

Gas burner controls

LME1...
LME2...
LME4...

Burner controls for the supervision of 1- or 2-stage gas burners or gas burners of small to medium capacity, with or without fan in intermittent operation.

The LME and this Data Sheet are intended for use by OEMs which integrate the burner controls in their products.

Use, features

Use

LME are used for the startup and supervision of 1- or 2-stage gas burners or gas burners in intermittent operation. Flame supervision takes place via an ionization probe or a QRA UV flame detector with AGQ3.xA27 ancillary unit for forced draft gas burners, or, in the case of blue-burning flames, with a QRC blue-flame detector. In terms of housing dimensions, the LME are identical with the burner control LGB and LMG burner controls (refer to *Type summary*).

- Applications in accordance with EN 676: Automatic forced draft burners for gaseous fuels
- Type-tested and approved in accordance with DIN EN 298

Features

- Undervoltage detection
- Air pressure supervision with functional check of the air pressure switch during startup and operation
- Electrical remote reset facility
- Multicolor indication of fault status and operational status messages
- Restarts limitation
- Accurate control sequence thanks to digital signal handling
- Controlled intermittent operation after a maximum 24 hours of continuous operation

Supplementary documentation

| Product type | Type of documentation | Documentation number |
|--------------|---------------------------|----------------------|
| LME | Environmental Declaration | E7101 *) |
| LME | Product Range Overview | Q7101 |

*) On request only

Warning notes



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

Do not to open, interfere with or modify the unit!

- All activities (mounting, installation and service work, etc.) must be performed by qualified staff
- Before making any wiring changes in the connection area, completely isolate the plant from mains supply (all-polar disconnection). Ensure that the plant cannot be inadvertently switched on again and that it is indeed dead. If not observed, there is a risk of electric shock hazard. Use switches with all-polar disconnection and a contact gap of at least 3 mm
- Ensure protection against electric shock hazard by providing adequate protection for the connection terminals. If this is not observed, there is a risk of electric shock
- Check the connecting lines of the air pressure switch for short-circuits (connection terminals 3, 6 and 11). If this is not observed, there is a risk of loss of safety functions
- Press the lockout reset button/operation button of the LME or the lockout reset button extension AGK20 only manually (applying a force of no more than 10 N) without using any tools or pointed objects. If this is not observed, there is a risk of loss of safety functions and a risk of electric shock
- Fall or shock can adversely affect the safety functions. Such units must not be put into operation, even if they do not exhibit any damage. If this is not observed, there is a risk of loss of safety functions and a risk of electric shock
- Each time work has been carried out (mounting, installation, service work, etc.), check to ensure that wiring is in an orderly state and make the safety checks as described in *Commissioning notes*. If this is not observed, there is a risk of loss of safety functions and a risk of electric shock

Engineering notes

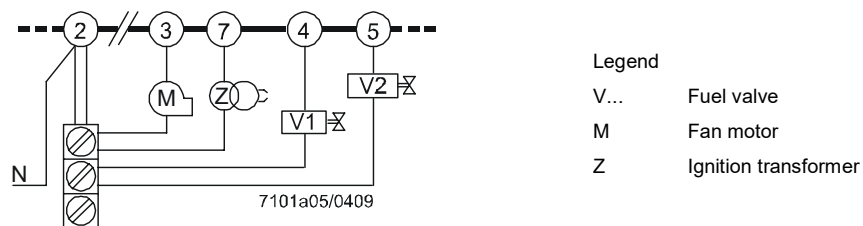
- When used in connection with actuators, there is no position feedback signal from the actuator to the burner control
- When used in connection with actuators, the requirements of applicable norms and regulations must be observed
- The running times of the actuators must match the burner control's program. An additional safety check of the burner together with the actuators is required
- When replacing the LGB or LMG with the LME and using QRA2/QRA4/QRA10, the ancillary unit AGQ1 or AGQ2 must be replaced with the ancillary unit AGQ3.xA27

Mounting notes

Ensure that the relevant national safety regulations are complied with.

- Always run the high ignition voltage cables separate from the unit and other cables while observing the greatest possible distance
- Do not mix up live and neutral conductors
- Install switches, fuses, earthing, etc., in compliance 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 LME must be replaced.
- The connection diagrams show the burner controls with earthed neutral conductor. In networks with non-earthed neutral conductor and ionization current supervision, terminal 2 must be connected to the earth conductor via an RC unit (ARC 4 668 9066 0). It must be made certain that local regulations are complied with (e.g. protection against electric shock hazard) since AC 120 V (50/60 Hz) or AC 230 V (50/60 Hz) mains voltage produces peak leakage currents of 2.7 mA
- Ensure that the maximum permissible ratings will not be exceeded, refer to *Technical data*
- Do not feed external mains voltage to the control outputs of the burner control. When testing the devices controlled by the burner control (fuel valves, etc.), the burner control must not be connected
- Secure the earthing lug in the plug-in base AGK11 underneath with a screw and a lockwasher
- In the case of burners with no fan motor, an AGK25 must be connected to terminal 3 of the unit, or else the burner cannot reliably be started up
- For safety reasons, feed the neutral conductor to terminal 2. Connect the burner components (fan, ignition transformer and fuel valves) to the neutral distributor as shown below. The connection between neutral conductor and terminal 2 is prewired in the base

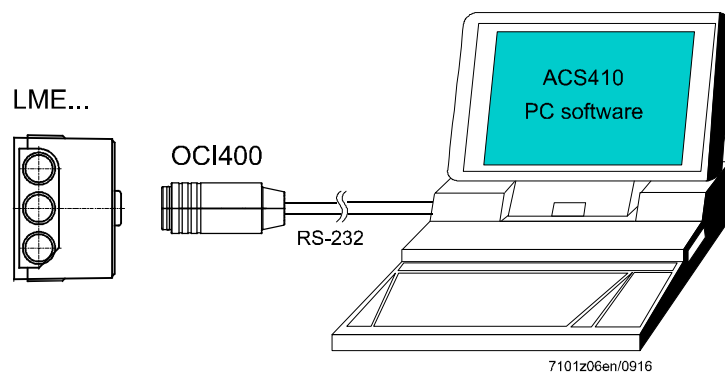
Example



Correct wiring of neutral conductors!

