SIEMENS

7105

Burner controls

LME71…
LME72…
LME73…

The LME7 is a microprocessor-based burner control with matching system components for controlling and supervision of forced draft burners of medium to large capacity.

The LME7 and this data sheet are intended for original equipment manufacturers (OEMs) using the LME7 in or on their products.

Notes

Please note!
All the safety, warning, and technical notes given in the basic documentation for the LME7 (P7105) also apply to this document in full. Failure to observe these poses a risk of damaging the safety functions and the risk of electric shock.

Use

LME7s are used for the startup and supervision of multistage or modulating forced draft burners and atmospheric gas burners in intermittent operation. The fuel-air ratio can be set either via an air damper actuator – acting on mechanical or pneumatic ratio control – or via pulse width modulated fans and pneumatic ratio control. Flame supervision is performed using an ionization probe, UV flame detector QRA2 / QRA4 / QRA10, photo resistive detector QRB1 / QRB3, yellow flame detector QRB4 or blue-flame detector QRC.

- Applications in accordance with EN 267: Forced draft burners 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

Software version V02.03 and later

- Undervoltage detection
- Electrical remote lockout reset facility
- Accurate control sequence thanks to digital signal handling
- Multicolor indication of error status and operating status messages
- Air pressure supervision with function check of air pressure switch during start and operation (depending on the PME7 and respective parameterization)
- Limitation of restarts (depending on the PME71/PME73 and respective parameterization)
- Controlled intermittent operation after max. 24 hours of continuous operation (can be parameterized via parameter 239) (depending on the PME7)
- BC interface
- The parameters for the LME7 can be set via the AZL2 or the ACS410
- Plug-in space for PME7

LME71 and LME73 only:
- Program sequence display

The following items are integrated into the LME7:
- Burner control
- BC interface for connecting an AZL2 or PC
- Lockout reset button (info button)
- 3 multicolor signal lamp LED for operations and fault notifications (lockout reset button (info button), 3 other buttons for operation in connection with 3 x 7-segment display)
- Optional: Analog inputs for load controller 0 to 10 V DC, 0/4 to 20 mA, 0 to 135 Ω
- Interface for PME7

LME71 only:
- Control for a PWM fan motor (depending on the respective parameterization)

LME71 and LME73 only:
- 3 x 7-segment display for service, error and status information

LME72 and LME73 only:
- Control for one actuator

Supplementary documentation

Product type	Designation	Documentation type	Documentation number
PME71.111Ax	Program module	User Documentation	A7105.1
PME71.112Ax	Program module	User Documentation	A7105.2
PME71.401Ax	Program module	User Documentation	A7105.3
PME71.402Ax	Program module	User Documentation	A7105.4
PME71.901Ax	Program module	User Documentation	A7105.5
LME71.901A2 *)	Burner control	User Documentation	A7105.6
PME72.521Ax *)	Program module	User Documentation	A7105.11
PME72.541Ax *)	Program module	User Documentation	A7105.12
PME73.810Ax	Program module	User Documentation	A7105.21
PME73.811Ax	Program module	User Documentation	A7105.22
PME73.812Ax	Program module	User Documentation	A7105.23
PME73.820Ax	Program module	User Documentation	A7105.24
PME73.830Ax	Program module	User Documentation	A7105.25
PME73.831Ax	Program module	User Documentation	A7105.26
PME73.840Ax	Program module	User Documentation (variant 1)	A7105.27
PME73.840Ax	Program module	User Documentation (variant 2)	A7105.28
PME73.231Ax	Program module	User Documentation	A7105.29
LME	Burner control	Environmental declaration	E7105 *)
LME71/LME72/LME73	Burner control	Product range summary	Q7105
LME71/LME72/LME73	Burner control	Basic documentation	P7105
PME	Program module	Environmental declaration	E7105.1 *)

*) On request only

Applied directives:

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

*) The compliance with EMC emission requirements must be checked after the burner control is installed in 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 burners and appliances burning gaseous and/or liquid fuels DIN EN 13611
- Automatic electrical controls for household and similar use Part 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
Parts 2–102:
Particular requirements for gas, oil, and solid-fuel burning appliances having electrical connections. The electrical connections of the LME7 and the PME7 comply with the requirements of DIN EN 60730-2-5.

EAC conformity (Eurasian conformity)

UKCA conformity mark (UK compliance)

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

120 V AC versions only

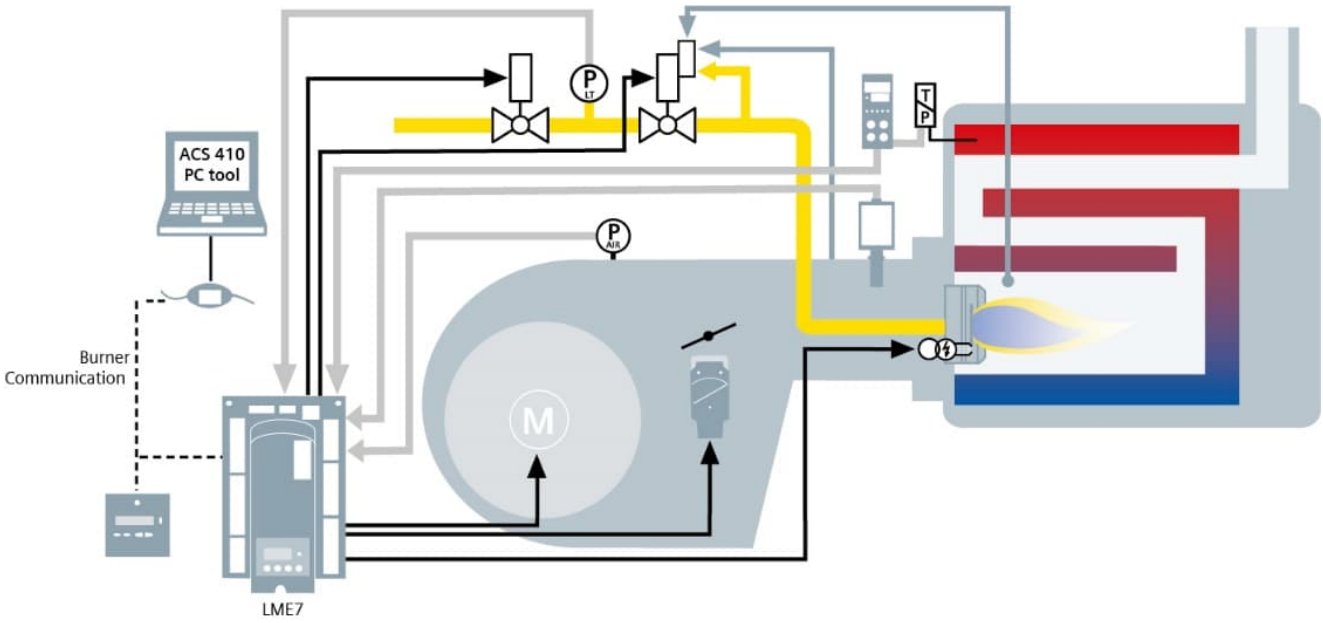
Lifetime

The LME7 has a designed lifetime* of 250,000 burner startup cycles which, under normal operating conditions in heating mode, corresponds to approx. 10 years of service (starting from the date of manufacture on the unit type plate). This lifetime is based on the endurance tests in the 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 LME7 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 LME7 must be replaced by authorized personnel.

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

System overview



The diagram shows the maximum functionality of the LME7. The actual functions are to be determined based on the respective execution or configuration.

The LME7 system components are connected directly to the LME7. All safety-related digital inputs and outputs of the system are supervised by a contact feedback network. For intermittent operation, the ionization probe and the QRA2, QRA4 or QRA10 (optional) can be used in connection with the LME7. The LME7 is 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 as well as the type and time of errors. The various parameterization levels of the burner/boiler manufacturer and heating engineer are password-protected against unauthorized access. Simple settings that the plant operator can make on site do not require a password.

Type summary

Burner control

LME71/LME72/LME73
Parameterized burner control for the supervision of multistage or modulating forced draft oil/gas burners and atmospheric burners of medium to large capacity in intermittent operation. With controlled air damper control. Refer to Basic Documentation P7105.

