME7 — Actuator control via LME7 *7156z28en/1018*	• Pulse lengths at least 150 ms • Approx. 0.5° • With a 30 s runtime 0…90° at 50 Hz	1 : 30 / 1 : 50 For boiler heat and process heat.
Controller with analog control — LME7 — Actuator control via LME7 4...20 mA DC 0...10 V 0...135 Ohm Feedback potentiometer *7156z29en/1018*	See *Typical actuator values and settings* table. • Approx. 2…3° • With a 30 s runtime 0…90° at 50 Hz	1 : 10 / 1 : 15 For boiler heat and process heat at low resolution.
LME7 — Fuel valve — Release — Controller — Actuator control — Analog 4...20 mA DC 0...10 V 0...135 Ohm *7156z30en/1018*	Resolution depending on load controller • 0.5…2° / 0.5…3° • With a 30 s runtime 0…90° at 50 Hz	1 : 10 / 1 : 50 Depending on load controller For boiler heat and process heat

> Note!
> ☞ If the value set for parameter 123 is too small, the actuator oscillates around the setpoint, leading to more traveling cycles, increased switching frequency and more wear and tear on the actuator.

14 Safety notes for use of the AZL2

Caution!

The following information must be observed to prevent the risk of fire or explosion, damage to the heating plant or damage resulting from improper usage:

The LME75/LME76 described in this basic documentation may only be used as specified and only in connection with the appropriate burner and heating plant. Failure to observe this information poses a risk of the safety functions being impaired.

The LME75/LME76 with AZL2 and the associated heating control may only be installed and set up by authorized personnel. Failure to observe this information poses a risk of loss of safety functions and a risk of electric shock.

The AZL2 is designed for use in dry rooms only. Do not install the AZL2 outdoors and protect it from heat, frost and liquids, such as water, oil, and fuel oil. Failure to observe this information poses a risk of electric shock.

The operating steps and settings instructions detailed in this basic documentation must be observed precisely. Certain settings may only be made by authorized personnel and these are clearly identified as such. Failure to observe this information poses a risk of the safety functions being impaired.

Only clean the AZL2 with a dry cloth when dirty or dusty.

Do not perform any maintenance or repair work on the AZL2 yourself. This type of work may only be performed by authorized personnel. Failure to observe this information poses a risk of electric shock.

If you have any other questions relating to the AZL2, please contact your heating engineer or get in touch with Siemens at any of the addresses provided in this basic documentation.

15 Operation via AZL2

15.1 Description/meanings of displays and buttons

The function and operation of versions AZL21 and AZL23 are identical.
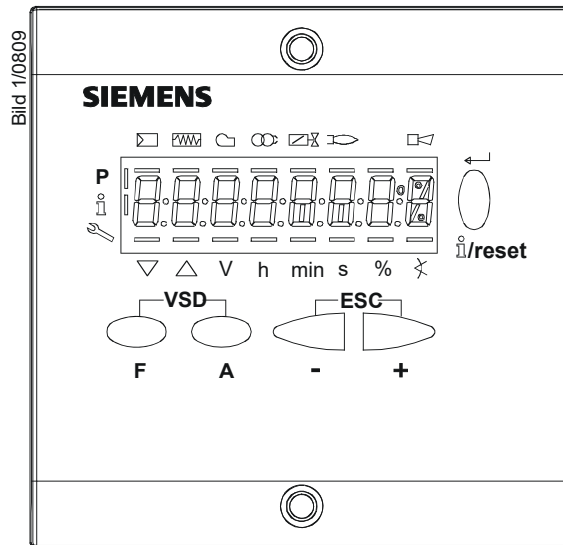
Figure 51: Description/meanings of displays and buttons

Button	Function
VSD F A	**Buttons A and F: Parameter setting function** For switching to parameter setting mode **P** (press F and A simultaneously)
↵ î/reset	**Info and Enter button** • For navigation in info and service mode * For selection (flashing symbol) (press button for < 1 second) * For changing to a lower menu level (press button for 1…3 seconds) * For changing to a higher menu level (press button for 3…8 seconds) * For changing to the normal display (press button for > 8 seconds) • **Enter** in parameter setting mode • **Reset** in the event of an error • One menu level down
-	**- button** For decreasing the value
+	**+ button** • One menu level down • Increase value
ESC - +	**+ and - button: Escape function** (press - and + simultaneously) • No adoption of value • One menu level up

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15.2 Meaning of symbols on the display

Fault status message
Flame present
Valve controlled
Ignition controlled
Fan motor controlled
Oil preheater on
Heat request from controllers

Parameter setting mode — **P**
Info mode — ⓘ
Service mode — 🔧

Actuator closing
Actuator opening
Unit of current display
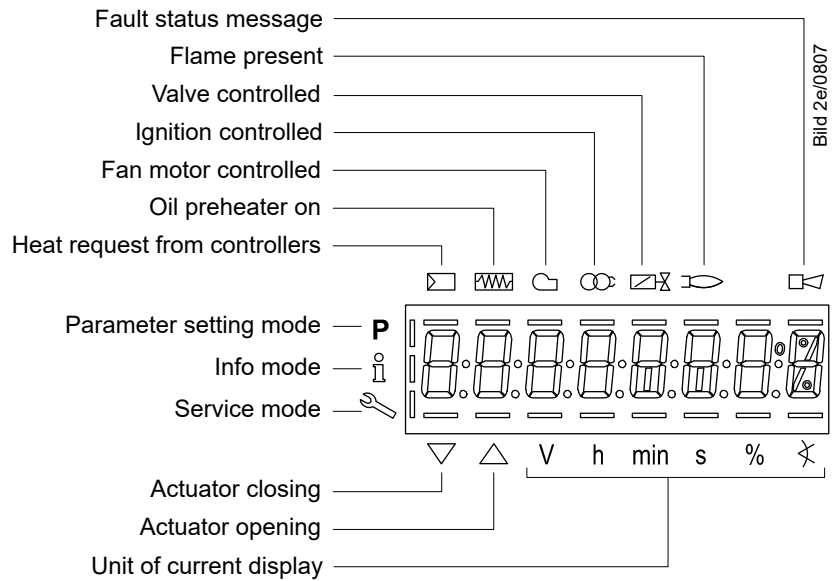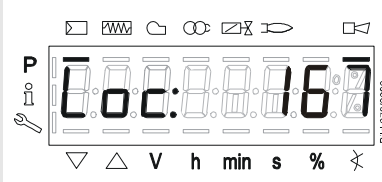
Figure 52: Meaning of display

15.3 Special functions
15.3.1 Manual locking

ⓘ/**reset** and another button	**Loc: 16 7**	Press ⓘ/reset together **with any other button**. The LME75/LME76 switches instantly to the lockout position, no matter what the operating position. The display shows the fault status message. (See chapter 17 "Error code list".) Display: **Loc: 167**

The reset must be carried out as follows:

ⓘ/**reset** 1 s	**rESEt**	When ⓘ/reset is pressed for 1 second, **rESEt** appears on the display. When the button is released, the LME75/LME76 is reset.

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15.4   Operation

> **⚠ Warning!**
> **Any changes to parameters and settings are only set and saved in the internal memory of the LME75/LME76.**
> **A backup must be triggered manually to save the modified settings to the PME75/PME76. Failure to observe this information poses a risk of the safety functions not functioning properly.**
>
> **→ Operation via AZL2: Chapter 15.9.4 "Backup"**
> **→ Operation via internal LED display: Chapter 16.7 "Manual backup"**

> **⚠ Warning!**
> **On first startup or after exchange of the PME75/PME76, the sequence of functions and parameter settings must be checked upon completion of the restore process.**
>
> **→ Operation via AZL2:**
> **Chapter 15.4.1.2 "Startup/shutdown display" and chapter 15.9.5 "Restore"**
> **→ Operation via internal LED display:**
> **Chapter 16.6 "Initial startup with a new PME75/PME76 or when replacing the PME75/PME76" and chapter 16.8 "Manual restore"**

> ☞ Note!
> Backing up is recommended after changing parameters.

15.4.1   Normal display

Normal display is the standard display in normal operation, representing the highest menu level. From the normal display, you can change to the info, service or parameter level.

15.4.1.1.   Standby display
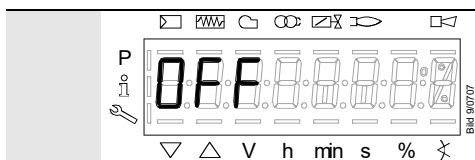
The LME75/LME76 is in standby.

> ☞ Note!
> Display **OFF** flashes when manual load change is active.

15.4.1.2.   Startup/shutdown display

Phase display
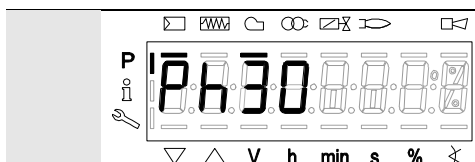
The LME75/LME76 is in **Ph**ase **30**. A load controller request is made. The bar below the ⊏⊐ and ⊂⊐ symbol appears. The individual program phases and controlled components are displayed in accordance with the program sequence.
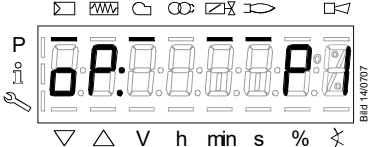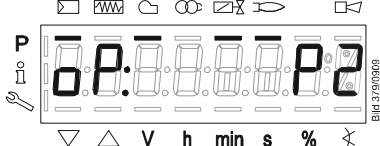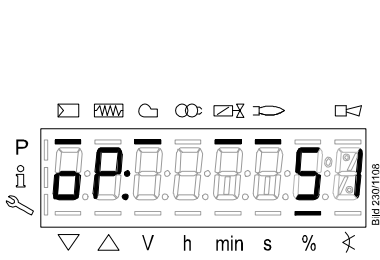
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List of the phase display

> **Note!**
> Display depending on the PME75/PME76 and respective parameterization, refer to the *User documentation*.