Connection interface OCI400

- Put the interface OCI400 in the connector at lockout reset button of LME Interface diagnostics works only if the AGK20 lockout reset button extension is not fitted
- Connect the interface OCI400 without other extension to the interface at your PC, follow the example design below



Electrical connection of flame detectors

It is important to achieve practically disturbance- and loss-free signal transmission:

- Never run detector cables together with other cables
 - Line capacitance reduces the magnitude of the flame signal
 - Use a separate cable
- Observe the permissible length of the detector cables (see Technical data)
- The ionization probe and ignition electrode are not protected against electric shock hazard
- Locate the ignition electrode and the ionization probe such that the ignition spark cannot arc over to the ionization probe (risk of electrical overloads) and that it cannot adversely affect the supervision of ionization
- With both ionization current and UV supervision, the cable length for the flame detector must not exceed 1 m (other cable lengths only available on request)
- Insulation resistance
 - Must be a minimum of 50 MΩ between ionization probe and ground
 - Soiled detector holders reduce the insulation resistance, thus supporting creepage currents



Note!

Recommendation:

Use high-quality detector cables with heat-resistant insulation and an ionization probe with ceramic insulation.

- Earth the burner in compliance with the relevant regulations; earthing the boiler alone does not suffice

Commissioning notes

When commissioning the plant for the first time or when doing maintenance work, make the following safety checks:

| | Safety check to be carried out | Anticipated response |
|----|--|--|
| a) | Burner startup with previously interrupted line to the flame detector | LME11/LME41.051: Maximum of 3 restarts LME2/LME41.052/LME41.053/LME41.054/LME41.071/ LME41.09/LME44: Non-alterable lockout at the end of the safety time (TSA) |
| b) | Burner operation with simulated loss of flame. For that purpose, cut off the fuel supply | LME11/LME41.051: <ul style="list-style-type: none">• Establishment of flame at the end of safety time (TSA) → Maximum of 3 restarts• No establishment of flame at the end of safety time (TSA) → Non-alterable lockout LME2/LME44: Non-alterable lockout LME41.052 / LME41.053 / LME41.054 / LME41.071 / LME41.09 / LME44.190: Restart |
| c) | Burner operation with simulated air pressure failure (not with atmospheric burners) | Immediate non-alterable lockout LME41: Safety shutdown / restart |



Note!

Safety devices and switches in the line or the safety loop of the burner control must be checked in accordance with the specifications of the burner manufacturer.

Example:

Safety temperature limiter (STB) or gas pressure switch-min / gas pressure switch-max (Pmin / Pmax)



Applied directives:

- Low-voltage directive 2014/35/EC
- Directive for pressure devices 2014/68/EU
- Gas Appliances Regulation (EU) (EU) 2016/426
- Electromagnetic compatibility EMC (immunity) *) 2014/30/EC

*) 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 DIN EN 13611
- Automatic electrical controls for household and similar use Part 2-5: DIN EN 60730-2-5
Particular requirements for automatic electrical burner control systems

The relevant valid edition of the standards 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 LME and the AGK11 comply with the requirements of EN 60335-2-102.



EAC Conformity mark (Eurasian Conformity mark)









UKCA conformity mark (UK)



China RoHS

Hazardous substances table:

<http://www.siemens.com/download?A6V10883536>

| Product no. |  |  |   |  |  |
|----------------|---|---|--|---|---|
| LME11.230C2 | --- | ● | ● | --- | ● |
| LME11.330C2 | --- | ● | ● | ● | ● |
| LME21.130C1 | ● | ● | ● | --- | ● |
| LME21.130C2 | ● | ● | ● | ● | ● |
| LME21.230C2 | ● | ● | ● | ● | ● |
| LME21.330C1 | ● | ● | ● | --- | ● |
| LME21.330C2 | ● | ● | ● | ● | ● |
| LME21.350C1 | ● | ● | ● | --- | ● |
| LME21.350C2 | ● | ● | ● | ● | ● |
| LME21.550C2 | ● | ● | ● | ● | ● |
| LME22.131C2 | ● | ● | ● | ● | ● |
| LME22.231C2 | ● | ● | ● | ● | ● |
| LME22.232C2 | ● | ● | ● | ● | ● |
| LME22.233C2 | ● | ● | ● | ● | ● |
| LME22.331C1 | ● | ● | ● | --- | ● |
| LME22.331C2 | ● | ● | ● | ● | ● |
| LME23.331C2 | ● | ● | ● | ● | ● |
| LME23.351C2 | ● | ● | ● | ● | ● |
| LME41.051C2 | --- | ● | ● | --- | ● |
| LME41.052C2 | --- | ● | ● | --- | ● |
| LME41.053C2 *) | --- | ● | ● | --- | ● |
| LME41.054C2 | --- | ● | ● | --- | ● |
| LME41.071C2 | --- | ● | ● | --- | ● |
| LME41.091C2 | --- | ● | ● | --- | ● |
| LME41.092C2 | --- | ● | ● | --- | ● |
| LME44.056C2 | --- | ● | ● | ● | ● |
| LME44.057C1 | --- | ● | ● | --- | ● |
| LME44.057C2 | --- | ● | ● | ● | ● |
| LME44.190C2 | --- | ● | ● | ● | ● |

*) On request

The burner control has a designed lifetime* of 250,000 burner startup cycles which, under normal operating conditions in heating mode, correspond to approx. 10 years of usage (starting from the production date given on the type field). 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 (Afecon) (www.afecor.org).

The designed lifetime is based on use of the burner controls according to the manufacturer's Data Sheet. After reaching the designed lifetime in terms of the number of burner startup cycles, or the respective time of usage, the burner control is to be replaced by authorized personnel.

* The designed lifetime is not the warranty time specified in the Terms of Delivery.