Article no.	BPZ:LME71.000A1	BPZ:LME71.000A2	S55333-B205-A100 *)	BPZ:LME72.000A2 *)	BPZ:LME73.000A1	BPZ:LME73.000A2
Type	LME71.000A1	LME71.000A2	LME71.901A2 *)	LME72.000A2 *)	LME73.000A1	LME73.000A2
Mains voltage AC 120 V	●	---	---	---	●	---
Mains voltage AC 230 V	---	●	●	●	---	●
Gas pressure switch-min / POC	●	●	●	●	●	●
→ depending on the PME7 and respective parameterization	●	●	---	●	●	●
→ depending on the respective parameterization	---	---	●	---	---	---
Pressure switch valve proving	●	●	●	●	●	●
→ depending on the PME7 and respective parameterization	●	●	---	●	●	●
→ depending on the respective parameterization	---	---	●	---	---	---
Air pressure switch	●	●	●	●	●	●
Ionization probe	●	●	●	●	●	●
QRA2 / QRA4 / QRA10	●	●	●	---	●	●
QRB1 / QRB3 / QRB4	---	---	---	---	●	●
QRC	---	---	---	---	---	●
Load controller analog input signal (0...10 V, 4...20 mA, 0...135 Ω)	●	●	●	---	●	●
Load controller input, 3-position step modulation or 2-stage	●	●	●	●	●	●
Output actuator control	---	---	---	●	●	●
Input 0…1 kΩ of the feedback from an actuator with ASZ	---	---	---	---	●	●
PWM fan motor output	●	●	●	---	---	---
Onboard LED 7-segment display	●	●	●	---	●	●
BC interface for AZL2 and OCI410 with ACS410	●	●	●	●	●	●

*) On request

Accessories (must be ordered separately)

Program module

PME71
Program module for LME7
With oil or gas burner program sequences for LME7 basic unit.
Refer to Basic Documentation P7105.

Example:

PME71 with 120 V AC mains voltage

Article no.	BPZ:PME71.111A1	BPZ:PME71.112A1	BPZ:PME71.401A1	BPZ:PME71.402A1	BPZ:PME71.901A1
Type	PME71.111A1	PME71.112A1	PME71.401A1	PME71.402A1	PME71.901A1
Mains voltage AC 120 V	●	●	●	●	●
For use with LME71.000A1	●	●	●	●	●
For use with LME72.000A1	---	---	---	---	---
For use with LME73.000A1	---	---	---	---	---
Gas program forced draft burner	●	---	●	●	●
Gas program atmospheric burner	---	●	---	---	---
1-stage or 1-stage modulating	●	●	●	●	●
2-stage or 1-stage modulating	---	---	●	●	●
Pilot burner simultaneously / alternately	●	●	---	●	---
Modulating via actuator (pneumatic or mechanical fuel-air ratio control)	---	---	---	---	---
Modulating via PWM fan (pneumatic fuel-air ratio control)	---	---	---	---	●
Fan speed regulation or fan speed control via analog signal or 3-position step modulation input	---	---	---	---	●
Actuator control via analog signal or 3-position step modulation input for actuators with ASZ → depending on the parameterization	---	---	---	---	---
3-position step modulation input for actuators without ASZ	---	---	---	---	---
Control sequence programmable time	●	●	●	●	●
POC → depending on the parameterization	●	●	●	●	●
Valve proving → depending on the parameterization	---	---	---	---	●
Valve proving input ON/OFF (via external switch) → depending on the parameterization	---	---	---	---	---

Program module

PME73
Program module for LME7. With oil or gas burner program sequences for LME7 basic unit.
Refer to Basic Documentation P7105.

Example:

PME73 with 120 V AC mains voltage

Article no.	S55333-B317-A100	BPZ:PME73.810A1	BPZ:PME73.811A1	BPZ:PME73.812A1	BPZ:PME73.820A1	BPZ:PME73.830A1	BPZ:PME73.831A1	BPZ:PME73.840A1
Type	PME73.231A1	PME73.810A1	PME73.811A1	PME73.812A1	PME73.820A1	PME73.830A1	PME73.831A1	PME73.840A1
Mains voltage AC 120 V	●	●	●	●	●	●	●	●
For use with LME71.000A1	---	---	---	---	---	---	---	---
For use with LME72.000A1	---	---	---	---	---	---	---	---
For use with LME73.000A1	●	●	●	●	●	●	●	●
Forced draft burner oil program	●	---	---	---	---	---	---	---
Gas program forced draft burner	---	●	●	●	●	●	●	●
Gas program atmospheric burner	---	---	---	---	---	---	---	---
1-stage or 1-stage modulating	●	●	●	●	●	●	●	●
2-stage or 1-stage modulating	●	●	---	---	●	●	●	●
Pilot burner simultaneously / alternately	●	---	●	●	---	●	●	●
Modulating via actuator (pneumatic or mechanical fuel-air ratio control)	●	●	●	●	●	●	●	●
Modulating via PWM fan (pneumatic fuel-air ratio control)	---	---	---	---	---	---	---	---
Fan speed regulation or fan speed control via analog signal or 3-position step modulation input	---	---	---	---	---	---	---	---
Actuator control via analog signal or 3-position step modulation input for actuators with ASZ → depending on the parameterization	●	●	●	●	---	●	●	---
3-position step modulation input for actuators without ASZ	●	---	---	---	●	---	●	●
Control sequence programmable time	●	●	●	●	●	●	●	●
POC → depending on the parameterization	●	●	●	●	●	●	---	●
Valve proving → depending on the parameterization	---	●	●	---	●	●	●	●
Valve proving input ON/OFF (via external switch) → depending on the parameterization	---	---	---	---	---	---	●	---
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	●	---	---	---	---	---	---	---

Accessories (to be ordered separately) (continued)

Program module

PME71/PME72
Program module for LME7. With oil or gas burner program sequences for LME7 basic unit.
Refer to Basic Documentation P7105.

Example:

PME71/PME72 with 230 V AC mains voltage

Article no.	BPZ:PME71.111A2	BPZ:PME71.112A2	BPZ:PME71.401A2	BPZ:PME71.402A2	BPZ:PME71.901A2	BPZ:PME72.521A2 *)	BPZ:PME72.541A2 *)
Type	PME71.111A2	PME71.112A2	PME71.401A2	PME71.402A2	PME71.901A2	PME72.521A2 *)	PME72.541A2 *)
Mains voltage AC 230 V	●	●	●	●	●	●	●
For use with LME71.000A2	●	●	●	●	●	---	---
For use with LME72.000A2	---	---	---	---	---	●	●
For use with LME73.000A2	---	---	---	---	---	---	---
Gas program forced draft burner	●	---	●	●	●	●	●
Gas program atmospheric burner	---	●	---	---	---	---	---
1-stage or 1-stage modulating	●	●	●	●	●	●	●
2-stage or 1-stage modulating	---	---	●	●	●	●	●
Pilot burner simultaneously / alternately	●	●	---	●	---	---	●
Modulating via actuator (pneumatic or mechanical fuel-air ratio control)	---	---	---	---	---	●	●
Modulating via PWM fan (pneumatic fuel-air ratio control)	---	---	---	---	●	---	---
Fan speed regulation or fan speed control via analog signal or 3-position step modulation input	---	---	---	---	●	---	---
Actuator control via analog signal or 3-position step modulation input for actuators with ASZ → depending on the parameterization	---	---	---	---	---	---	---
3-position step modulation input for actuators without ASZ	---	---	---	---	---	●	●
Control sequence programmable time	●	●	●	●	●	---	---
POC → depending on the parameterization	●	●	●	●	●	●	●
Valve proving → depending on the parameterization	---	---	---	---	●	---	---
Valve proving input ON/OFF (via external switch) → depending on the parameterization	---	---	---	---	---	---	---

*) On request only

Accessories (to be ordered separately) (continued)

Program module

PME73
Program module for LME7. With oil or gas burner program sequences for LME7 basic unit.
Refer to Basic Documentation P7105.

Example:

PME73 with 230 V AC mains voltage

Article no.	S55333-B318-A100	BPZ:PME73.810A2	BPZ:PME73.811A2	BPZ:PME73.812A2	BPZ:PME73.820A2	BPZ:PME73.830A2	BPZ:PME73.831A2	BPZ:PME73.840A2
Type	PME73.231A2	PME73.810A2	PME73.811A2	PME73.812A2	PME73.820A2	PME73.830A2	PME73.831A2	PME73.840A2
Mains voltage 230 V AC	●	●	●	●	●	●	●	●
For use with LME71.000A2	---	---	---	---	---	---	---	---
For use with LME72.000A2	---	---	---	---	---	---	---	---
For use with LME73.000A2	●	●	●	●	●	●	●	●
Forced draft burner oil program	●	---	---	---	---	---	---	---
Forced draft burner gas program	---	●	●	●	●	●	●	●
Atmospheric burner gas program	---	---	---	---	---	---	---	---
1-stage or 1-stage modulating	●	●	●	●	●	●	●	●
2-stage or 1-stage modulating	●	●	---	---	●	●	●	●
Pilot burner, simultaneous/alternating	●	---	●	●	---	●	●	●
Modulating via actuator (pneumatic or mechanical fuel-air ratio control)	●	●	●	●	●	●	●	●
Modulating via PWM fan (pneumatic fuel-air ratio control)	---	---	---	---	---	---	---	---
Fan speed regulation or fan speed control via analog signal or 3-position step modulation input	---	---	---	---	---	---	---	---
Actuator control via analog signal or 3-position step modulation input for actuators with ASZ → depending on the parameterization	●	●	●	●	---	●	●	---
3-position step modulation input for actuators without ASZ	●	---	---	---	●	---	●	●
Control sequence programmable time	●	●	●	●	●	●	●	●
POC → depending on the parameterization	●	●	●	●	●	●	---	●
Valve proving → depending on the parameterization	---	●	●	---	●	●	●	●
Valve proving input ON/OFF (via external switch) → depending on the parameterization	---	---	---	---	---	---	●	---
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	●	---	---	---	---	---	---	---

Display units / operating units and accessories

Article no.	Type		
BPZ:AZL21.00A9	**AZL21.00A9**	Display and operating unit • Separate unit for various types of installation with LCD • 8 digits • 5 buttons • BC interface for LME7 • Degree of protection IP40 Refer to Data Sheet N7542.	
BPZ:AZL23.00A9	**AZL23.00A9**	Display and operating unit • Separate unit for various types of installation with LCD • 8 digits • 5 buttons • BC interface for LME7 • Degree of protection IP54 Refer to Data Sheet N7542.	
---	**---**	3-color LED • Integrated into the LME7 • 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 • Pack of 10 Every AZL2 must come complete with a cable to connect it to the LME7.	