Phase number AZL2 display	Function
Standby	
OFF	Standby
Ph08	Mains ON / test phase
Startup	
Ph21	Safety valve ON Air pressure switch test / POC test Actuator travels to CLOSED position Air pressure switch test / POC test / heat up the oil preheater
Ph22	Fan motor ON Air pressure switch test / stabilization time
Ph24	Actuator travels to the prepurge position (t11)
Ph30	Prepurging (t1)
Ph36	Actuator travels to the ignition load / low-fire (t12)
Ph38	Preignition (t3)
Ph40	First safety time (TSA)
Ph42	First safety time (TSA), flame check
Ph44	Interval (t4): Stabilization of the pilot flame before ignition of the main burner
Ph50	Interval (t9): Second safety time
Ph52	Interval (t5): Stabilization of the main flame before load control release
Ph54	Actuator travels to the low-fire (t12)
Operation	
oP:xx	Operation (modulation), display of the actual power in percent
oP:P1	Operation first stage
oP:P2	Operation second stage
Shutdown	
Ph10	Actuator travels to CLOSED position (t12) (home run)
Ph70	Stop operation
Ph72	Stop operation
Ph74	Postpurging (t8)
Valve proving	
Ph80	Test space evacuating (td4)
Ph81	Test time atmospheric pressure (td1)
Ph82	Test space filling (td3)
Ph83	Test time gas pressure (td2)
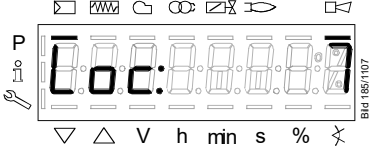
Phase number AZL2 display	Function
Waiting phases (start prevention)	
Ph01	Undervoltage/overvoltage
Ph02	Safety shutdown, followed by a non-alterable lockout with interlocking or start prevention → e.g., safety loop open
Ph04	Safety shutdown due to extraneous light during burner startup / standby
Ph90	Safety shutdown due to pressure switch-min is open
Non-alterable lockout	
Loc	Lockout phase

15.4.1.3. Operating position display

The display **oP: P1** stands for *stage 1*.
The display following **oP** is unit specific.

The display **oP: P2** stands for *stage 2*.
The display following **oP** is unit specific.

Display **oP:** stands for *modulating operation*.
The display following **oP:** is unit specific.

The relative value of the actual actuator position (51) is displayed.

Actuator position 0° = 0 Ω Potentiometer value = 0% display

Position of actuator high-fire > 0° = > 0 Ω < 1000 Ω potentiometer value = 100% display

15.4.1.4. Fault status messages, display of errors and info

Display of errors (faults) with lockout

The display shows **Loc:**. The bar under the fault status message ▱ appears.

The LME75/LME76 is in lockout position.

The current error code is displayed (refer to *Blink code table*).

Example: Error code **7**

Reset
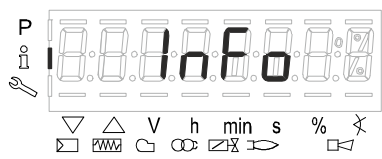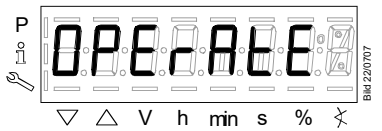
When ℹ/reset is pressed for 1 second, **rESEt** appears on the display.

When the button is released, the LME75/LME76 is reset.

ℹ/reset
1 s

ℹ/reset
< 3 s

If ℹ/reset is pressed for longer than 3 seconds, **InFo**, **SEr**, and **OPErAtE** are displayed one after the other.

☞ Note!
The meanings of the error and diagnostic codes can be found in the error code list.
When an error has been acknowledged, it can still be read out from the error history.

15.5 Menu-driven operation

15.5.1 Assignment of levels

The various levels can be accessed via different button combinations. The parameter level can only be accessed with a password.
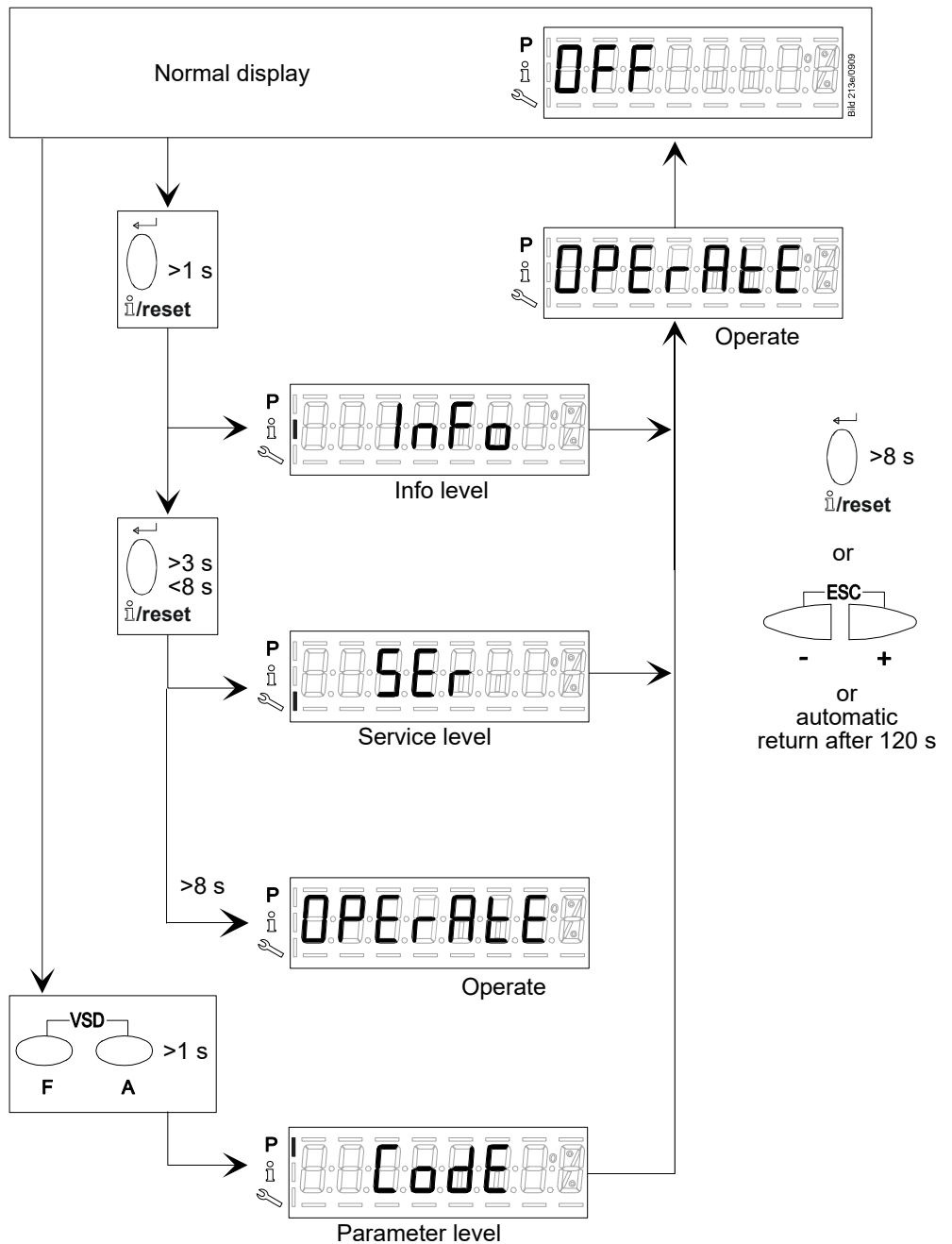
Figure 53: Assignment of levels

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15.6 Info level
15.7 Display of info level

↵ ⊙ **î/reset** 1…3 s	P î ⚲ ▷ ▤ ⌂ ⊙⊙ ⊠⋉ ➤ ▷◁ **InFo** ▽ △ V h min s % ⋈	Press **î/reset** until **InFo** appears. When the **î/reset** key is released, you are on the info level.

The info level displays information about the LME75/LME76 and operation in general.

☞ Note!

On the info level, you can press ◁ - or ▷ + to display the next or the previous parameter.

Instead of pressing ▷ + , you can also press **î/reset** for < 1 second.

☞ Note!

Press ◁ - ⊙ + or **î/reset** ESC for > 8 seconds to return to the normal display.

☞

P î ⚲ ▷ ▤ ⌂ ⊙⊙ ⊠⋉ ➤ ▷◁ **l02.___.__** ▽ △ V h min s % ⋈

Parameter — Parameter value

Figure 54: Info level

Note!
No change in value on the info level.
If the display shows .‾.‾ together with the parameter, the value may consist of more than 5 digits.

Pressing **î/reset** for > 1 second and < 3 seconds displays the value.