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 observed.

Mechanical design

| | |
|----------------------------|---|
| LME | <ul style="list-style-type: none">• Units of plug-in design like their predecessor types LGB and LMG (see Dimensions)• Burner controls LME and plug-in base AGK11 are black• The housing is made of impact-proof, heat-resistant and flame-retarding plastic. It is of plug-in design and engages audibly in the base• The housing accommodates the<ul style="list-style-type: none">- microcontroller for the control sequence and the control relays for load control- electronic flame signal amplifier (ionization)- lockout reset button with its integrated 3-color signal lamp for operational status and fault status messages and the socket for connecting the interface OCI400 or the lockout reset button extension AGK20• All safety-related digital inputs and outputs of the system are monitored by means of a contact feedback network |
| Versions | <ul style="list-style-type: none">• Burner capacity unlimited (thermal output on startup ≤ 120 kW)• 3 restarts in the event of loss of flame during operation (LME11/LME41.051)• Restart in the event of loss of flame during operation (LME41.052/LME41.053/LME41.054/LME41.071/LME41.091/LME41.092/LME44.190) |
| Indication and diagnostics | <ul style="list-style-type: none">• Multicolor indication for operational status and fault status messages via multicolor signal lamp in the lockout reset button• Transmission of operational status and fault status messages and detailed service information via UDS communication at interface diagnostic mode (UDS)• PC software ACS410 enabled via optical interface OCI400 a simple operation, comfortable readout of settings and operating states, trend recording and targeted diagnostic of LME |

Type summary

The product nos. applies to the LME without plug-in base and without flame detector. For ordering information on plug-in bases and other accessories, see *Accessories*.

| Flame detector | Article no. | Product no. | Mains voltage | tw approx. s | TSA max. s | t1 min. s | t3 approx. s | t3n approx. s | t4 approx. s | t10 min. s ³⁾ | t11 min. s ¹⁾ | t12 min. s ¹⁾ | Repetition | Replacing... |
|---|-----------------|-------------|---------------|--------------|------------|-----------|--------------|---------------|--------------|--------------------------|--------------------------|--------------------------|------------|------------------------------|
| Burner controls for 1-stage burners (up to 120 kW output) | | | | | | | | | | | | | | |
| Ionization probe or QRA ⁴⁾ with AGQ3.xA27 | BPZ:LME11.230C2 | LME11.230C2 | AC 230 V | 2,5 | 3 | 20 | 2 | 2,5 | --- | 5 | --- | --- | 3x | --- |
| | BPZ:LME11.330C2 | LME11.330C2 | AC 230 V | 2,5 | 3 | 30 | 2 | 2,5 | --- | 5 | --- | --- | 3x | --- |
| Burner controls for 2-stage burners, without actuator control | | | | | | | | | | | | | | |
| Ionization probe or flame detector QRA ⁴⁾ with AGQ3.xA27 | BPZ:LME21.130C1 | LME21.130C1 | AC 120 V | 2,5 | 3 | 7 | 2 | 2,5 | 8 | 5 | --- | --- | --- | LGB21.130A17 |
| | BPZ:LME21.130C2 | LME21.130C2 | AC 230 V | 2,5 | 3 | 7 | 2 | 2,5 | 8 | 5 | --- | --- | --- | LGB21.130A27 LMG21.130B27 |
| | BPZ:LME21.230C2 | LME21.230C2 | AC 230 V | 2,5 | 3 | 20 | 2 | 2,5 | 8 | 5 | --- | --- | --- | LGB21.230A27 LMG21.230B27 |
| | BPZ:LME21.330C1 | LME21.330C1 | AC 120 V | 2,5 | 3 | 30 | 2 | 2,5 | 8 | 5 | --- | --- | --- | --- |
| | BPZ:LME21.330C2 | LME21.330C2 | AC 230 V | 2,5 | 3 | 30 | 2 | 2,5 | 8 | 5 | --- | --- | --- | LGB21.330A27 LMG21.330B27 |
| | BPZ:LME21.350C1 | LME21.350C1 | AC 120 V | 2,5 | 5 | 30 | 2 | 4,5 | 10 | 5 | --- | --- | --- | LGB21.350A17 |
| | BPZ:LME21.350C2 | LME21.350C2 | AC 230 V | 2,5 | 5 | 30 | 2 | 4,5 | 10 | 5 | --- | --- | --- | LGB21.350A27 LMG21.350B27 |
| | BPZ:LME21.550C2 | LME21.550C2 | AC 230 V | 2,5 | 5 | 50 | 2 | 4,5 | 10 | 5 | --- | --- | --- | LGB21.550A27 |

Legend

| | |
|-----|--|
| TSA | Safety time |
| tw | Waiting time |
| t1 | Prepurge time |
| t3 | Preignition time |
| t3n | Postignition time |
| t4 | Interval between ignition OFF and release of fuel valve V2 |
| t10 | Specified time for air pressure signal |
| t11 | Programmed opening time for actuator |
| t12 | Programmed closing time for actuator |
| t22 | 2nd safety time |

- 1) Max. running time available for actuator. Actuator running time must be shorter
- 2) 2nd safety time + response time of flame relay
- 3) Approx. 180 s
- 4) Only used for AC 230 V

Type summary (cont'd)

The product nos. applies to the LME without plug-in base and without flame detector. For ordering information on plug-in bases and other accessories, see *Accessories*.