Accessories (to be ordered separately) (continued)

Flame detector

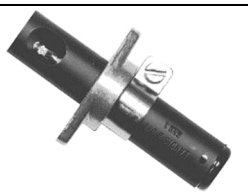
QRA2 (LME71/LME73 only)
UV flame detector for the supervision of gas flames and yellow or blue-burning oil flames as well as for ignition spark control. Plastic insulated housing, metalized to prevent static charging caused by the air flow from the fan, lateral illumination.
Refer to data sheet N7712.

QRA4 (LME71/LME73 only)
UV flame detector for the supervision of gas flames and yellow or blue-burning oil flames as well as for ignition spark control, metal housing, frontal illumination.
Refer to data sheet N7711.

QRA10 (LME71/LME73 only)
UV flame detector for the supervision of gas flames and yellow or blue-burning oil flames as well as for ignition spark control. Detector housing made of injection molded aluminum with a 1" mounting coupling and connection facility for cooling air.
Refer to data sheet N7712.

QRB1
Photo resistive detector for use with Siemens burner controls, for the supervision of oil flames in the visible light spectrum. The QRB1 is primarily used in connection with burner controls for burners of small capacity.
Refer to data sheet N7714.

QRB3
Photo resistive detector for use with Siemens burner controls, for the supervision of oil flames in the visible light spectrum. The QRB3 is primarily used in connection with burner controls for burners of small capacity.
Refer to data sheet N7714.



QRB4
Yellow flame detector for Siemens burner controls, for supervising oil flames in the visible light spectrum. The QRB4 is used in connection with oil burner controls in intermittent operation.
Refer to data sheet N7720.

QRC
Blue-flame detector for use with Siemens burner controls, for the supervision of blue and yellow-burning oil or gas flames. The QRC is primarily used in connection with burner controls for burners of small capacity.
Refer to data sheet N7716.

Frontal illumination:

Lateral illumination:

Ionization probe
Flame detector for use with Siemens burner controls for the supervision of gas flames.
Supplied by customer.

Accessories (to be ordered separately) (continued)

Actuators

SQN3x
Electromotoric actuators for air dampers and control valves for oil and gas burners of small to medium capacity.

Holding torque or running time	0.8 Nm / 4.5 s until 3 Nm / 30 s

Refer to Data Sheet N7808.

SQN7x
Electromotoric actuators for air dampers and control valves for oil and gas burners of small to medium capacity.

Holding torque or running time	0.7 Nm / 4 s until 2.5 Nm / 30 s

Refer to Data Sheet N7804.

SQM40 / SQM41
The actuators are suitable for driving flow control valves, butterfly valves, dampers, or for use on other applications that require rotary motion. Areas of application are oil and gas burners of medium to larger capacity, as well as thermal processing plants, with UL certification.

Holding torque	Up to 10 Nm
Running times	15 s and 30 s
Direction of rotation	Counterclockwise or clockwise

See Data Sheet N7817.

SQM5x
Electromotoric actuators for air dampers and control valves of oil and gas burners of medium to larger capacity, with UL certification.

Holding torque or running time	10 Nm / 15 s until 40 Nm / 60 s

Refer to Data Sheet N7815.

Gas pressure switch

QPLx5
The pressure switch is used to supervise gas or air pressure.
Refer to data sheet N7221.

Dummy plug for RJ11

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

Connector sets for LME7

Article no.	Type		
BPZ:AGG3.710	**AGG3.710**	• Complete connector set • RAST5 and RAST3.5 • Single packs	Example: Terminal X5-03
BPZ:AGG3.720	**AGG3.720**	• 10 complete standard connector sets • RAST5 and RAST3.5 • The several connectors are delivered into bags to 10 pieces each as a unit	

Terminal	Connector type	Description
X2-01	RAST5	Fan motor (M)
X2-02	RAST5	Oil preheater (OW)
X2-03	RAST5	• Alarm (AL) • Reset (EK1)
X2-09B	RAST5	Actuator (SA) (fuel valve V2-cam)
X2-09A	RAST5	Actuator (SA) (CLOSED, low-fire, high-fire, feedback, N)
X3-02	RAST5	Air pressure switch (LP)
X3-04	RAST5	Power supply (L, N, PE) for safety loop (SK)
X4-02	RAST5	Ignition (Z)
X5-01	RAST5	Gas pressure switch-min (Pmin)
X5-03	RAST5	External load controller (LR)
X6-03	RAST5	Safety valve (SV)
X7-01	RAST5	• Fuel valve (V3) • Auxiliary output (AUX) • Pilot valve (PV)
X7-02	RAST5	Fuel valve (V2)
X7-04	RAST5	• Fuel valve (V1) • Operating display (B4)
X9-04	RAST5	• Gas pressure switch (Pmin/Pmax) • Valve proving (P LT)
X10-05	RAST5	• Ionization probe • QRB • QRC
X10-06	RAST5	• QRA2 • QRA4 (USA)
X65	RAST3.5	Analog load controller (LR)
X66	RAST3.5	Actuator (SA) feedback potentiometer
X76	RAST3.5	PWM control

Connector sets AGG9 for LME7

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

Article no.	Type	Type of connector	Terminal
BPZ:AGG9.201	**AGG9.201**	RAST5	X2-09B
BPZ:AGG9.203	**AGG9.203**	RAST5	X3-02
BPZ:AGG9.209	**AGG9.209**	RAST5	X10-06
BPZ:AGG9.301	**AGG9.301**	RAST5	X2-01
BPZ:AGG9.302	**AGG9.302**	RAST5	X2-03
BPZ:AGG9.304	**AGG9.304**	RAST5	X4-02
BPZ:AGG9.306	**AGG9.306**	RAST5	X5-01
BPZ:AGG9.309	**AGG9.309**	RAST5	X6-03
BPZ:AGG9.310	**AGG9.310**	RAST5	X7-01
BPZ:AGG9.311	**AGG9.311**	RAST5	X7-02
BPZ:AGG9.313	**AGG9.313**	RAST5	X9-04
BPZ:AGG9.401	**AGG9.401**	RAST5	X2-02
BPZ:AGG9.403	**AGG9.403**	RAST5	X5-03
BPZ:AGG9.405	**AGG9.405**	RAST5	X7-04
BPZ:AGG9.501	**AGG9.501**	RAST5	X3-04
BPZ:AGG9.504	**AGG9.504**	RAST5	X10-05
BPZ:AGG9.601	**AGG9.601**	RAST5	X2-09A
BPZ:AGG9.822	**AGG9.822**	RAST3.5	X65, 2-pole
BPZ:AGG9.831	**AGG9.831**	RAST3.5	X66, 3-pole
BPZ:AGG9.841	**AGG9.841**	RAST3.5	X76, 4-pole

Example:
Terminal X5-03

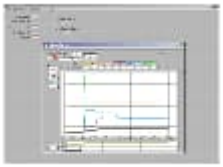
Service tools OCI410

Service tool between burner control and PC.
Facilitates viewing, handling and recording setting parameters on site in connection with the ACS410 PC software.
See 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 variant • Parameter change possible for the *OEM and heating engineer* password level

PC software ACS410

ACS410
Article no.: **BPZ:ACS410**
PC software for parameterization and visualization of the burner control.
On request.
See Software Documentation J7352.



Gateway for communication

OCI460 cloud gateway
Climatix IC communication gateway and Modbus interface with galvanic separation for burner controls, burner management systems, or flame safeguards equipped with Modbus or BC interface communication.
Refer to data sheet N7600.

OCI460.10
Article no.: **S55666-J401-A100**
- European variant

OCI460.11
Article no.: **S55666-J402-A100**
- Chinese variant

Basic unit LME7

General

Mains voltage	AC 120 V +10%/-15%	AC 230 V +10%/-15%
Mains frequency	50/60 Hz	50/60 Hz
External primary fuse	Max. T6.3H250V	Max. T6.3H250V

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 LME7 must be replaced.