Pressing **î/reset** for > 3 seconds or ◁ - ⊙ + ESC takes you back to the parameter number selection (parameter number flashes).
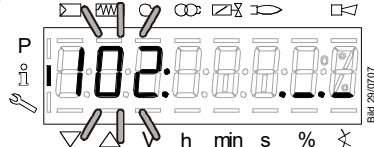
Parameter	Index	Description of the info levels
102		Identification date
103		Identification number
113		Burner identification
164		Number of startups (resettable)
166		Total number of startups
170	.00	Relay contact K8 switching cycles (SA-KL: X2-09 pin 2)
170	.01	Relay contact K7 switching cycles (SA-NL: X2-09 pin 3)
170	.02	Relay contact K2 switching cycles (PV: X7-01 pin 3)
170	.03	Relay contact K1 switching cycles (SV: X6-03 pin 3)
171		Signaling of "Switching cycle exceeded" for one of the relay contact counters (parameters 170.00 to 170.03) → not active
End		

15.7.1 Display of info values
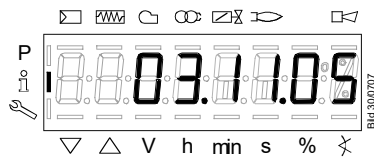
15.7.1.1. Identification date

The identification date described below corresponds to the creation date for the program sequence and cannot be changed by the user.
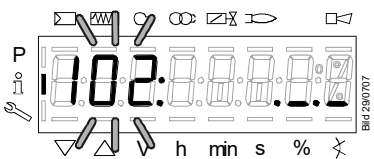
		On the left, parameter **102:** is displayed flashing. On the right, **._._** is displayed. Example: **102: ._._**
î/reset 1…3 s		Pressing the **î/reset** button (1…3 seconds) and releasing it when **._._** flashes displays the identification date (creation date of the program sequence) **DD.MM.YY**. Example: Identification date **03.11.05**
î/reset or **ESC** **- +**		Press the **î/reset** or **- +** button to return to the display of parameters.
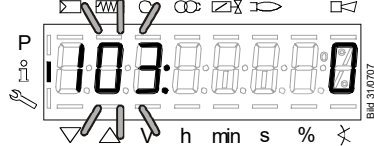
To the next parameter	**+**

15.7.1.2. Identification number
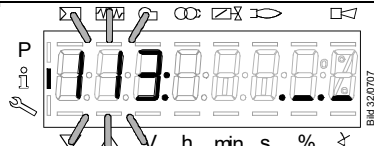
		On the left, parameter **103:** is displayed flashing. On the right, identification number **0** is displayed. Example: **103: 0**

To the next parameter	**+** or **î/reset** < 1 second	**-** Back to the previous parameter
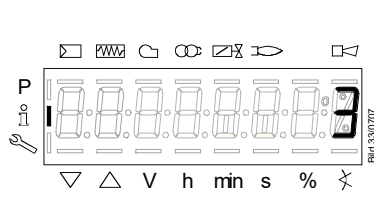
15.7.1.3. Burner identification

		On the left, parameter **113:** is displayed flashing. On the right, **._._** is displayed. Example: **113: ._._**
î/reset 1…3 s		Press î/reset (for 1…3 seconds) to display the burner identification. Factory setting: **- - - - - - - -** Example: **3**
⚠️		The factory settings can only be changed with the help of the ACS410.
î/reset or **ESC** - +		Press î/reset or - + to return to the display of parameters.
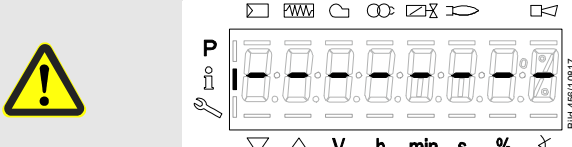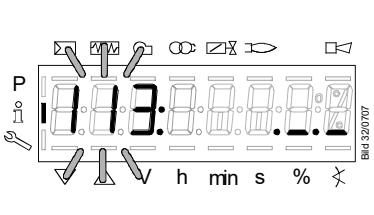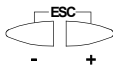
To the next parameter	+	-	Back to the previous parameter

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15.7.1.4. Number of startups resettable

> 👉 **Note!**
> Can be deleted for service.

		On the left, parameter **164:** is displayed flashing. On the right, **._._** is displayed. Example: Parameter **164:** **._._**
⏎ ⭕ ⓘ/**reset** 1…3 s		Pressing the ⓘ/**reset** button (1…3 seconds) and releasing it when ._._ flashes displays the number of startups (resettable). Example: **000036**
⏎ ⭕ ⓘ/**reset** 3…8 s		Pressing ⓘ/**reset** (for 3…8 seconds) takes you to the range that can be changed Digit **0** flashes
⏎ ⭕ ⓘ/**reset**		Pressing ⓘ/**reset** resets the number of startups to **0**. Display: **000000**
⏎ ⭕ ⓘ/**reset** or **ESC** - +		Pressing ⓘ/**reset** or - + displays parameter **164** flashing again.

To the next parameter	⮞ +	⮜ -	Back to the previous parameter

15.7.1.5. Total number of startups

> ☞ Note!
> **Cannot** be deleted for service.
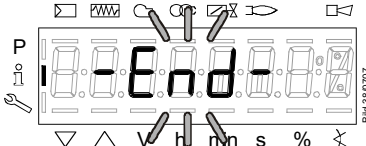
On the left, parameter **166:** is displayed flashing. On the right, **._._** is displayed.

Example: Parameter **166:** **._._**

Pressing the î/reset button (1…3 seconds) and releasing it when ._._ flashes displays the total number of startups.

Example: **000056**

Pressing î/reset or - + takes you back to the display of parameters.

To the first parameter on the info level	+	-	To the final parameter on the info level

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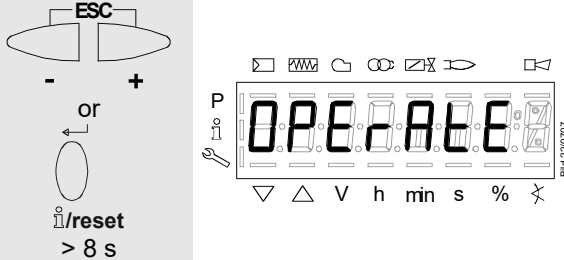
15.7.1.6. End of info level

		When this display appears, you have reached the end of the info level. Display **– End –** appears flashing.
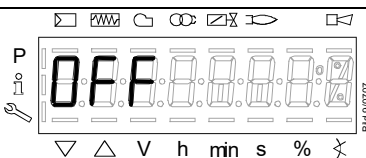
To start of info level	**+** **-**	To end of info level

ESC **-** **+** or ⁱ/reset > 8 s		Pressing **-** **+** or ⁱ/reset (> 8 seconds) takes you back to the operating display **OPErAtE** is displayed.

		When this display appears, you are back on the normal display and can now change to the next level mode.

	ⁱ/reset	Press ⁱ/reset to switch between the service and the parameter level.

15.8 Service level

The service level is used to display information about errors including the error history.

☞ | **Note!**

When on the service level, you can press ◁- or ▷+ to display the next or the previous parameter.

Instead of pressing ▷+ , you can also press ⭮ℹ/reset for < 1 second.

☞ | **Note!**

Press ◁-◁+ᴱˢᶜ or ⭮ℹ/reset for > 8 seconds to return to the normal display.

☞ |

Figure 55: Service level

Parameter / Parameter value

Note!
No change of values on the service level.

If the display shows **._._** together with the parameter, the value may consist of more than 5 digits.

Press ⭮ℹ/reset for > 1 second and < 3 seconds to display parameter **954.00**. Only parameter **954** flashes, not the index.

Pressing ⭮ℹ/reset for > 1 second and < 3 seconds causes index **00** to appear flashing.

Pressing ⭮ℹ/reset for > 1 second and < 3 seconds displays the parameter value.

Pressing ⭮ℹ/reset for > 3 seconds or ◁-◁+ᴱˢᶜ takes you back to the parameter number selection (parameter number flashes).

15.8.1 Service level display

Press ⏻/reset for > 3 seconds until **SEr** appears.

When ⏻/reset is released, you are on the service level.
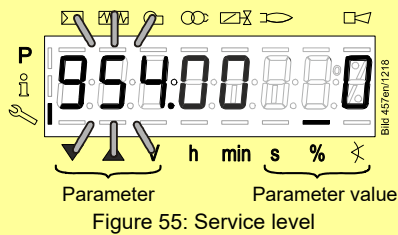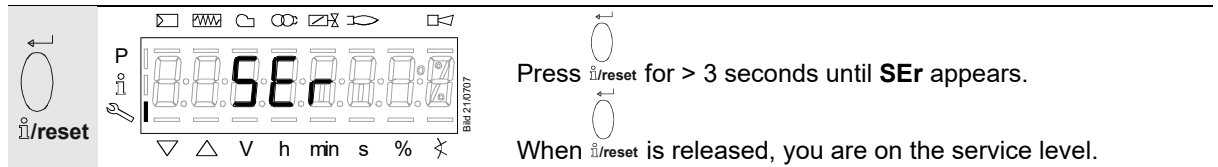
Parameter	Index	Description of the service levels
701	.00…03	Current error: 00: Error code 01: Startup meter reading 02: MMI phase 03: Power value
702	.00…03	Latest error in the history 00: Error code 01: Startup meter reading 02: MMI phase 03: Power value
• • •		
711	.00…03	Oldest error in the history 00: Error code 01: Startup meter reading 02: MMI phase 03: Power value
920		Current signal of PWM fan motor
935		Absolute speed of PWM fan motor
936		Standardized speed of PWM fan motor
951		Mains voltage
954	.00	Intensity of flame for flame 1: Ionization
954	.01	Intensity of flame for flame 1: QRA7/QRI or LFS1

15.8.2   Display of service values
15.8.2.1.   Error history

See chapter 15.10.3.1 "Example of parameter 701: Actual error on the service level".

See chapter 17 "Error code list".