| Flame detector | Article no. | Product no. | Mains voltage | tw approx. s | TSA max. s | t1 min. s | t3 approx. s | t3n approx. s | t4 approx. s | t10 min. s ³⁾ | t11 min. s ¹⁾ | t12 min. s ¹⁾ | Repetition | Replacing... |
|---|-----------------|-------------|---------------|--------------|------------|-----------|--------------|---------------|--------------|--------------------------|--------------------------|--------------------------|------------|--|
| Burner controls for 2-stage burners, with actuator control | | | | | | | | | | | | | | |
| Ionization probe or flame detector QRA ⁴⁾ with AGQ3.xA27 | BPZ:LME22.131C2 | LME22.131C2 | AC 230 V | 2,5 | 3 | 7 | 3 | 2,5 | 8 | 3 | 12 | 12 | --- | LGB22.130A27 LMG22.130B27 |
| | BPZ:LME22.231C2 | LME22.231C2 | AC 230 V | 2,5 | 3 | 20 | 3 | 2,5 | 8 | 3 | 12 | 12 | --- | --- |
| | BPZ:LME22.232C2 | LME22.232C2 | AC 230 V | 2,5 | 3 | 20 | 3 | 2,5 | 8 | 3 | 16,5 | 16,5 | --- | LGB22.230A27 LGB22.230B27 LMG22.230B27 |
| | BPZ:LME22.233C2 | LME22.233C2 | AC 230 V | 2,5 | 3 | 20 | 3 | 2,5 | 8 | 3 | 30 | 30 | --- | LMG22.233B27 |
| | BPZ:LME22.331C1 | LME22.331C1 | AC 120 V | 2,5 | 3 | 30 | 3 | 2,5 | 8 | 3 | 12 | 12 | --- | LGB22.330A17 |
| | BPZ:LME22.331C2 | LME22.331C2 | AC 230 V | 2,5 | 3 | 30 | 3 | 2,5 | 8 | 3 | 12 | 12 | --- | LGB22.330A27 LMG22.330B27 |
| Burner controls for 2-stage burners, with actuator control | | | | | | | | | | | | | | |
| Blue-flame detector QRC | BPZ:LME23.331C2 | LME23.331C2 | AC 230 V | 2,5 | 3 | 30 | 3 | 2,5 | 8 | 3 | 12 | 12 | --- | LGB32.330A27 |
| | BPZ:LME23.351C2 | LME23.351C2 | AC 230 V | 2,5 | 5 | 30 | 1 | 4,5 | 10 | 3 | 12 | 12 | --- | LGB32.350A27 |

Legend

| | |
|-----|--|
| TSA | Safety time |
| tw | Waiting time |
| t1 | Prepurge time |
| t3 | Preignition time |
| t3n | Postignition time |
| t4 | Interval between ignition OFF and release of fuel valve V2 |
| t10 | Specified time for air pressure signal |
| t11 | Programmed opening time for actuator |
| t12 | Programmed closing time for actuator |
| t22 | 2nd safety time |

- 1) Max. running time available for actuator. Actuator running time must be shorter
- 2) 2nd safety time + response time of flame relay
- 3) Approx. 180 s
- 4) Only used for AC 230 V

Type summary (cont'd)

The product nos. applies to the LME without plug-in base and without flame detector. For ordering information on plug-in bases and other accessories, see *Accessories*.

| Flame detector | Article no. | Product no. | Mains voltage | TSA max. s | tw approx. s | t1' min. s | t3 approx. s | t3n approx. s | t4 approx. s | t22 approx. s | Repetition | Replacing... |
|---|------------------|-------------|---------------|------------|--------------|------------|--------------|---------------|--------------|---------------|------------|-----------------------------|
| Burner controls for atmospheric burners | | | | | | | | | | | | |
| Ionization probe or flame detector QRA ¹⁾ with AGQ3.xA27 | BPZ:LME41.051C2 | LME41.051C2 | AC 230 V | 5 | 2,5 | 1 | 1 | 4,5 | --- | --- | 3x | --- |
| | S55333-B103-C100 | LME41.052C2 | AC 230 V | 5 | 2,5 | 1 | 10 | 4,5 | --- | --- | ● | --- |
| | BPZ:LME41.053C2 | LME41.053C2 | AC 230 V | 5 | 2,5 | 10 | 1 | 4,5 | --- | --- | ● | On request |
| | BPZ:LME41.054C2 | LME41.054C2 | AC 230 V | 5 | 2,5 | 1 | 1 | 4,5 | --- | --- | ● | LGD12.05A27 ²⁾³⁾ |
| | BPZ:LME41.071C2 | LME41.071C2 | AC 230 V | 10 | 2,5 | 10 | 1 | 9 | --- | --- | ● | --- |
| | BPZ:LME41.091C2 | LME41.091C2 | AC 230 V | 10 | 2,5 | 1 | 10 | 9 | --- | --- | ● | --- |
| | BPZ:LME41.092C2 | LME41.092C2 | AC 230 V | 10 | 2,5 | 1 | 1 | 9 | --- | --- | ● | LGD12.01A27 ²⁾³⁾ |
| Burner controls for atmospheric burners | | | | | | | | | | | | |
| Ionization probe or flame detector QRA ¹⁾ with AGQ3.xA27 | BPZ:LME44.056C2 | LME44.056C2 | AC 230 V | 5 | 16 | 9 | 2 | 4,5 | 10 | 5 | --- | LGB41.255A27 |
| | BPZ:LME44.057C1 | LME44.057C1 | AC 120 V | 5 | 16 | 9 | 2 | 4,5 | 10 | 8 | --- | LGB41.258A17 |
| | BPZ:LME44.057C2 | LME44.057C2 | AC 230 V | 5 | 16 | 9 | 2 | 4,5 | 10 | 8 | --- | LGB41.258A27 |
| | BPZ:LME44.190C2 | LME44.190C2 | AC 230 V | 10 | 2,5 | 12 | 0,5 | 9,5 | 25 | --- | ● | --- |

Legend

| | |
|-----|--|
| TSA | Safety time |
| tw | Waiting time |
| t1' | Prepurge time |
| t3 | Preignition time |
| t3n | Postignition time |
| t4 | Interval between ignition OFF and release of fuel valve V2 |
| t22 | 2nd safety time |

- 1) Max. running time available for actuator. Actuator running time must be shorter
- 2) Only suitable for 1-stage operation
- 3) Not pin-compatible

**Connection accessories
for small burner controls**

Plug-in base **AGK11**
Article no.: **BPZ:AGK11**
To connect the small-capacity burner controls to the burner plant.
Refer to Data Sheet N7201.