Power consumption	<10 W, typical	<10 W, typical
Safety class I	For the inputs and outputs, the PWM interface terminal X76, the BC interface terminal X56, and the plug-in space for the PME7	
Safety class II	The housing provides protection against electric shock through double or reinforced insulation. For applications without safe separation from the mains. The terminal X65 and X66 interfaces provide protection against electric shock by means of a voltage limit and protective separation. For applications with safe separation from the mains.	
Degree of protection	IP00	
	Note The burner or boiler manufacturer must ensure degree of protection IP40 through adequate installation of the LME7.	
Creepage distances and air gaps	• Overvoltage category III • Rated surge voltage 4 kV at 230 V AC • Pollution degree 2 • Up to 2,000 m above sea level	
Software class	Class C 2-channel structure	
Reaction time in the event of loss of flame	Max. 1 s	
Perm. mounting position	Optional	
Weight	Approx. 490 g	

Terminal loading: *Inputs*

Mains supply: The input current for the mains supply is dependent on the operating status of the LME7

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), control thermostat, or limit thermostat (terminal X5-03 pin 1), load controller (terminal X5-03 pin 2 / pin 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) status inputs for the contact feedback network are used for system supervision and require mains-related input voltage		
• Terminal X3-04 pin 1 and pin 2: Safety loop input	Refer to *Terminal loading: Outputs*	
• Input currents and input voltages		
- UeMax	UN +10%	UN +10%
- UeMin	UN -15%	UN -15%
- IeMax	1.5 mA peak (peak value)	1 mA peak (peak value)
- IeMin	0.8 mA peak (peak value)	0.5 mA peak (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 to 10 V DC / DC 0/4 to 20 mA / 0 to 135 Ω	

Terminal loading: Outputs

Total contact loading:

• Rated voltage	120 V AC, 50/60 Hz	230 V AC, 50/60 Hz
• Terminal X3-04: LME7 input current	Max. 5 A	Max. 5 A

Note
The input current for the LME7 at terminal X3-04 pin 5 also flows through safety loop terminal X3-04 pin 1 / pin 2.
The power supply in the LME7 to the fan motor, ignition transformer, fuel valves, and actuators is interrupted as soon as one of the components opens the safety loop circuit.

Single 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: POC/CPI or PWM fan motor (depending on the fuel train, refer to User Documentation A7105.x)		
• 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

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 (auxiliary output)		
• Rated voltage	120 V AC, 50/60 Hz	230 V AC, 50/60 Hz
• Rated current	1 A	1 A
• Power factor	Cosφ ≥0.4	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 valve or pilot valve (depending on the fuel train, refer to User Documentation A7105.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; refer to User Documentation A7105.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; refer to User Documentation A7105.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, on the other hand, the terminal load is not reduced, the design lifetime is about 100,000 burner start cycles!

Cable lengths

Terminal X2-01: Fan motor	Max. 30 m (100 pF/m), unshielded
Terminal X2-02: Multifunctional input (POC, valve proving pressure switch), refer to User Documentation A7105.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 to 5: Mains supply line	Max. 100 m (100 pF/m)
Terminal X4-02 pin 1 to 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 to 4: Load controller	Max. 30 m (100 pF/m), unshielded
Terminal X6-03 pin 1 to 3: Safety valve	Max. 30 m (100 pF/m), unshielded
Terminal X7-01 pin 1 to 3 / terminal X7-02 pin 1 to 3 / terminal X7-04 pin 1 to 4: Fuel valve	Max. 30 m (100 pF/m), unshielded
Terminal X7-01 pin 1 to 3 / terminal X7-04 pin 1 to 4: Pilot valve	Max. 30 m (100 pF/m), unshielded
Terminal X9-04: Multifunctional input (valve proving pressure switch), refer to User Documentation A7105.x	Max. 30 m (100 pF/m), unshielded
Terminal X10-05 / terminal X10-06: Flame detector	Refer to the *Flame supervision* chapter
Terminal X56: Display, 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) For >10 m, use a shielded cable and connect the shield to PE at one end
Terminal X66: Actuator potentiometer feedback	Max. 30 m (100 pF/m) For >10 m, use a shielded cable and connect the shield to PE at one end
Terminal X76: PWM fan motor	Max. 30 m (100 pF/m) For >10 m, use a shielded cable and connect the shield to PE at one end
Type of shutdown or interruption of each circuit	
Shutdown with microswitch	1 pole
Mode of operation	Type 2 B

Actuators

CLOSE / ignition position / OPEN terminal X2-09 pin 1, terminal X2-09 pin 2, terminal X2-09 pin 3	1 mio. switching cycles	1 mio. switching cycles
• Rated voltage	AC 120 V 50/60 Hz	AC 230 V 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	AC 120 V 50/60 Hz	AC 230 V 50/60 Hz
• Nominal 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 LME depending on the current load of the actuator switching contact used (e.g. cam V2)!		

PWM interface

Terminal X76 pin 1: Power supply	24 V DC Max. 10 mA
Terminal X76 pin 2: PWM output signal	24 V DC Max. 10 mA
Terminal X76 pin 3: Hall input signal	12…24 V DC, depending on the external load Max. 0.5 mA ~2.4 kHz
Terminal X76 pin 4: GND	

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 LME7 (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 LME7 must be replaced.

Minimum cross-sectional area	0.75 mm² (single- or multicore)

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

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
• Tightening torque / screw	0.25 Nm

RAST5 connector

Mechanical data

Insertion force / contact	≤4 N
Withdrawal force / contact	≥1 N
Tightening torque / screw	0.5 Nm
Contacting with blade connector	6.3 x 0.8 mm Male multipoint connector to 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

AGV50 signal cable AZL2 / OCI410 → BC interface	**Signal cable**	White in color Unshielded Conductor 4 x 0.141 mm² With RJ11 connector
	Cable length AGV50	1 m
	Location	Under the burner hood (additional measures necessary for protection class II)
Dummy plug for RJ11	**Dummy plug**	For 6-pin modular plug (RJ11)
	Supplier	Recommended: Molex Order number: 085 999 3256
Environmental conditions	**Storage**	EN 60721-3-1:1997
	Climatic conditions	Class 1K3
	Mechanical conditions	Class 1M2
	Temperature range	-40 to +70 °C
	Humidity	< 95% r.h.
	Transport	EN 60721-3-2:1997
	Climatic conditions	Class 2K3
	Mechanical conditions	Class 2M2
	Temperature range	-40 to +70 °C
	Humidity	< 95% r.h.
	Operation	EN 60721-3-3:1995 + A2:1997
	Climatic conditions	Class 3K3
	Mechanical conditions	Class 3M2
	Temperature range	-40 to +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 a risk of electric shock.

Flame supervision with ionization probe	No-load voltage at terminal ionization probe (terminal X10-05 pin 2)	AC 300 V

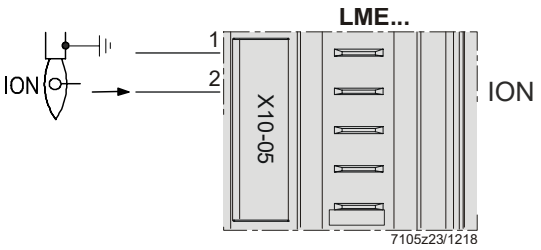
Warning!
- **Provide protection to prevent people from coming into contact with the ionization probe (risk of electric shock)!**
- **When monitoring ionization currents in earth-free mains, connect terminal X10-05 pin 1 to burner ground**

Short-circuit current	Max. AC 1 mA
Perm. length of detector cable (normal cable, laid separately). Multi-core cables are not permitted.	30 m (100 pF/m), unshielded

	At mains voltage	Flame intensity Parameter 954
	120 V AC / 230 V AC	
Detector voltage between ionization probe and ground (AC voltmeter Ri ≥10 MΩ)	Approx. 300 V AC	
Switching threshold (limit values):	1.5 µA	
Switching on (flame ON) (DC ammeter Ri ≤5 kΩ)	0.5 µA	20%
Switching off (flame OFF) (DC ammeter Ri ≤5 kΩ)	4 µA	<10%
Recommended detector current for reliable operation	2 µA	>40%
Switching threshold in the event of poor flame during operation (LED flashes green)	30 µA	Approx. 30%
Possible detector current with flame (typical)	Approx. 300 V AC	<100%

Note:
As the detector line capacitance (line length) increases, the voltage at the ionization probe und thus the detector current will drop. Extremely long line lengths and very high-ohmic flames might necessitate the use of 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 must be made certain 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.

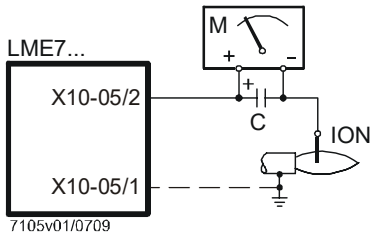
Connection diagram



LME7 connection assignment:
Terminal X10-05 pin 2
Flame signal ionization input

Measuring circuit for detector current measurement

Ionization probe



Legend

C	Electrolytic condenser 100...470 µF; DC 10...25 V
ION	Ionization probe
M	Microammeter Ri max. 5,000 Ω

Warning!
Simultaneous operation of QRA and ionization probe is not permitted! Failure to observe this information poses a risk of damaging the safety functions.