15.8.2.2.   Mains voltage

![display 951: 120]	The display shows parameter **951:** flashing.
	Mains voltage is displayed on the right.
	Example: **951: 120**

To the next parameter	+	−	Back to the previous parameter

15.8.2.3.   Intensity of flame

ⁱ/reset	Press ⁱ/reset for > 1 second and < 3 seconds to display parameter **954.00**. Only parameter **954** flashes, not the index.
	Pressing ⁱ/reset for > 1 second and < 3 seconds causes index **00** to appear flashing.
	Pressing ⁱ/reset for > 1 second and < 3 seconds displays the parameter value.
	Example: **954.00 0**
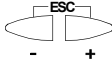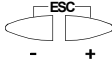
End of service level **– End –**	+	−	Back to the previous parameter

15.8.2.4. End of service level

		When this display appears, you have reached the end of the service level. Display **– End –** appears flashing.

To the start of the service level		To the end of the service level
+		**-**

ESC **-** **+**		Press **-** **+** to return to standby mode. **OPErAtE** is displayed.

		When this display appears, you are back on the normal display and can now change to the next level mode.

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15.9　Parameter level

The parameters stored in the LME75/LME76 can be displayed or changed on the parameter level. The change to the parameter level requires entry of a password. Siemens supplies the LME75/LME76 with the factory settings as specified in the type summary.

The OEM can change the Siemens default settings to meet its own requirements via parameterization.

With the LME75/LME76, the characteristics are determined primarily through parameterization. Every time the unit is recommissioned, the parameter settings must be checked. The LME75/LME76 must never be transferred from one plant to another without adapting the parameters to the new plant.

> ⚠ **Caution**!
> Parameters and settings may only be changed by **qualified personnel**.
> If parameters are changed, responsibility for the new parameter settings is assumed by the person who – in accordance with the access rights – has made parameter changes on the respective access level.
> After parameterization, the OEM must check to ensure that safe burner operation is guaranteed.
> The OEM that carried out the settings is always responsible for the parameters, their settings and compliance of the respective application with the relevant national and international standards and safety regulations, such as EN 267, EN 676, EN 746-2, and EN 1643.
> Siemens, its suppliers and other Group companies of Siemens AG do not assume responsibility for special or indirect damage, consequential damage, other damage, or damage resulting from wrong parameterization.

> ⚠ **Warning!**
> If the factory settings are changed, all changes made must be documented and checked by the OEM.
>
> The OEM is obliged to mark the LME75/LME76 accordingly and to include at least the list of parameters and settings in the burner documentation.
>
> Siemens also recommends attaching an additional mark on the LME75/LME76 in the form of an adhesive label. As specified in EN 298, the label should be easy to read and wipe proof.
>
> The label with a maximum size of 50 mm x 40 mm can be attached to the upper part of the housing.

Example of label:

OEM logo
Type / Order no: 1234567890ABCD
CAUTION! OEM settings:
Parameter no.
225: 30 s (t1)
234: 0 s (t8)
257: 2 s (t3n)　　　　　　　　　　TSA = t3n + 0.45 s
259: 30 s (t11)

Parameter	Index	Description of parameter levels
041		Heating engineer (HF) password (4 characters)
042		OEM password (5 characters)
060		Backup/Restore
123		Minimum power adjustment
140		Mode display in the 7-segment display 1 = standard (program phase) 2 = flame 1 (ionization) 3 = flame 2 (QRA7/QRI or LFS1) 4 = active power (power value)

179		Logical combination of both flame signal amplifier channels
		0 = flame signal amplifier channels are logically combined with an **OR** operation
		    (ionization **OR** QRA7/QRI)
		1 = flame signal amplifier channels are logically combined with an **AND** operation
		    (ionization **AND** QRA7/QRI)

180		Test interval for flame detector QRA7/QRI 0 = ≤5 minutes 1 = ≤5 seconds
Every 200		These parameters must be taken from the respective user documentation (A7156.x).
515	.00	Actuator position during prepurge time 0 = purging in low-fire 1 = purging in high-fire
515	.01	Actuator control 0 = OFF 1 = ON ☞ Note! Operation without actuator control (parameter 515.01 = 0)! No actuators may be connected and parameter 560 must be set to 0. Depending on the program sequence of the PME75 / PME76, a Dbr3 wire link at terminal X2-09B from pin 7 to pin 8 is required during operation without actuator. Further details can be found in the respective A7156.x user documentation under chapter *Operation without actuator*.
560		Pneumatic combustion control 0 = OFF / 3-position step modulation 1 = PWM fan motor / analog modulation ☞ Note! Setting = 1 No function. This selection puts the LME75 / LME76 in lockout position. 2 = Air damper / analog modulation (ASZxx.3x potentiometer feedback required)
563		Operating mode of the ratio control 0 = modulating 1 = multistage

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Parameter	Index	Description of parameter levels
654		Only in modulating operation (parameter 560 = 2) Analog input (ASZxx.3x feedback required) 0 = 3-position step input 1 = 0…10 V 2 = 0…135 Ω 3 = 0…20 mA 4 = 4…20 mA with a non-alterable lockout at I < 4 mA 5 = 4…20 mA without a non-alterable lockout at I < 4 mA

15.9.1 Entering the password

VSD F A > 1 s	**CodE**	Press the **F A** button combination to display **CodE**.
	6 bars with first flashing	When the buttons are released, 6 bars appear with the first one flashing.
- or +		Press - or + to select a number or letter.
	⏎ ⓘ/reset	
- or +		Press ⓘ/reset to confirm the value. The value entered changes to a minus sign (–). The next bar flashes.
	⏎ ⓘ/reset	
- or +		Press - or + to select a number or letter.
⏎ ⓘ/reset		After the final character is entered, the password must be confirmed with ⓘ/reset. Press ⓘ/reset again to end the password entry. Example: Password consisting of 5 characters.
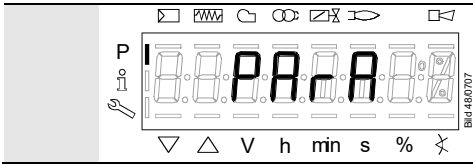
PArA appears for a maximum of 2 seconds to confirm that the password has been entered correctly.

☞ Note!

For the entry of passwords or burner IDs, the following numbers and letters can be used:
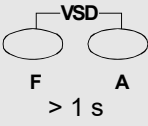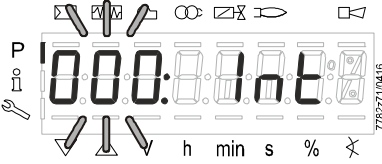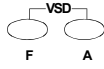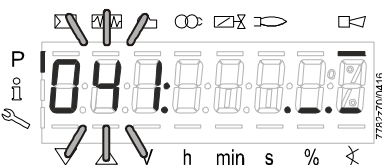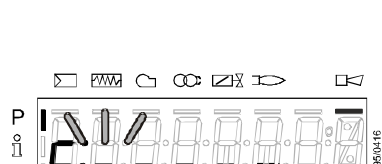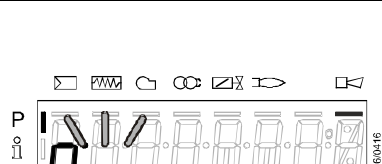
= 1	= A	= L
= 2	= b	= n
= 3	= C	= o
= 4	= d	= P
= 5	= E	= r
= 6	= F	= S
= 7	= G	= t
= 8	= H	= u
= 9	= I	= Y
= 0	= J	

15.9.2 Changing the heating engineer's password

> **Note!**
> For the OEM to change the heating engineer's password, **c:** requires entry of the OEM password!

VSD ◯ ◯ **F** **A** > 1 s		Press the **VSD** ◯ ◯ **F A** button combination to display **000: Int**. Pressing the ℹ/reset button takes you to parameter **041:** heating engineer's password.
		Parameter **041:** flashes. Press ℹ/reset to go to level **c:** for password changes.
↵ ◯ **ℹ/reset**		Letter **c:** (for **c**onfirm) appears flashing. Proceed as described in chapter 15.9.1 "Entering the password" and enter the former password. After the final character is entered, the password must be confirmed with ℹ/reset.
↵ ◯ **ℹ/reset**		Letter **n:** (for **n**ew) appears flashing. Proceed as described in chapter 15.9.1 "Entering the password" and enter the new password (4 characters). After the final character is entered, the password must be confirmed with ℹ/reset.
↵ ◯ **ℹ/reset**		Letter **r:** (for **r**epeat) appears flashing. Proceed as described in chapter 15.9.1 "Entering the password" and repeat the entry of the new password. After the final character is entered, the password must be confirmed with ℹ/reset.
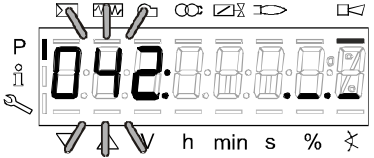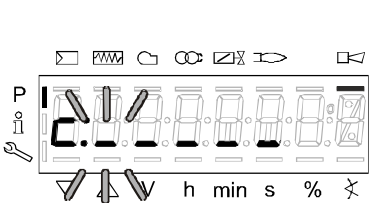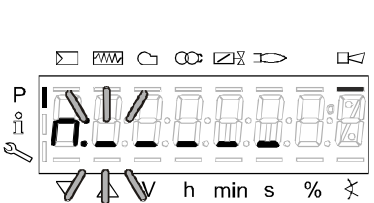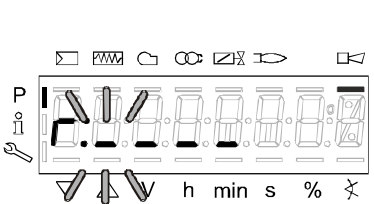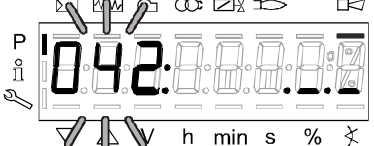
| | **SEt** confirms that the new password has been saved. |

| | Pressing the ⟳/reset button takes you to parameter **041:** heating engineer's password. |

| Continue in the parameter level to the next parameter group **100:** | ▷ **+** | ◁ **-** | End of parameter level **– End –** |

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15.9.3   Changing the OEM password

Parameter **042:** flashes.