Cable holder **AGK66**
Article no.: **BPZ:AGK66**
For plug-in base AGK11.
Refer to Data Sheet N7201.



Cable gland holder **AGK65**
Article no.: **BPZ:AGK65**

- Cable gland holder for AGK11 plug-in base
- Pg11

Refer to Data Sheet N7201.



Cable gland holder **AGK65.1**
Article no.: **BPZ:AGK65.1**

- Cable gland holder for AGK11 plug-in base
- M16 x 1.5

Refer to Data Sheet N7201.



Flame detector

UV flame detector **QRA2**
Only in conjunction with ancillary unit AGQ3.
Refer to Data Sheet N7712.



UV flame detector **QRA10**
Only in conjunction with ancillary unit AGQ3.
Refer to Data Sheet N7712.



UV flame detector **QRA4**
Only in conjunction with ancillary unit AGQ3.
Refer to Data Sheet N7711.



Frontal illumination



Blue-flame detector **QRC**
Refer to Data Sheet N7716.

Lateral illumination



Ionization probe
To be supplied by customer.



Service tools

Optical Interface **OCI400**

Article no.: **BPZ:OCI400**

- Optical interface between burner control and PC
- Facilitates viewing and recording of setting parameters on site using the ACS410 PC software

Refer to Data Sheet N7614



PC Software **ACS410**

Article no.: **BPZ:ACS410**

For setting the parameters and for visualizing the burner controls.

Refer to Software Documentation J7352



Actuators

Actuator **SQN3**

Refer to Data Sheet N7808



Actuator **SQN7**

Refer to Data Sheet N7804



Actuator **SQN9**

Refer to Data Sheet N7806



Others

Valve proving system **LDU11** (only LME2)
 Designed to check the tightness of shutoff valves in connection with gas burners and gas devices. In the event of inadmissible leakage, the system prevents the burner from starting up.
 Refer to Data Sheet N7696



RC unit **ARC 4 668 9066 0**
 Article no.: **BPZ:ARC466890660**
 For the supervision of ionization currents in networks with non-earthed neutral conductor



PTC resistor **AGK25**
 Article no.: **BPZ:AGK25**

- AC 230 V
- To burden terminal 3 (for burners without fan motor)



Ancillary unit **AGQ3**
 For UV supervision. Can be fitted under the plug-in base.



| Article no. | Type | Cable length (mm) |
|----------------------|------------------|-------------------|
| BPZ:AGQ3.1A27 | AGQ3.1A27 | 500 |
| BPZ:AGQ3.2A27 | AGQ3.2A27 | 300 |

Reset button extension **AGK20**



Technical data

| | | |
|-------------------|----------------------------|--|
| General unit data | Mains voltage | AC 120 V +10%/-15% AC 230 V +10%/-15% |
| | Mains frequency | 50...60 Hz $\pm 6\%$ |
| | Power consumption | 12 VA |
| | External primary fuse (Si) | Max. 10 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 LME must be replaced.

| | |
|--|---|
| Mounting position | Optional |
| Input current at terminal 12 | Max. 5 A |
| Weight | Approx. 160 g |
| Safety class I (burner control with plug-in base) | In accordance with DIN EN 60730-1 For applications without safe separation. Protection against electric shock is achieved through double or reinforced insulation. Provision for the protective earth connection is made in the plug-in base AGK11. |

Details in accordance with DIN EN 60730-1:2012

| | |
|---|---|
| Type of shutdown or interruption for each circuit | Shutdown with micro switch, 1-pole Mode of operation type 2 B |
| Degree of protection | IP40 (to be ensured through mounting) |
| Rated surge voltage category III (DIN EN 60664) | |
| • LME total unit | 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 60730-2-5:2011 2-channel structure |
| Reaction time in the event of loss of flame | Max. 1 s |
| Perm. cable length terminal 1 | Max. 1 m at a line capacitance of 100 pF/m, unshielded (max. 3 m at 15 pF/m) |
| Perm. cable length from QRA to AGQ3.xA27 (lay separate cable) | Max. 20 m at 100 pF/m, unshielded |
| Remote lockout reset laid separately | Max. 20 m at 100 pF/m, unshielded |
| Perm. cable length terminals 8 and 10 | Max. 20 m at 100 pF/m, unshielded (lay separate cable) |
| Perm. cable lengths other terminals | Max. 3 m at 100 pF/m, unshielded |
| Permissible input voltage at terminals 6 and 11 | 120 V AC +10%/-15% 230 V AC +10%/-15% |
| Possible input current at terminal 6 | 0.5 mA |
| Possible input current at terminals 8 and 11 | 1 mA |

| Perm. terminal load | At $\cos\varphi \geq 0.6$ | At $\cos\varphi = 1$ |
|------------------------------|---|----------------------|
| Terminal 3 | Max. 2.7 A (15 A for max. 0.5 s \rightarrow only LME2) | Max. 3 A |
| Terminals 4, 5, 7 and 9 (11) | Max. 1.7 A | Max. 2 A |
| Terminal 10 | Max. 1 A | Max. 1 A |

Technical data (cont'd)

| | | |
|--------------------------|-----------------------|------------------------------|
| Environmental conditions | Storage | DIN EN 60721-3-1 |
| | Climatic conditions | Class 1K3 |
| | Mechanical conditions | Class 1M2 |
| | Temperature range | -20...60 °C |
| | Humidity | <95% r.h. |
| | Transport | DIN EN 60721-3-2 |
| | Climatic conditions | Class 2K2 |
| | Mechanical conditions | Class 2M2 |
| | Temperature range | -20...60 °C |
| | Humidity | <95% r.h. |
| | Operation | DIN EN 60721-3-3 |
| | Climatic conditions | Class 3K3 |
| | Mechanical conditions | Class 3M3 |
| | Temperature range | -20... 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!

If this is not observed, there is a risk of loss of safety functions and a risk of electric shock.