Flame supervision with QRA2 / QRA4 / QRA10
(LME71 / LME73 only)

Caution!
If QRA2-UV tubes, QRA4-UV tubes, or QRA10-UV tubes are used for flame supervision on the LME7, it must be ensured that the burner control is permanently connected to power (EN 298), thus enabling the system to detect detector failures during startup and shutdown. Generally, the system works with QRA flame detectors in intermittent operation. Failure to observe this information poses a risk of the safety functions being impaired.
For *Technical data*, refer to Data Sheet N7712, UV flame detector QRA2 / QRA10!
For *Technical Data*, refer to Data Sheet N7711, UV flame detector QRA4!

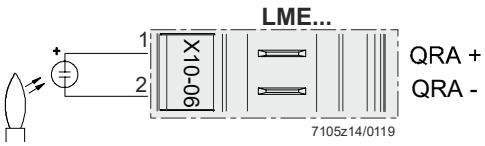
Notes
Lifetime of the UV cell.
UV cells and the QRA2/QRA4/QRA10 are subject to wear and tear and must be replaced as part of regular maintenance, at the latest at the end of the average lifetime of the UV cell. The lifetime of the UV cell corresponds to approx. 10,000 hours at a maximum of +50°C; higher ambient temperatures reduce the lifetime considerably. For details, refer to chapter *Technical data* in data sheet N7712 for the QRA2/QRA10. For details, refer to chapter *Technical data* in data sheet N7711 for the QRA4.

Threshold values when flame is supervised by QRA	
• Start prevention (extraneous light)	Intensity (parameter 954) approx. 12%
• Operation	Intensity (parameter 954) approx. 13%

Operating voltage	AC 280 V ±15%
Mains frequency	50...60 Hz ±6%
Required detector current	Min. 70 µA
Possible detector current during operation	Max. 700 µA
Perm. length of detector cable (normal cable, laid separately). Multi-core cables are not permitted.	Max. 100 m For >10 m, use a shielded cable and connect the shield to PE at one end

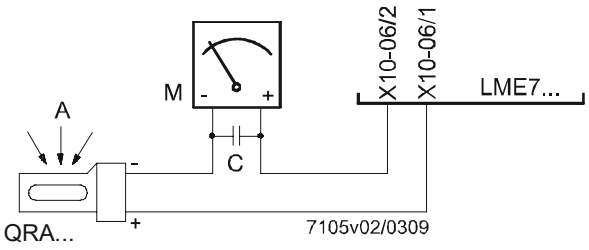
Parameters	Function
954	Flame intensity

Connection diagram



Measuring circuit for detector current measurement

UV flame detector QRA



Key

A	Incidence of light
C	Electrolytic capacitor 100 to 470 µF; 10 to 25 V DC
M	Micro-ammeter Ri max. 5,000 Ω

Warning!

- **Input QRA is not short-circuit-proof!**
  Short-circuits of terminal X10-06 pin 2 against earth can destroy the QRA input
- **Simultaneous operation of flame detector QRA and ionization probe is not permitted. If not observed, there is a risk of impairment of safety functions.**
- **To ensure that the age of the UV tubes can be determined, the LME7 must always be connected to mains voltage. Failure to observe this information poses a risk of the safety functions being impaired**

Flame supervision with QRB1 / QRB3 / QRB4

No-load voltage at the QRB4 (terminal X10-05 pin 3)	Approx. 5 V DC
Required detector current in operation	Min. 20 µA (display intensity approx. 35%)
Possible detector current in operation	Max. 60 µA (display intensity 100%)
Perm. length of detector cable (normal cable, laid separately). Multi-core cables are not permitted.	Max. 3 m (core-core 100 pF/m)

Notes
- Increasing line capacitance between QRB connection and “L” mains phase impairs sensitivity. Always run detector cables separately
- Before using a highly sensitive QRB1B and QRB3S, check carefully whether they are necessary
- QRB4 cable connection!
  Blue QRB4 cable to terminal X10-05 pin 4.
  Black QRB4 cable to terminal X10-05 pin 3.
  Otherwise the QRB4 will not function.

Check the flame intensity via the AZL2 or the internal LED display (flame current, FL2).

The maximum possible QRB flame current is limited to approx. 60 µA for system-specific reasons. The maximum display intensity (parameter 954 in the AZL2 or via internal LED display FL2) corresponds to 100%.

Threshold values when flame is supervised by QRB	
• Start prevention (extraneous light)	
Intensity	AZL2 (parameter 954) or FL2 >10%
Flame current	>10 µA
Operation, minimum required flame signal	
Intensity	AZL2 (parameter 954) or FL2 >35%
Flame current	Approx. 20 µA
• Signaling good/bad flame (LED starts flashing green during operation)	
Intensity	AZL2 (parameter 954) or FL2 approx. 50%
Flame current	Approx. 30 µA
• Typical flame signal during operation	
Intensity	AZL2 (parameter 954) or FL2 ≥60%
• Maximum flame signal during operation	
Intensity	AZL2 (parameter 954) or FL2 ≤100%
Flame current	Approx. 60 µA

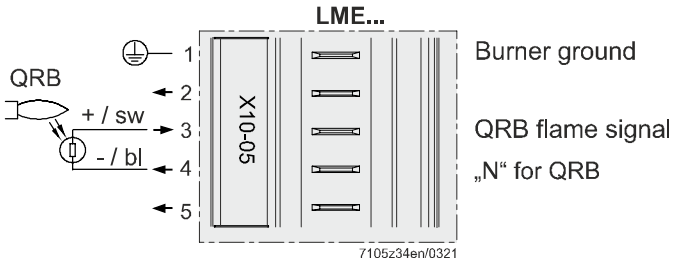
Parameters	Function
954	Flame intensity

The values specified in the table only apply under the following ambient conditions and may vary under other conditions:
- Mains voltage 230 V AC
- Ambient temperature 23°C

Green LED for indication of operating mode

	Detector current in operation: • Flame signal instable • Green LED flashing	Detector current in operation: • Flame signal stable • Green LED steady on
QRB	< 50%	> 50%

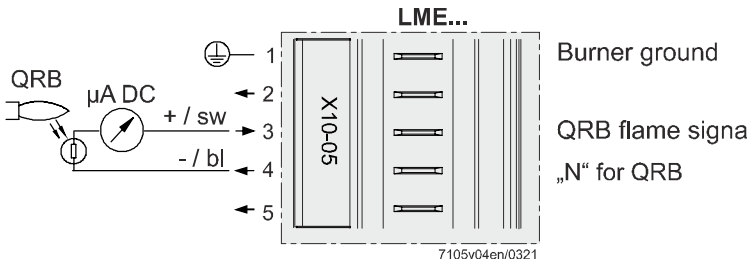
Connection diagram



Key

sw	Black
bl	Blue

Measuring circuit for detector current measurement



Key

µA DC	DC microammeter with internal resistance Ri = max. 5 kΩ
bl	Blue
sw	Black

Flame supervision with QRC

Warning!
The QRC is only suitable for operation at 230 V AC. Failure to observe this information poses a risk of damaging the safety functions.

Operating voltage	230 V AC ±15%
Mains frequency	50 to 60 Hz ±6%
Required detector current in operation	Min. 20 µA (display intensity approx. 35%)
Possible detector current in operation	Max. 60 µA (display intensity 100%)
Perm. length of detector cable (normal cable, laid separately). Multi-core cables are not permitted.	Max. 3 m (core-core 100 pF/m)

Check the flame intensity via the AZL2 or the internal LED display (flame current, FL2).

The maximum possible QRC flame current is limited to approx. 60 µA for system-specific reasons. The maximum display intensity (parameter 954 in the AZL2 or via internal LED display FL2) corresponds to 100%.

Threshold values when flame is supervised by QRC	
• Start prevention (extraneous light)	
Intensity	AZL2 (parameter 954) or FL2 >10%
Flame current	>10 µA
Operation, minimum required flame signal	
Intensity	AZL2 (parameter 954) or FL2 >35%
Flame current	Approx. 20 µA
• Signaling good/bad flame (LED starts flashing green during operation)	
Intensity	AZL2 (parameter 954) or FL2 approx. 50%
Flame current	Approx. 30 µA
• Typical flame signal during operation	
Intensity	AZL2 (parameter 954) or FL2 ≥60%
• Maximum flame signal during operation	
Intensity	AZL2 (parameter 954) or FL2 ≤100%
Flame current	Approx. 60 µA

Parameters	AZL2	Function
954	FL2	Flame intensity

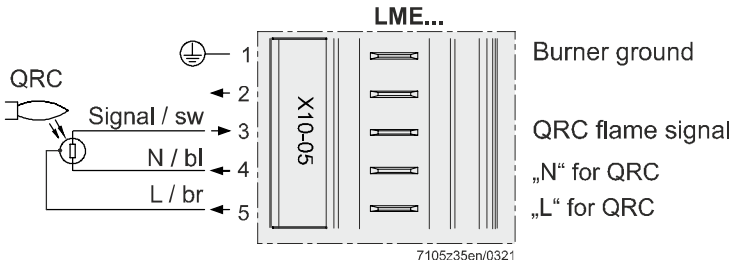
The values specified in the table only apply under the following ambient conditions and may vary under other conditions:

- Mains voltage 230 V AC
- Ambient temperature 23°C

Green LED for indication of operating mode

	Detector current in operation: • Flame signal instable • Green LED flashing	Detector current in operation: • Flame signal stable • Green LED steady on
QRC	< 50%	> 50%

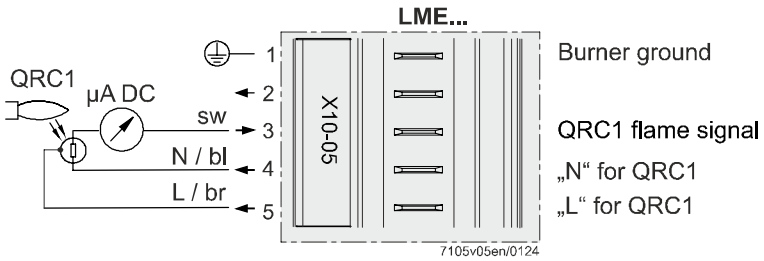
Connection diagram



Key

bl	Blue
br	Brown
sw	Black

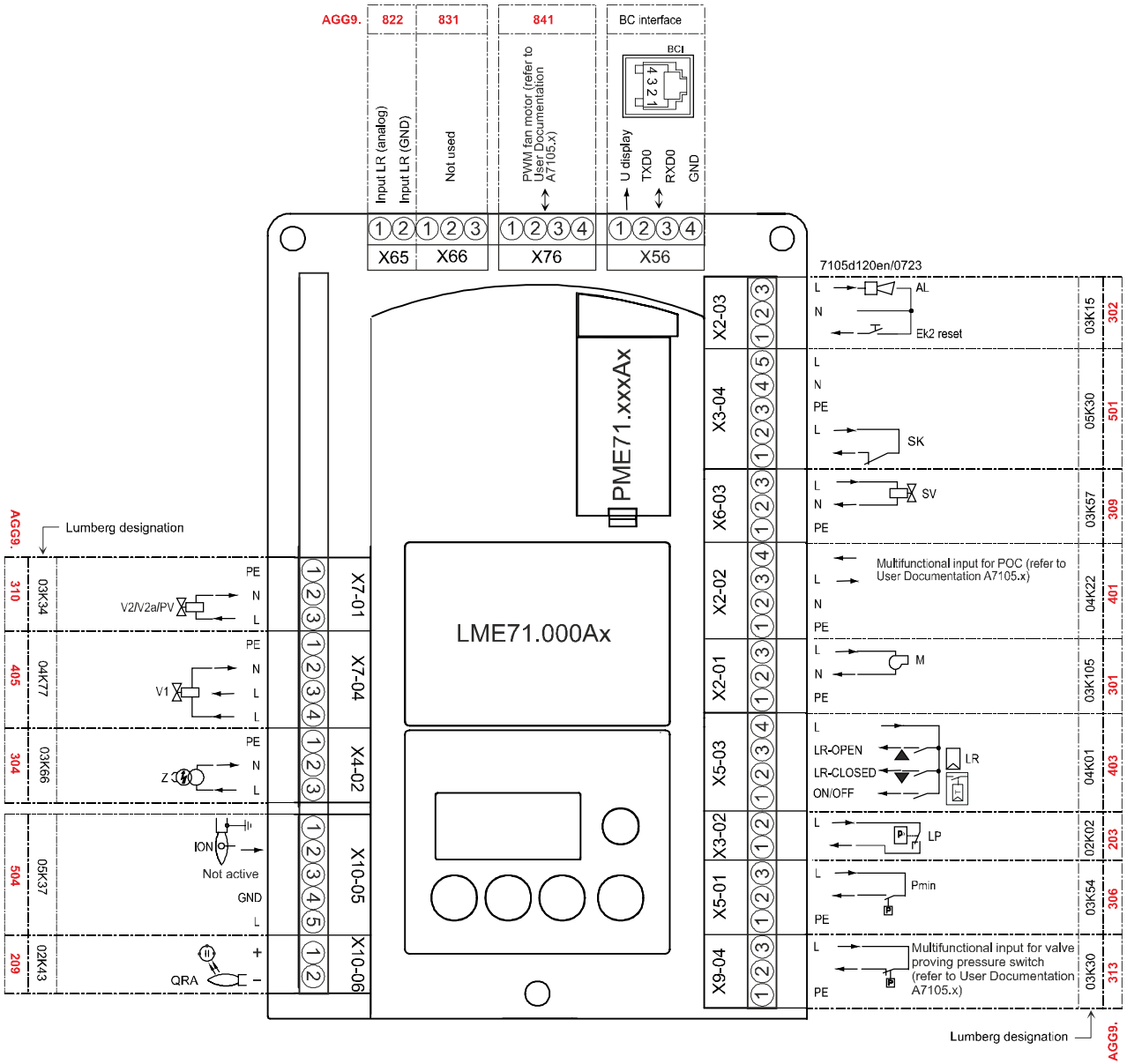
Measuring circuit for detector current measurement