Press ℹ/reset to go to level **c:** for password changes.

Letter **c:** (for **c**onfirm) appears flashing.

Proceed as described in chapter 15.9.1 "Entering the password" and enter the former password.

After the final character is entered, the password must be confirmed with ℹ/reset.

Letter **n:** (for **n**ew) appears flashing.

Proceed as described in chapter 15.9.1 "Entering the password" and enter the new password (5 characters).

After the final character is entered, the password must be confirmed with ℹ/reset.

Letter **r:** (for **r**epeat) appears flashing.

Proceed as described in chapter 15.9.1 "Entering the password" and repeat the entry of the new password.

After the final character is entered, the password must be confirmed with ℹ/reset.

SEt confirms that the new password has been saved.

Parameter **042:** flashes again.
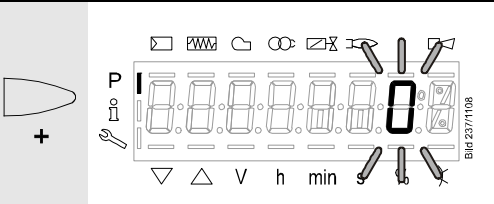
15.9.4 Backup

	Parameter **000:** flashes. Display: Parameter **000:** flashes, display **Int** does not
i/reset	
	Press *i/reset* for parameter group **041**. Display: Parameter **041:** flashes, display **._._** does not
	Press + to select the parameter **060**. Display: Parameter **060.** flashes, index **00:** and value **0** do not
i/reset	
	Press *i/reset* for parameter **rEStorE**. Display: Parameter **rEStorE** flashes
	Press + to select parameter **bAC_UP**. Display: Parameter **bAC_UP** flashes
i/reset	
	Press *i/reset* to select the backup process. Display: Value **0**

Press ⊳+ to shift the value to change mode one place to the left.

Display: Value **0** flashes

Press ⊳+ to select the value **1**.

Display: Value **1** flashes

î/reset

Press î/reset to activate the backup process.

Display: **run** appears

< 3 s

After approx. 3 seconds (depending on the duration of the program sequence), the display shows **bAC End** and signals the end of the backup process.

Display: **bAC End**

Display appears for 2 minutes or can be finished by pressing î/reset.

↓

< 2 min

or

î/reset

If the backup process is complete, the LME75/LME76 leaves the parameter level and the operating display, e.g., **OFF** appears for standby or **Loc xxx** in the event of a previous lockout position.
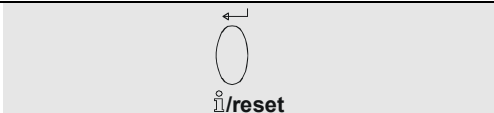
15.9.5   Restore

	Parameter **000**: flashes. Display: Parameter **000:** flashes, display **Int** does not
 î/reset	
	Press **î/reset** for parameter group **041**. Display: Parameter **041:** flashes, display **._._** does not
	Press ⊲ **+** to select the parameter **060**. Display: Parameter **060.** flashes, index **00:** and value **0** do not
 î/reset	
	Press **î/reset** for parameter **rEStorE**. Display: Parameter **rEStorE** flashes
 î/reset	
	Press **î/reset** to select the restore process. Display: Value **0**
	Press ⊲ **+** to shift the value to change mode one place to the left. Display: Value **0** flashes
☞	**Note!** To detect display errors, the value appears one place shifted to the left.
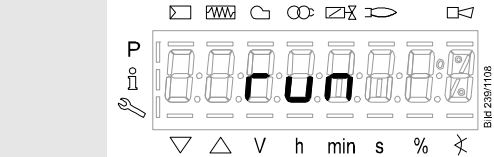
+		Press + to select the value **1**. Display: Value **1** flashes
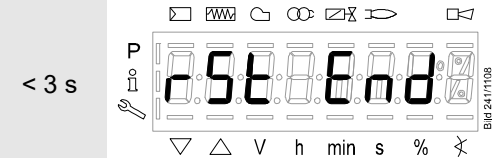
î/reset

	run	Press î/reset to activate the restore process. Display: **run** appears
< 3 s	rSt End	After approx. 3 seconds (depending on the duration of the program sequence), the display shows **rSt End** and signals the end of the restore process. Display: **rSt End**
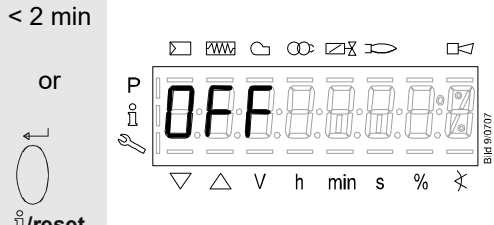
Display appears for 2 minutes or can be finished by pressing î/reset.

↓

< 2 min or î/reset	OFF	If the restore process is complete, the LME75/LME76 leaves the parameter level and the operating display, e.g., **OFF** appears for standby or **Loc xxx** in the event of a previous lockout position.

☞ Note!
The restore process writes all settings and parameters from the PME75/PME76 to the internal memory of the LME75/LME76. As part of this process, previous program sequences, parameters, and settings in the internal memory of the LME75/LME76 will be overwritten.

⚠ **Warning!**
On first startup or after exchange of the PME75/PME76, the sequence of functions and parameter settings must be checked upon completion of the restore process.

→ **Operation via AZL2:**
  Chapter 15.4.1.2 "Startup/shutdown display" and chapter 15.9.5 "Restore"
→ **Operation via internal LED display:**
  Chapter 16.6 "Initial startup with a new PME75/PME76 or when replacing the PME75/PME76" and chapter 16.8 "Manual restore"
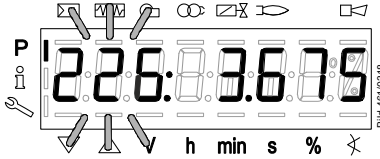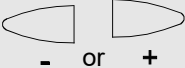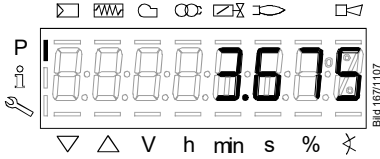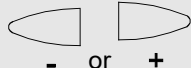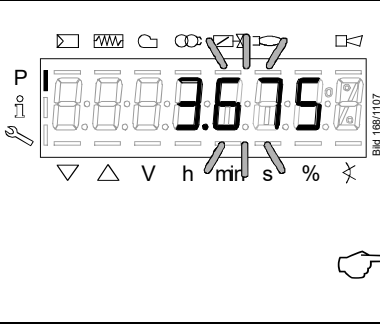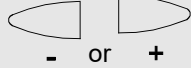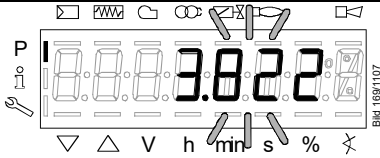
15.10 Operating variants of the parameters

The parameters stored in the LME75/LME76 can be displayed and changed on the parameter level.

		After entering the password, **000: Int** appears. Press ▷ + to select parameter group **100: PArA**.
		Press ▷ + to select parameter group **200**: **PArA**. Press î/**reset** to access the settings for parameter group **200**.

15.10.1 Parameters without index, with direct display

15.10.1.1. Example of parameter 226 (preignition time) on the parameter level

+	P I **226: 3.675** h min s %	Press **+** to select the *preignition time*. Display: Parameter **226:** flashes, value **3.675** does not.
	↵ i/reset	
- or **+**	P I **3.675** ▽ △ V h min s %	Press **-** or **+** to go to editing mode. Display: **3.675**
- or **+**	P I **3.675** ▽ △ V h min s %	Press **-** or **+** to shift the former preignition time to change mode one place to the left. Display: Prepurge time **3.675** flashes **Note!** To detect display errors, the value appears one place shifted to the left.
- or **+**	P I **3.822** ▽ △ V h min s %	Press **-** or **+** to select the required preignition time. Display: Preignition time **3.822** flashes

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Alternative 1:

Discard the change.	ESC − +

P 2 2 6 : 3.6 7 5   h min s %

Alternative 2:

Adopt the value.	↵ i/reset

P 3.8 2 2   ▽ △ V h min s %

Press i/reset to return to editing mode.

The set value is adopted.

Note!
To detect display errors, the value is shown again, but shifted one place to the right.

Display: Value **3.822**

	ESC − +

P 2 2 6 : 3.6 7 5   h min s %

To the next parameter	+	−	Back to the previous parameter

15.10.2 Parameters without index, with no direct display

15.10.2.1. Example of parameter 224 (specified time air pressure switch) on the parameter level

+	**224. .__.__**	Press **+** to select the *specified time for air pressure signal*. Display: Parameter **224**: flashes, characters .__.__ do not.
	↵ ⓘ/reset	
	48.510	Press ⓘ/reset to access editing mode. Display: **48.510**
- or **+**	**48.510**	Press **-** or **+** to shift the former specified time to change mode one place to the left. Display: Specified time **48.510** flashes **Note!** To detect display errors, the value appears one place shifted to the left.
- or **+**	**53.361**	Press **-** or **+** to select the required specified time. Display: Specified time **53.361** flashes

Alternative 1:

Discard the change.	ESC − +
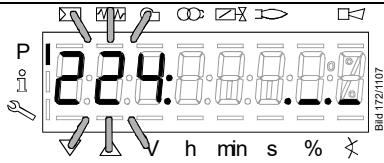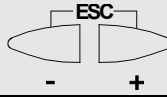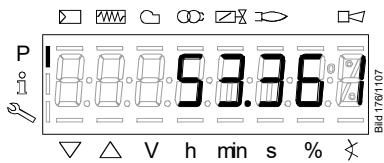
Bild 172/1107

Alternative 2:

Adopt the value.	↵ ◯ ℹ/reset

Bild 176/1107

Press ℹ/reset to return to editing mode.