AGK11

Connectable conductor cross-sections

- Terminals 1...12
Min. 0.5 mm²
Max. 1.5 mm²
Wire or stranded wire with ferrules
- Auxiliary terminals N, PE, 31, 32
Min. 0.5 mm²
Max. 1.5 mm²
Wire or stranded wire with ferrules
(when connecting 2 wires or stranded wires per terminal, the same cross-sectional areas must be used for each terminal)

Flame supervision with ionization probe

| | At mains voltage | |
|---|---|---|
| | UN = AC 120 V ¹⁾ | UN = AC 230 V ¹⁾ |
| Detector voltage between ionization probe and ground (AC voltmeter $R_i \geq 10 \text{ M}\Omega$) | AC 50...120 V | AC 115...230 V |
| Switching threshold (limit values): | | |
| Switching on (flame ON) (DC ammeter $R_i \leq 5 \text{ k}\Omega$) | $\geq \text{DC } 1.5 \text{ }\mu\text{A}$ | $\geq \text{DC } 1.5 \text{ }\mu\text{A}$ |
| Switching off (flame OFF) (DC ammeter $R_i \leq 5 \text{ k}\Omega$) | $\leq \text{DC } 0.5 \text{ }\mu\text{A}$ | $\leq \text{DC } 0.5 \text{ }\mu\text{A}$ |
| Detector current required for reliable operation | $\geq \text{DC } 3 \text{ }\mu\text{A}$ | $\geq \text{DC } 3 \text{ }\mu\text{A}$ |
| Switching threshold in the event of poor flame during operation (signal lamp (LED) flashes green) | Approx. DC 5 μA | Approx. DC 5 μA |
| Short-circuit current between ionization probe and ground (AC ammeter $R_i \leq 5 \text{ k}\Omega$) | Max. AC 50...150 μA | Max. AC 100...300 μA |
| Possible detector current in operation | Max. 20 μA | Max. 20 μA |

¹⁾ For applications outside the European Union, operation at mains voltage AC 120 V/AC 230 V $\pm 10\%$ is ensured



Note!

With the same quality of flame, the detector current with the LME may be different from than with LMG/LGB.

Flame supervision with ionization is accomplished by making use of the conductivity and rectifying effect of the flame.

The DC current that flows in the presence of a flame (ionization current) is largely proportional to the flame quality. This current is measured in the flame signal amplifier.

The amplifier is designed such that it only responds to the DC current component of the flame signal. This ensures that a short circuit between the ionization probe and ground cannot simulate a flame signal (since in that case AC current would flow).



Note!

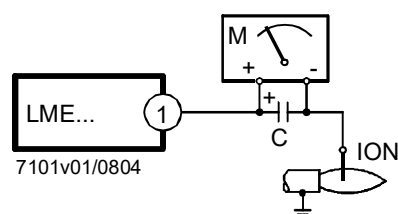
The ignition (ignition spark) can have a negative effect on the ionization current formation during startup.

To minimize the impact

- the positioning of the ionization probe must be checked and optimized
- it may be beneficial to replace the electrical connections (phase / neutral) on the primary side of the ignition transformer

A short-circuit between ionization probe and ground initiates a non-volatile lockout depending on the restart setting.

Measuring circuit



Legend

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

For detector currents, see *Technical data*.

**Flame supervision
with AGQ3.xA27 and
UV detector QRA**

Only in connection with LMExx.xxxx2 (AC 230 V)!

| | |
|---|--------------------------------------|
| Mains voltage | AC 230 V +10%/-15% |
| Mains frequency | 50...60 Hz ±6% |
| Perm. cable length from QRA to AGQ3.xA27 (lay separate cable) | Max. 20 m, unshielded |
| Perm. cable length from AGQ3.xA27 to LMExx.xxxx2 | Max. 2 m, unshielded |
| Weight of AGQ3.xA27 | Approx. 140 g |
| Perm. mounting position | Optional |
| Degree of protection | IP40, to be ensured through mounting |
| Power consumption | 4.5 VA |

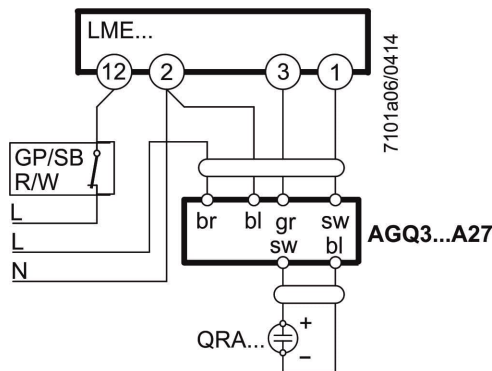
| | At mains voltage U_N | |
|--|------------------------|----------------------|
| | AC 220 V | AC 240 V |
| Detector voltage at QRA (with no load) | | |
| Terminal 3 OFF (refer to control sequence) | DC 400 V | DC 400 V |
| Terminal 3 ON (refer to control sequence) | DC 300 V | DC 300 V |
| Detector voltage Load by DC measuring instrument $R_i > 10 \text{ M}\Omega$ | | |
| Terminal 3 OFF (refer to control sequence) | DC 380 V | DC 380 V |
| Terminal 3 ON (refer to control sequence) | DC 280 V | DC 280 V |
| DC current detector signals with flame detector QRA | Min. required | Max. possible |
| Measurement at the flame detector QRA | 200 μA | 500 μA |

Ancillary unit
AGQ3.xA27

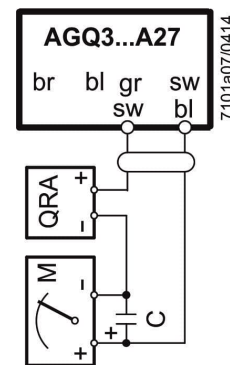
In connection with burner controls LMExx.xxxx2, use of UV ancillary unit AGQ3.xA27 is mandatory.

Correct functioning of aged UV cells can be checked as UV test with a higher supply voltage across the UV cell after controlled shutdown until terminal 3 ON.