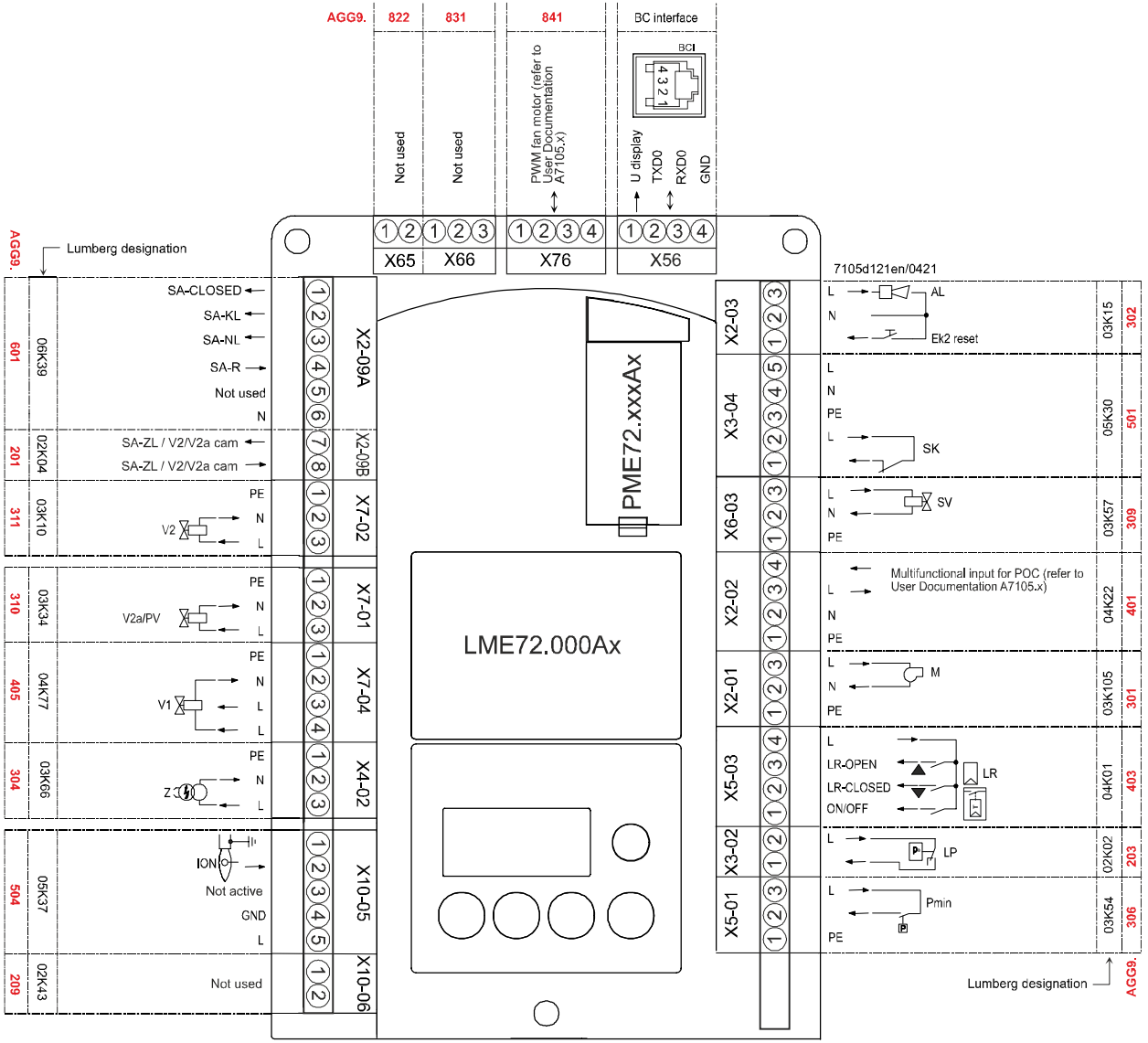
Key

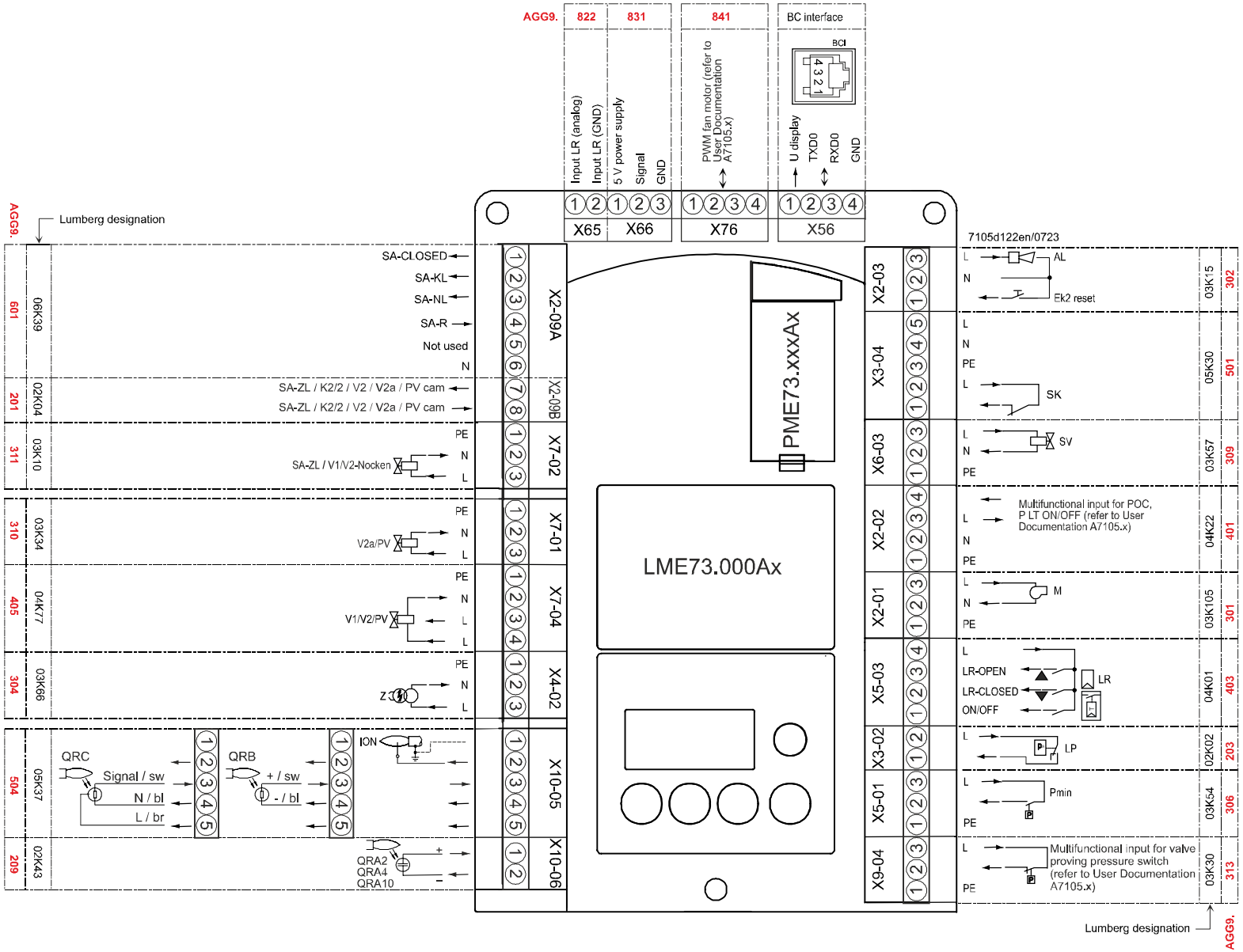
bl	Blue
br	Brown
sw	Black

Assignment of terminals for plug AGG9 → LME71

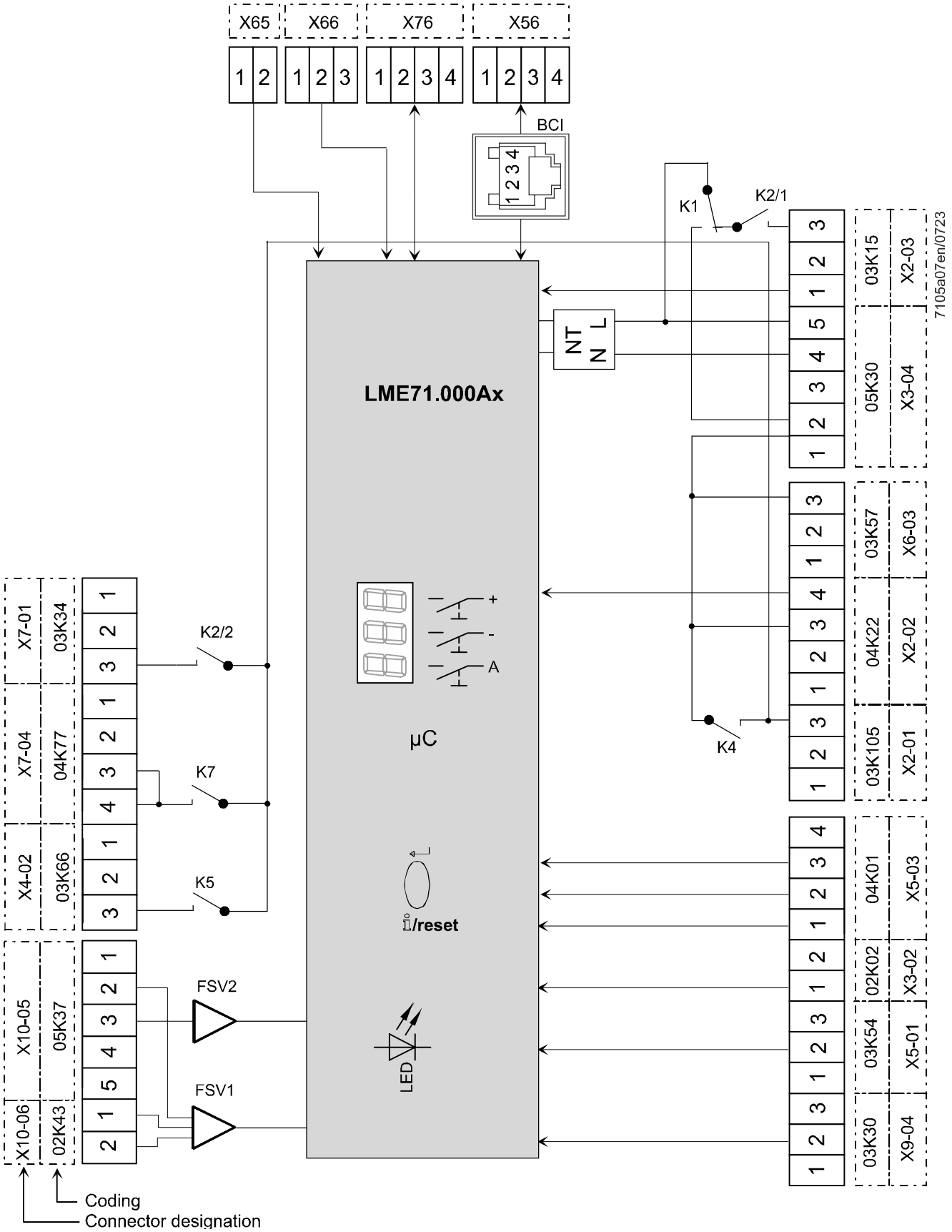


Assignment of terminals for plug AGG9 → LME72

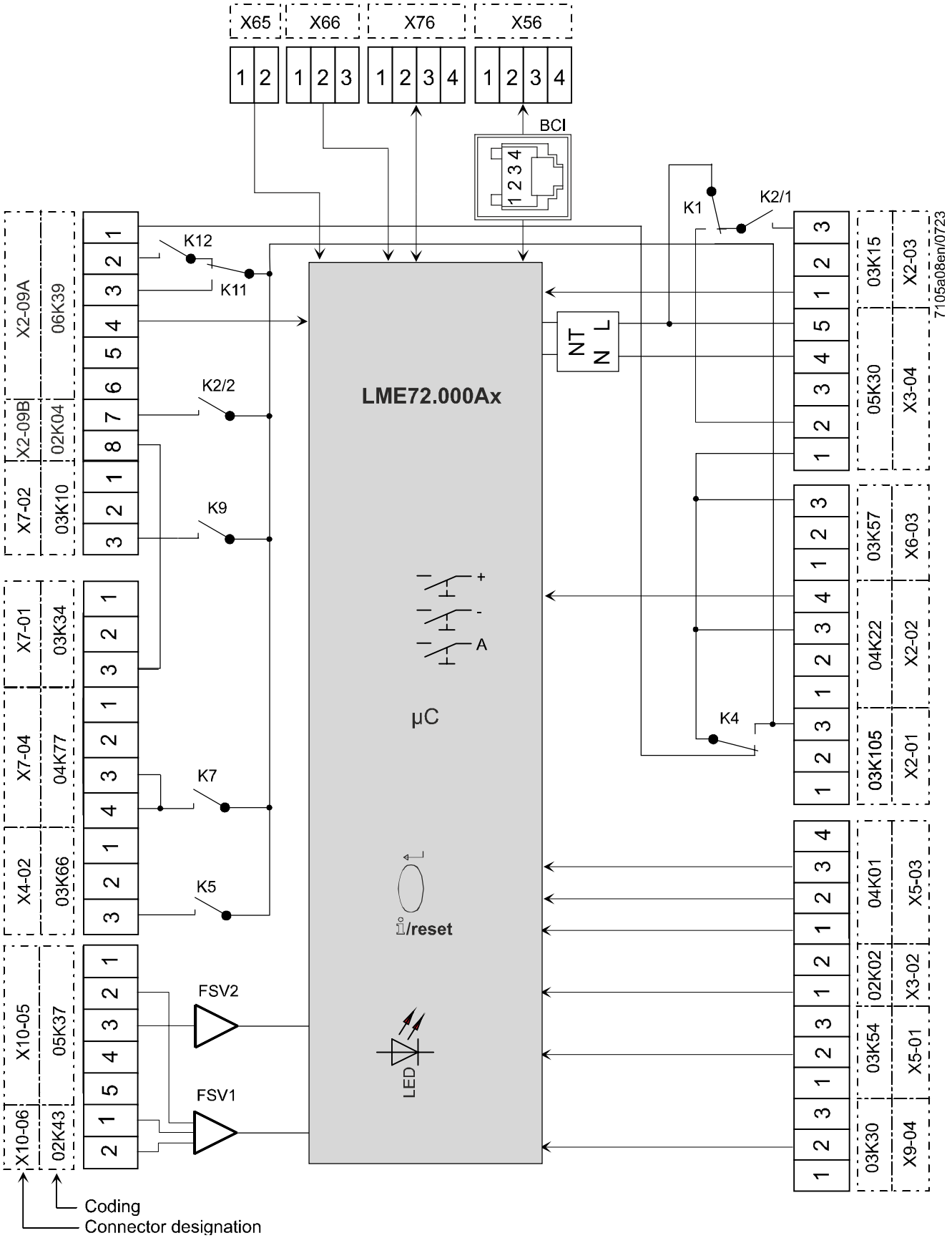



AGG9.
822
831
841
BC interface
Input LR (analog)
Input LR (GND)
5 V power supply
Signal
GND
PWM fan motor (refer to User Documentation A7105.x)
U display
TXD0
RXD0
GND
BCI
X65
X66
X76
X56
Lumberg designation
7105d122en/0723
SA-CLOSED
SA-KL
SA-NL
SA-R
Not used
N
SA-ZL / K2/2 / V2 / V2a / PV cam
SA-ZL / K2/2 / V2 / V2a / PV cam
SA-ZL / V1/V2-Nocken
V2a/PV
V1/V2/PV
Z
QRC
Signal / sw
N / bl
L / br
QRB
+ / sw
- / bl
ION
QRA2
QRA4
QRA10
X2-09A
X2-09B
X7-02
X7-01
X7-04
X4-02
X10-05
X10-06
PME73.xxxAx
LME73.000Ax
X2-03
X3-04
X6-03
X2-02
X2-01
X5-03
X3-02
X5-01
X9-04
AL
Ek2 reset
SK
SV
Multifunctional input for POC, P LT ON/OFF (refer to User Documentation A7105.x)
M
LR-OPEN
LR-CLOSED
ON/OFF
LR
LP
Pmin
Multifunctional input for valve proving pressure switch (refer to User Documentation A7105.x)
601
201
311
310
405
304
504
209
06K39
02K04
03K10
03K34
04K77
03K66
05K37
02K43
03K15
05K30
03K57
04K22
03K105
04K01
02K02
03K54
03K30
302
501
309
401
301
403
203
306
313