The set value is adopted.

☞ Note!
To detect display errors, the value is shown again, but shifted one place to the right.

Display: Value **53.361**

	ESC − +

Bild 172/1107
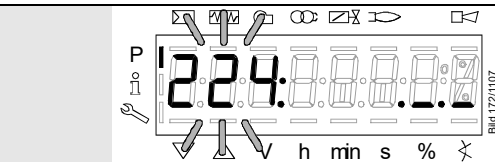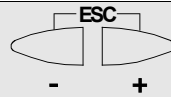
Press − + to return to the parameter level.

Display: Parameter **224:** flashes, characters **._._** do not.

To the next parameter	+	−	Back to the previous parameter

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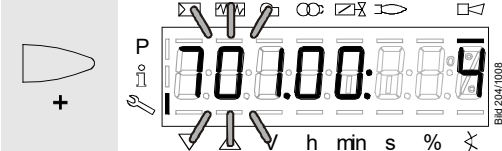
15.10.3 Parameters with index, with or without direct display
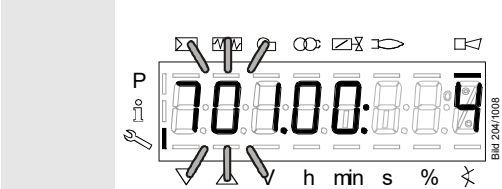
15.10.3.1. Example of parameter 701: Actual error on the service level

See chapter 17 "Error code list".

	Press + to select the parameter **701**. Display: Parameter **701.** flashes, index **00:** and error **4** do not.
	On the left, the current error **701.** appears flashing. Index **00:** does not flash. On the right, error code **4** is displayed. Example: Parameter **701.**, index **00:**, error code **4**
 î/**reset** 1…3 s	
	Press î/**reset** (for 1…3 seconds) to show index **00:** for the error code flashing. Display: Parameter **701.** does not flash, index **00:** flashes, **4** does not.
To the next index	 **+**
	Press + to select the index. .00: Error code .01: Startup counter reading .02: MMI phase to the time of fault .03: Power value to the time of fault Example: Parameter **701.**, index **01:**, startup counter reading ._._
To the next index	 **+**
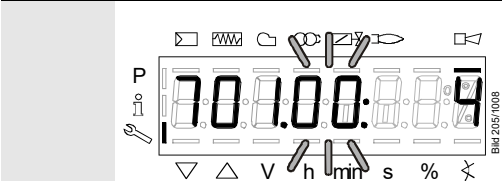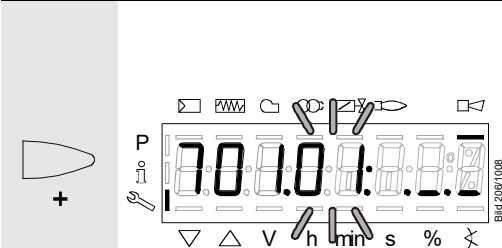
+	`701.02:P02`	Press + to select the index. .02: MMI phase to the time of fault Example: Parameter **701.**, index **02:**, **p**hase **02:** Safety shutdown

To the next index	**+**	

+	`701.03: 60`	Press + to select the index. .03: Power value to the time of fault Example: Parameter **701.**, index **03:**, power value **60%**

	↵ i/**reset** 1…3 s

	`701.03:._._`	Press - + to return to the index. Display: Parameter **701.** Does not flash, index **03:** flashes, characters **._._** do not flash.

To the next index	**+**	**-** Back to the previous index

	`701.-End-`	When this display appears, you have reached the end of the index level within parameter **701.** Display **– End –** appears flashing.

	ESC **-** **+**

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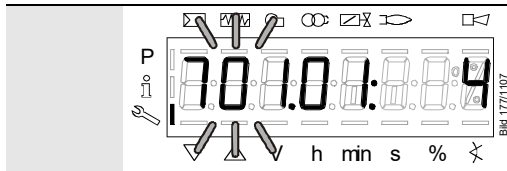
7.0.1.0.1. .4 P ⚙ 🔧	Press `-` `+` to return to the parameter level. Display: Parameter **701.** flashes, index **01:** and diagnostic code **4** do not.	Bild 177/I107

To the next oldest error	▱ **+**	

.
.
.
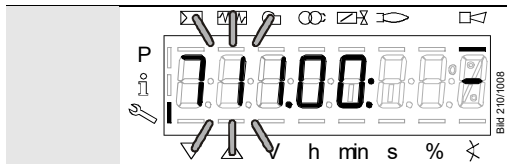
7.1.1.0.0. . P ⚙ 🔧	Parameters cover the period back to the last error since deletion of the history (as far back as parameter **711.**) Example: Parameter **711.**, index **00:** –	Bild 210/I008

To the next parameter	▱ **+**	◁ **-** Back to the previous parameter

16 Operation via internal LED display
16.1 Meanings of displays and buttons
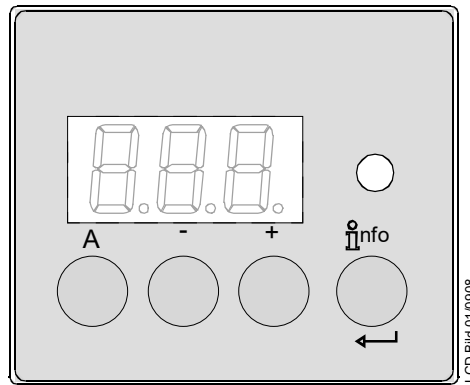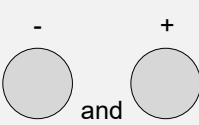
Figure 56: Meaning of display and buttons

Button	Function
A	**A button** • Display of preset output • In lockout position: Power value to the time of fault
info	**Info and Enter button** → **Reset** in the event of fault, changeover visual diagnostics of the cause of error (see chapter 16.4 "Fault status messages and display of errors")
-	**- button** • Display of flame signal current 2 or phase display • In lockout position: MMI phase to the time of fault
+	**+ button** • Display of flame signal current 1 or phase display • In lockout position: MMI phase to the time of fault
○	**3 multicolor signal lamp** → See chapter *Blink code table*
- and **+**	**+ and - button: Escape function** (press **–** and **+** simultaneously) • No adoption of value • One menu level up → Press and hold for 1 second to enable the backup/restore function.

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16.2 Normal display

Normal display is the standard display in normal operation.

16.2.1 Standby display

O.F.F. LCD Bild 02/0908	The LME75/LME76 is in standby.

16.2.2 Startup/shutdown display
16.2.2.1. Phase display

P.2.1. LCD Bild 03/0908	🟠	The LME75/LME76 is in **Ph**ase **21**. The individual program phases are displayed in accordance with the program sequence. For the color display of the signal lamp, see *List of phase display*.

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16.2.2.2. List of the phase display

> ☞ **Note!**
> Display depending on the PME75/PME76 and respective parameterization, refer to the *User documentation*.

Phase number 7-segment display	LED	Function
Standby		
OFF	OFF	Standby
P08	OFF	Mains ON / test phase
Startup		
P21	Yellow	Safety valve ON Air pressure switch test / POC test Actuator travels to CLOSED position Air pressure switch test / POC test / heat up the oil preheater
P22	Yellow	Fan motor ON Air pressure switch test / stabilization time
P24	Yellow	Actuator travels to the prepurge position (t11)
P30	Yellow	Prepurging (t1)
P36	Yellow	Actuator travels to the ignition load / low-fire (t12)
P38	Flashing yellow	Preignition (t3)
P40	Flashing yellow	First safety time (TSA)
P42	Green	First safety time (TSA), flame check
P44	Green	Interval (t4): Stabilization of the pilot flame before ignition of the main burner
P50	Green	Interval (t9): Second safety time
P52	Green	Interval (t5): Stabilization of the main flame before load control release
P54	Green	Actuator travels to the low-fire (t12)
Operation		
oP:xx	Green	Operation (modulation), display of the actual power in percent
oP1	Green	Operation first stage
oP2	Green	Operation second stage
Shutdown		
P10	OFF	Actuator travels to CLOSED position (t12) (home run)
P70	Yellow	Stop operation
P72	Yellow	Stop operation
P74	Yellow	Postpurging (t8)

Phase number. 7-segment display	LED	Function
Waiting phases (start prevention) / Safety shutdown phases		
P01	Flashing red/yellow	Undervoltage/overvoltage
P02	Yellow	Safety shutdown, followed by a non-alterable lockout with interlocking or start prevention → e.g., safety loop open
P04	Flashing red/green	Safety shutdown due to extraneous light during burner startup / standby
P90	Yellow	Safety shutdown due to pressure switch-min is open
Non-alterable lockout		
Loc	Red	Lockout phase
Valve proving		
P80	Yellow	Test space evacuating (td4)
P81	Yellow	Test time atmospheric pressure (td1)
P82	Yellow	Test space filling (td3)
P83	Yellow	Test time gas pressure (td2)

16.2.3 Operating position display

Display **oP1** stands for *stage 1*.
The display following **oP** is unit specific.
The signal lamp lights up green.

16.3 Special functions

16.3.1 Manual locking

info

and another button
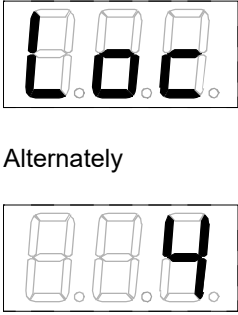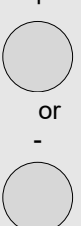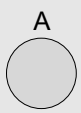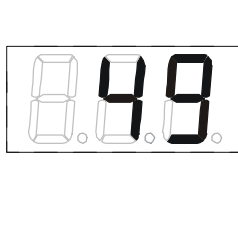
Alternately

Press info together **with any other button**.