Connection diagram



Measuring circuit for measuring the UV
flame current



Measurement made at the flame detector
QRA

Legend

| | |
|-----|---|
| C | Electrolytic capacitor 100...470 μF ; DC 10...25 V |
| M | Microammeter R_i max. 5,000 Ω |
| QRA | UV flame detector |
| GP | Pressure switch |
| SB | Safety limiter |
| R | Control thermostat or pressurestat |
| W | Limit thermostat or pressure switch |

| | |
|----|-------------------------|
| bl | Blue |
| br | Brown |
| gr | Grey (old: rt = red) |
| sw | Black |

Flame supervision with QRC
(only LME23)

| | Detector current required (with flame) | Perm. detector current (without flame) | Possible detector current with flame (typically) |
|------------|---|---|---|
| QRC | Min. 40 μ A | Max. 5,5 μ A | Max. 60 μ A |

The values given in the table above only apply under the following conditions:

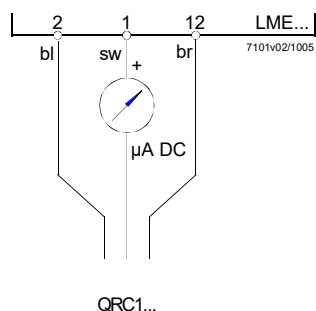
- Mains voltage AC 120 V/AC 230 V
- Ambient temperature 23 °C

Green signal lamp for indication of operating state

| | Detector current in operation: - Flame signal instable - Green signal lamp flashing | Detector current in operation: - Flame signal stable - Green signal lamp steady on |
|------------|---|--|
| QRC | <45 μ A | >45 μ A |

The values given in the table above only apply under the following conditions:

- Mains voltage AC 120 V/AC 230 V
- Ambient temperature 23 °C

Measuring circuit for detector current

Legend

μ A DC DC microammeter with an internal resistance of
 $R_i = \text{max. } 5 \text{ k}\Omega$

bl Blue
sw Black
br Brown

As an alternative to detector current measurement, the OCI400/ACS410 diagnostics tool can be used. In that case, the DC microammeter is not required.

Functions
Preconditions for burner startup

- Burner control must be reset
- All contacts in the line are closed, request for heat
- No undervoltage
- Air pressure switch (LP) must be in its no-load position
- Fuel valve V1 is connected
- Fan motor or AGK25 is connected (not at LME4)
- Flame detector is darkened and there is no extraneous light

LME41

- Air pressure switch must be in its no-load position or DBR1

LME44

- CPI in its no-load position or DBR2

Undervoltage

- Safety shutdown from the operating position takes place should mains voltage drop below about AC 75 V (at $U_N = \text{AC } 120 \text{ V}$)
- Restart is initiated when mains voltage exceeds about AC 95 V (at $U_N = \text{AC } 120 \text{ V}$)
- Safety shutdown from the operating position takes place should mains voltage drop below about AC 165 V (at $U_N = \text{AC } 230 \text{ V}$)
- Restart is initiated when mains voltage exceeds about AC 175 V (at $U_N = \text{AC } 230 \text{ V}$)

Controlled intermittent operation

After no more than 24 hours of continuous operation, the burner control will initiate automatic controlled shutdown followed by a restart.

Functions (cont'd)

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 immediately deactivated (<1 s).

| Cause | Response |
|---|--|
| Mains voltage failure | Restart |
| Voltage below undervoltage threshold | Safety shutdown |
| Voltage above undervoltage threshold | Restart |
| Extraneous light during prepurge time (t1) | Non-alterable lockout |
| Extraneous light during waiting time (tw) | Start prevention, a non-alterable lockout occurs after a maximum of 30 seconds LME41.051, LME41.054, LME41.092: Prevention of startup |
| No flame at the end of safety time (TSA) | LME11, LME41.051: Maximum of 3 repetitions, then a non-alterable lockout occurs at the end of the safety time (TSA) LME2, LME41.052, LME41.053, LME41.054, LME41.071, LME41.09, LME44.190: Non-alterable lockout at the end of the safety time (TSA) |
| Loss of flame during operation | LME11, LME41.051: <ul style="list-style-type: none"> Establishment of flame at the end of safety time → Max. 3 repetitions No establishment of flame at the end of safety time → Non-alterable lockout LME2: Non-alterable lockout LME41.052, LME41.053, LME41.054, LME41.071, LME41.09, LME44.190: Repetition |
| Air pressure switch welded in working position | Start prevention, a non-alterable lockout occurs after 65 seconds |
| LME41: No reaction | |
| Air pressure switch welded in no-load position - Error with valve proving (only in conjunction with LDU11) | Non-alterable lockout approx. 180 seconds after the specified time (t10) has elapsed |
| LME41: Air pressure switch welded in no-load position or no connection (jumper) between terminal 3 and terminal 11 | |
| Loss of air pressure once the specified time (t10) has elapsed and during operation | Non-alterable lockout |
| LME41: No air pressure signal after completion specified time or breakdown of jumper terminal 3/terminal 11 | LME41: Safety shutdown/restart |
| CPI contact is open during waiting time | Start prevention, a non-alterable lockout occurs after 60 seconds |

The LME remains locked after the non-alterable lockout. The signal lamp (LED) lights up red permanently. The burner control can be reset immediately. This state will also be maintained in the event of power failures.

Functions (cont'd)

| | |
|------------------------------|--|
| Resetting the burner control | After a non-alterable lockout, a reset can be carried out immediately. To do this, press the lockout reset button for about 1 second (<3 seconds). The LME can only be reset when all contacts in the line are closed and when there is no undervoltage. After a non-volatile lockout and reset, a restart with prepurging (t1) takes place. |
|------------------------------|--|

| | |
|--|--|
| Restart limitation (only LME11, LME41.051) | If no flame is established at the end of the safety time (TSA), or if the flame is lost during operation, a maximum of 3 restarts per controlled startup can be performed via control thermostat / pressurestat, or else a non-volatile lockout will be initiated. The restart count is restarted each time controlled switching on by control thermostat or pressurestat takes place. |
|--|--|

| | |
|--------------------|--|
| PC software ACS410 | <p>Purpose of PC software:</p> <p>The PC software is a component of the LME system and serves primarily as an operator module for the following basic tasks:</p> |
|--------------------|--|

- Visualization of system state with the following data:
 - Parameters
 - Process data
- Reset

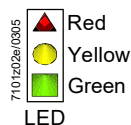


Note!