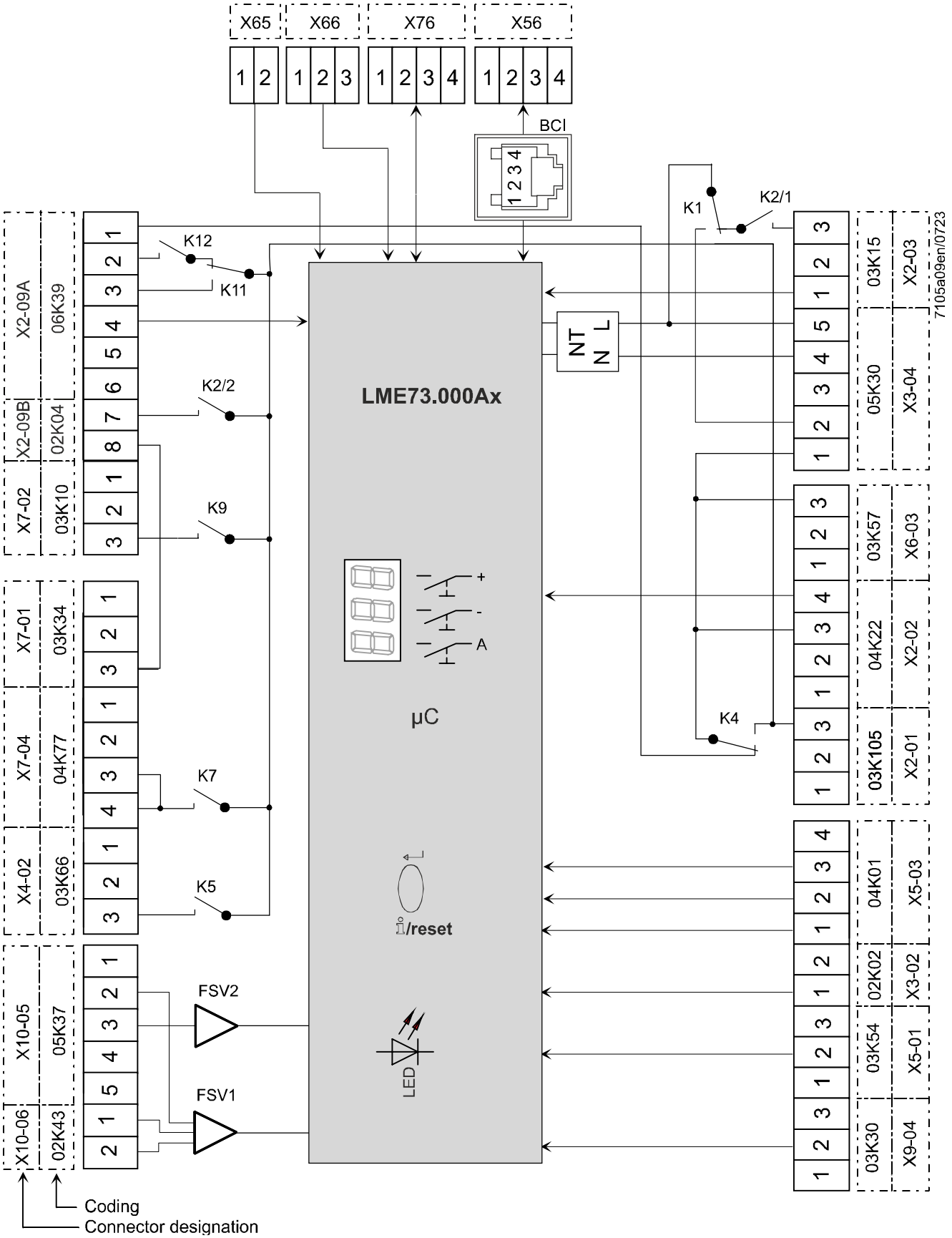
Internal diagram LME71



Internal diagram LME72



Internal diagram LME73



Key

AL	Alarm device
AUX	Auxiliary output
Dbr…	Wire link
 ℹ/reset (EK1)	Lockout reset button (info button)
EK2	Remote lockout reset button
FSV	Flame signal amplifier
ION	Ionization probe
Kx	Relay contact
LED	3-color signal lamp
LP	Air pressure switch
LR	Load controller
LR-OPEN	Load controller OPEN position
LR-CLOSED	Load controller CLOSED position
M	Fan motor
NT	Power supply unit
P LT	Pressure switch valve proving
Pmax	Pressure switch-max
Pmin	Pressure switch-min
POC	Valve closure control (proof of closure)
PV	Pilot valve
QRA2	UV flame detector
QRA4	UV flame detector
QRA10	UV flame detector
QRB	Photo resistive detector
QRC	Blue-flame detector
R	Temperature controller or pressure regulator
SA	Actuator
SA-KL	Actuator low-fire
SA-NL	Actuator high-fire
SA-R	Actuator feedback
SA-CLOSED	Actuator CLOSED
SA-ZL	Actuator ignition load
SK	Safety loop
STB	Safety limit thermostat
SV	Safety valve
V1	Fuel valve
V2	Fuel valve
V2a	Fuel valve
W	Temperature limiter or pressure switch
Z	Ignition transformer
µC	Microcontroller
	Input/output signal 1 (ON)
	Input/output signal 0 (OFF)
	Permissible signal 1 (ON) or 0 (OFF)

Key Dimensions

Dimensions in mm

LME7