The LME75/LME76 switches instantly to the lockout position, no matter what the operating position.

The signal lamp lights up red.
Display shows current error code **167**.

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16.4 Fault status messages and display of errors

16.4.1 Display of errors (faults) with lockout

L.o.c Alternately **8.8.4**	🔴	**Loc** and **4** are displayed alternately. The LME75/LME76 is in lockout position. The current error code is displayed, and the signal lamp flashes red. Example: Error code **4**
+ or – **P.0.2**	🔴	Press + or – to access the phase display in which the error appeared. The signal lamp lights up red. Example: Phase **P02**
A **4.9**	🔴	**Only with modulation via analog signal** Press A to display the output position / actuator position where the error occurred. The signal lamp lights up red. Example: Output position / actuator position **49**
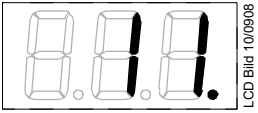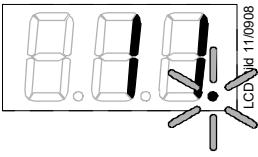
☞ Note!
The meanings of the error and diagnostic codes can be found in the error code list.

16.4.2   Intensity of flame ionization

☞ **Note!**
This display is only possible when not in lockout position.

+ ◯	**FL.1**	🟢	Press ⊕ ◯ to display the flame signal amplifier. The signal lamp lights up green. The display shows **FL.1**.
+ ◯ 1…3 s	**1 1.**	🟢	When pressing ⊕ ◯ (1…3 seconds), the flame signal current is displayed. The signal lamp lights up green. Example: **11.**
+ ◯ > 3 s	**1 1.**	🟢	When pressing ⊕ ◯ (> 3 seconds), the point after the number begins to flash. Now release this button again. The value is now displayed for 2 minutes. The signal lamp lights up green. The normal display appears again once this time has elapsed. Display: Point **.** flashes, value **11** does not.

16.4.3　Intensity of flame QRA7/QRI (LME75) or LFS1 (LME76)

> ☞ Note!
> This display is only possible when not in lockout position.

-	**FL.2**	🟢	Press ◯ to display the flame signal amplifier. The signal lamp lights up green. The display shows **FL.2**.
- 1…3 s	**11.**	🟢	When pressing ◯ (1…3 seconds), the flame signal current is displayed. The signal lamp lights up green. Example: **11.**
- > 3 s	**11.**	🟢	When pressing ◯ (> 3 seconds), the point after the number begins to flash. Now release this button again. The value is now displayed for 2 minutes. The signal lamp lights up green. The normal display appears again once this time has elapsed. Display: Point **.** flashes, value **11** does not.

16.4.4　Reset

info ↵ > 1 s	**O.F.F**		Press ↵ for 1…3 seconds to reset the LME75/LME76. When the button is released, **OFF** is displayed. The LME75/LME76 is reset.

16.4.5   Display of preset output

A			
A (button) / LCD **.oP**	🟢	Press (button A) to access the display for the relative actual position of the actuator. The signal lamp lights up green. The display shows **.oP**.

| A / 1…3 s (button) / LCD **.57** | 🟢 | Pressing (button A) (for 1…3 seconds) displays the relative actual position. The signal lamp lights up green. The **relative** value **.57** of the actual position is displayed. |

PME75 with actuator control:	**PME75 with PWM fan motor:**
Position of actuator 0° 0 Ω value of potentiometer = 0% display Position of actuator high-fire > 0° < 90° = value of potentiometer < 1000 Ω = 100% display > 0 Ω < 1000 Ω	Current speed 0 rpm = 0% display Current speed corresponds to the high-fire speed = 100% display
Example: Value **.57**	

| A / > 3 s (button) / LCD **.57** flashing | 🟢 | When pressing (button A) (> 3 seconds), the point before the number begins to flash. Now release this button again. The value is now displayed for 2 minutes. The signal lamp lights up green. The normal display appears again once this time has elapsed. Display: Value **57**, point **.** flashes. |

16.5 Manual load change (depending on the PME75/PME76 and respective parameterization)
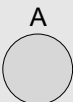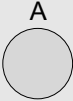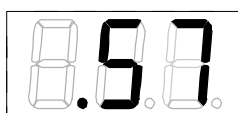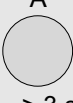
16.5.1 Actuator position or speed of PWM fan motor in modulating operation with analog signal
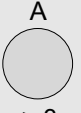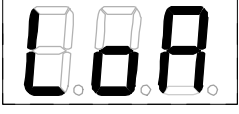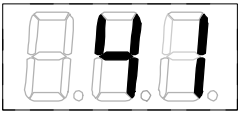
👉 **Note!**
This display is only possible:
- not in lockout position
- program sequence for modulating operation via analog preset output and with connected actuator with ASZ for position feedback to the LME75/LME76.

A	.oP	🟢	Press Ⓐ to access the display for the relative actual position of the actuator and/or the relative actual speed of the PWM fan motor. The signal lamp lights up green. The display shows **.oP**.

A 1…3 s	.57	🟢	Pressing Ⓐ (for 1…3 seconds) displays the relative actual position and/or actual speed. The signal lamp lights up green. The **relative** value **.57** of the actual position is displayed.

Actuator position 0° 0 Ω potentiometer value = 0% display	Current speed 0 rpm = 0% display
Actuator position high-fire > 0° < 90° = potentiometer value > 0 Ω <1000 Ω = 100% display	Current speed corresponds to the high-fire speed = 100% display

Example: Value **.57**

A > 3 s	5.7 (point flashing)	🟢	When pressing Ⓐ (> 3 seconds), the point before the number begins to flash. Now release this button again. The value is now displayed for 2 minutes. The signal lamp lights up green. The normal display appears again once this time has elapsed. Display: Value **57**, point **.** flashes.

A (button) > 3 s

Alternately — **LoA** / **41**

(green signal lamp)

Press **A** (for > 3 seconds) to display **LoA** and **41** alternately.
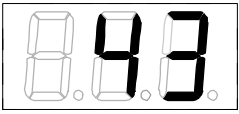
The **relative** value **41** of the actual position and/or actual speed displayed.

Actuator position 0° 0 Ω potentiometer value = 0% display	Current speed 0 rpm = 0% display
Actuator position high-fire > 0° < 90° = potentiometer value > 0 Ω <1000 Ω = 100% display	Current speed corresponds to the high-fire speed = 100% display

The actual value (e.g., **41%**) is displayed and the signal lamp flashes green.

Example: Position of actuator or the current speed **41%** (based on range between high-fire and 0° or 0 rpm)

A and **+** or **-**

43

(green signal lamp)
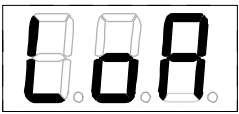
Pressing **A** together with **+** or **−** allows you to set the actuator position or fan speed between low-fire (x%) and high-fire (100%). Release the buttons again once the required position or speed has been reached.
The signal lamp lights up green.

Example: Value **43**
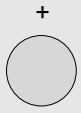
Alternately — **LoA** / **43**
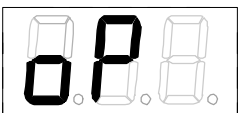
(green signal lamp)

LoA and **43** are displayed alternately.

The signal lamp lights up green.

Example: Required actuator position or current speed **43**%

- and **+**

oP

(green signal lamp)

Press **−** and **+** simultaneously (Escape) to return to normal operation.

Display: **oP**

When manual adjustment is completed, the actuator or PWM fan motor returns to the analog preset output.

☞ **Note!**
- When the program phase (e.g., P10 - shutdown) changes during *manual adjustment* mode, the display flashes.
- Manual adjustment mode remains active until Escape switches the LME75/LME76 back to normal operation or until the LME75/LME76 is reset via mains ON/OFF. This means that – in the case of a new heat request and after startup – the actuator or the PWM fan motor is driven to the position or speed of the manually preset value

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16.6   Initial startup with a new PME75/PME76 or when replacing the PME75/PME76

rSt / **PrC** Alternately	🔴 🟡 🟡	**rSt** and **PrC** are displayed alternately. The replacement of the PME75/PME76 is displayed. The signal lamp alternates between lighting up red once and yellow twice.
info ↵ > 3 s	🟡	Press ↵ (for > 3 seconds) to start downloading data from the PME75/PME76. The signal lamp flashes yellow. A short flash of the yellow signal lamp indicates that 3 seconds have passed.
	👉	Note! The data download will not start if you press ↵ for < 3 seconds. To start the restore process again, the LME75/LME76 must be reset by switching the mains ON/OFF. The option is also available to press − and + (Escape) as described in chapter 16.8 (Manual restore) to activate a new restore process.
run		**run** is displayed while downloading (during the restore process) the program sequence.
End / **rSt** Alternately	🔴	**End** and **rSt** are displayed alternately. The display shows that the data exchange has ended. The signal lamp lights up red.
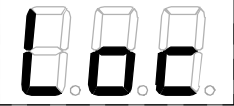
After 2 minutes, the LME75/LME76 changes to **Loc 138**

↓

☞	**L.o.c** Alternately **1.3.8.**	🔴	**After the restore process, the LME75/LME76 is automatically in the lockout position (Loc 138) and must be reset for operation.**

Info ⏎ > 1 s	**O.F.F**	Info Press ⏎ for > 1 second to reset the LME75/LME76. Display **OFF**

⚠️ **Warning!**
On first startup or after exchange of the PME75/PME76, the sequence of functions and parameter settings must be checked upon completion of the restore process.
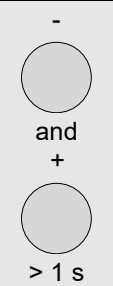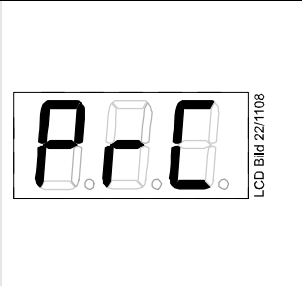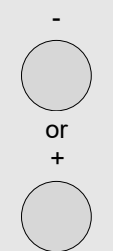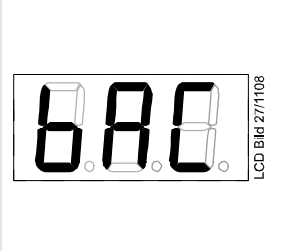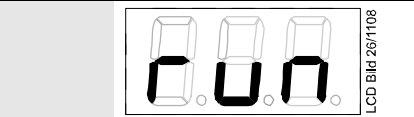
 Operation via AZL2:
    Chapter 15.4.1.2 "Startup/shutdown display" and chapter 15.9.5 "Restore"
→ **Operation via internal LED display:**
    Chapter 16.6 "Initial startup with a new PME75/PME76 or when replacing the PME75/PME76" and chapter 16.8 "Manual restore"

16.7　Manual backup

- and + > 1 s PrC	Press **–** and **+** (Escape) simultaneously (for > 1 second) to trigger a manual backup process. This launches parameter **PrC**. Display: **PrC**
- or + bAC	Press **–** or **+** to select parameter **bAC**. Display: **bAC**
info ↵ 1…3 s	
r.u.n.	**run** is displayed while downloading (during the backup process) the program sequence.
End Alternately bAC	**End** and **bAC** are displayed alternately. The display shows that the data exchange has ended.
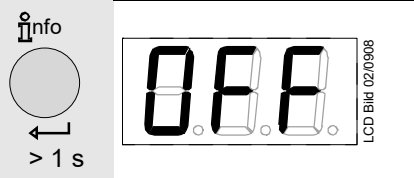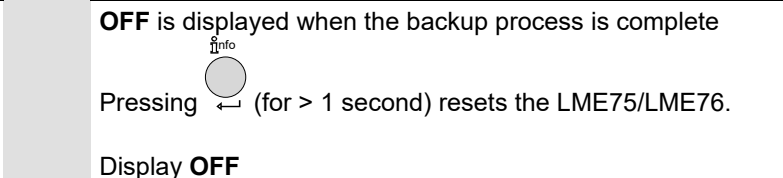
Display appears for 2 minutes or can be finished by pressing info ↵.

↓
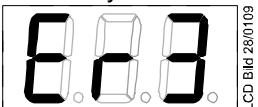
info ↵ > 1 s O.F.F	**OFF** is displayed when the backup process is complete Pressing info ↵ (for > 1 second) resets the LME75/LME76. Display **OFF**

☞ **Note!**
Backing up is recommended after changing parameters.

16.7.1 Error during backup process

bAC and **Er3** are displayed alternately.

For meaning and a possible cause, refer to chapter 17 "Error code list".

Alternately

LCD Bild 27/1108

LCD Bild 28/0109
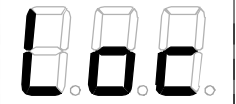
☞ Note!
The backup process saves all settings and parameters from the LME75/LME76 memory to the PME75/PME76.

16.8 Manual restore

- and **+** > 1 s	**PrC**	Press **–** and **+** (Escape) simultaneously (for > 1 second) to trigger a manual restore process. This launches parameter **PrC**. Display: **PrC**
- or **+**	**rSt**	Press **–** or **+** to select parameter **rSt**. Display: **rSt**
	Info ↵ 1…3 s	
	run	**run** is displayed while downloading (during the restore process) the program sequence.
Alternately	**End** / **rSt**	**End** and **rSt** are displayed alternately. The display shows that the data exchange has ended. The signal lamp lights up red.
	After 2 minutes, the LME75/LME76 changes to **Loc 138** ↓	

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16 Operation via internal LED display

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👉	**L.o.C** (LCD Bild 06/0908) Alternately **1.3.8.** (LCD Bild 25/1108)	🔴	**After the restore process, the LME75/LME76 is automatically in the lockout position (Loc 138) and must be reset for operation.**
ℹ️Info ⮐ > 1 s	**O.F.F** (LCD Bild 02/0908)		ℹ️Info Press ⮐ for > 1 second to reset the LME75/LME76. Display **OFF**

16.8.1 Error during restore process

Alternately with

or with

or with

rSt and **Er1**, **Er2** or **Er3** are displayed alternately.

For meaning and a possible cause, refer to chapter 17 "Error code list".

☞ Note!
The restore process writes all settings and parameters from the PME75/PME76 to the internal memory of the LME75/LME76. As part of this process, it is possible that previous program sequences, parameters, and settings in the internal memory of the LME75/LME76 will be overwritten.

16.8.2 Reset

Press ↵ (for 1…3 seconds) and **OFF** will appear.

When the button is released, the LME75/LME76 is reset.

17 Error code list

Error code		Plain text	Possible cause
AZL2	**LED display** (alternating)		
Loc: 2	Loc 2	No flame at end of safety time	• Faulty or soiled fuel valves • Defective, soiled or incorrectly connected flame detector • Poor adjustment of burner, no fuel • Faulty ignition
Loc: 3	Loc 3	Air pressure faulty (air pressure switch welded in no-load position, decrease to specified time) (air pressure switch flame-on response time)	Air pressure switch faulty • Loss of air pressure signal after specified time • Air pressure switch welded in no-load position
Loc: 4	Loc 4	Extraneous light	Extraneous light during burner startup / standby
Loc: 5	Loc 5	Air pressure faulty, air pressure switch welded in operating position	Time supervision air pressure switch → Air pressure switch welded in operating position
Loc: 6	Loc 6	Actuator fault	• Actuator faulty or blocked • Faulty connection • Faulty adjustment
Loc: 7	Loc 7	Loss of flame	Too many losses of flame during operation (limitation of restarts) • Faulty or soiled fuel valves • Faulty or soiled flame detector • Poor adjustment of burner
Loc: 8	Loc 8	Oil temperature limiter open	Minimum oil temperature reached
Loc: 9	Loc 9	---	Free
Loc: 10	Loc 10	Non-volatile lockout with alarm output switched on at terminal X2-03 pin 3 (fault lamp ON)	Wiring error or internal error, other errors
Loc: 10	Loc 10	Non-volatile lockout with alarm output switched off at terminal X2-03 pin 3 (fault lamp OFF)	Output contact error (welded contact of an output relay)
Loc: 12	Loc 12	Valve proving fault in fuel valve V1	Fuel valve V1 leaking
Loc: 13	Loc 13	Valve proving fault in fuel valve V2	Fuel valve V2 leaking
Loc: 14	Loc 14	POC/CPI fault	Fault valve closing control POC

Error code		Plain text	Possible cause
AZL2	**LED display** (alternating)		
Loc: 20	Loc 20	Pressure switch-min open	• Gas shortage • Oil pressure has dropped below minimum limit
Loc: 21	Loc 21	Pressure switch-max open	Gas pressure has exceeded maximum limit
Loc: 22	Loc 22	Safety loop open	• External limit thermostat or pressure switch open • Safety temperature limiter has tripped
Loc: 31	Loc 31	Flame safeguard test failed	• LME76 only: External flame safeguard faulty
Loc: 60	Loc 60	Analog load controller source 4…20 mA, I < 4 mA	Wire breakage
Loc: 83	Loc 83	PWM fan motor fault	• PWM fan motor does not reach the target speed within the specified time OR • after reaching the target speed, the PWM fan motor leaves the tolerance band (parameter 650) again for a time exceeding the tolerance time speed deviation (parameter 660)
Loc: 138	Loc 138	Restore process successful	Restore process successful
Loc: 139	Loc 139	No PME75/PME76 detected	No PME75/PME76 has been plugged in
Loc: 167	Loc 167	Manual locking	Manual locking
Loc: 206	Loc 206	AZL2 incompatible	Use the latest version
Loc: 225	Loc 225	PWM fan motor fault	• The PWM prepurge speed has dropped below the minimum limit after reaching the prepurge speed (parameter 675.00) OR • The maximum ignition load PWM (parameter 675.01) has been exceeded after reaching the ignition load speed.
Loc: 226	Loc 226	PWM fan motor fault	Parameterization error • Low-fire speed > high-fire speed OR • Low-fire = 0 rpm OR • Maximum speed = 0 rpm
Loc: 227	Loc 227	PWM fan motor fault	One or more parameters are violating the minimum/maximum limit

Error code		Plain text	Possible cause
AZL2	**LED display** (alternating)		
rSt Er1	rSt Er1	Error in compatibility between PME75/PME76 and LME75/LME76 during restore process	Program sequence of PME75/PME76 does not match the LME75/LME76
rSt Er2	rSt Er2	Error in compatibility between PME75/PME76 and LME75/LME76 during restore process	Hardware of LME75/LME76 does not match the PME75/PME76
rSt Er3	rSt Er3	Error during restore process	• PME75/PME76 faulty • PME75/PME76 removed during restore process
bAC Er3	bAC Er3	Error in compatibility between PME75/PME76 and LME75/LME76 during backup process	Program sequence of PME75/PME76 does not match the LME75/LME76
Err PrC	Err PrC	PME75/PME76 fault	• Error in data content of the PME75/PME76 • No PME75/PME76 plugged in

18 Unit history

Software version 02.99

- Current software version

Software version 03.00

- Changed control of the alarm terminal in case of contact position errors of the output contacts

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19 Table of Figures

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