For operating and commissioning instructions, refer to Installation and Operating Instructions J7352.

Operation


Lockout reset button is the key operating element for resetting the burner control and for activating/deactivating the diagnostics functions.



The multicolor signal lamp in the lockout reset button is the key indicating element for visual diagnostics and interface diagnostics.

Both (lockout reset button/signal lamp) are located under the transparent cover of the lockout reset button.

There are 2 diagnostics choices:

1. Visual diagnostics: Operational status indication or diagnostics of the cause of fault.
2. Interface diagnostics: With the help of the interface OCI400 and the PC software ACS410 or flue gas analyzers of different makes.

Visual diagnostics:

In normal operation, the different operating states are indicated in the form of color codes according to the color code table given below.

Operational status indication

During startup, status indication takes place according to the following table:

| Color code table for multicolor signal lamp (LED) | | |
|---|-----------------------------|-------------------|
| Status | Color code | Color |
| Waiting time (tw), other waiting states | ○ | OFF |
| Air pressure switch – waiting phase, prepurging | ● | Yellow |
| Ignition phase, ignition controlled | ○ ● ○ ● ○ ● ○ ● ○ ● ○ ● | Flashing yellow |
| Operation, flame ok | ■ | Green |
| Operation, flame not ok | ○ ■ ○ ■ ○ ■ ○ ■ ○ ■ ○ ■ | Flashing green |
| Extraneous light on burner startup | ■ ▲ ■ ▲ ■ ▲ ■ ▲ ■ ▲ ■ ▲ | Green-red |
| Undervoltage | ● ▲ ● ▲ ● ▲ ● ▲ ● ▲ ● ▲ ● ▲ | Yellow-red |
| Fault, alarm | ▲ | Red |
| Error code output (see Error code table) | ○ ▲ ○ ▲ ○ ▲ ○ ▲ ○ ▲ ○ ▲ ○ ▲ | Flashing red |
| Interface diagnostics | ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ | Red flicker light |

Legend

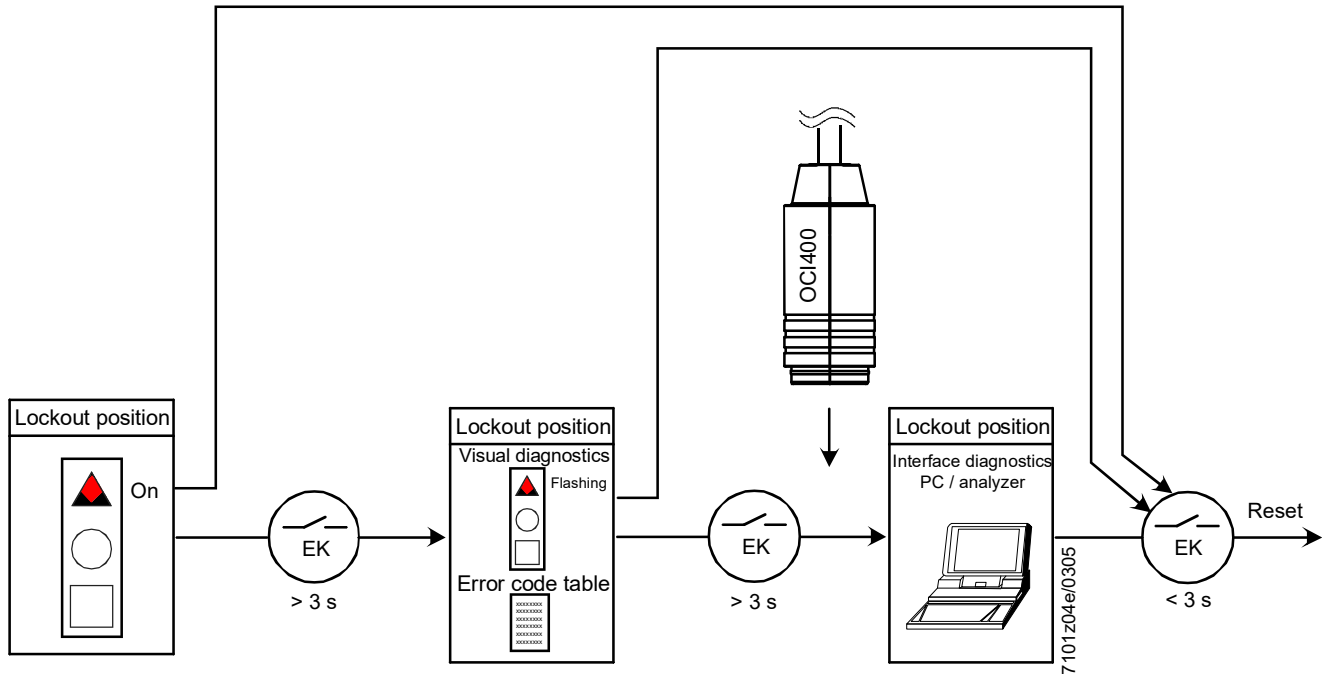
..... Steady on
○ OFF

▲ Red
● Yellow
■ Green

Diagnostics of the cause of fault

After a non-alterable lockout, the red signal lamp lights up. In that condition, visual diagnostics of the cause of fault according to the error code table can be activated by pressing the lockout reset button for more than 3 seconds. Pressing the lockout reset button again for at least 3 seconds, interface diagnostics will be activated. Interface diagnostics works only if the lockout reset button extension AGK20 is not fitted. If, by accident, interface diagnostics has been activated, in which case the slightly red light of the signal lamp flickers, it can be deactivated by pressing again the lockout reset button for at least 3 seconds. The instant of switching over is indicated by a yellow light pulse.

The following sequence activates the diagnostics of the cause of fault:



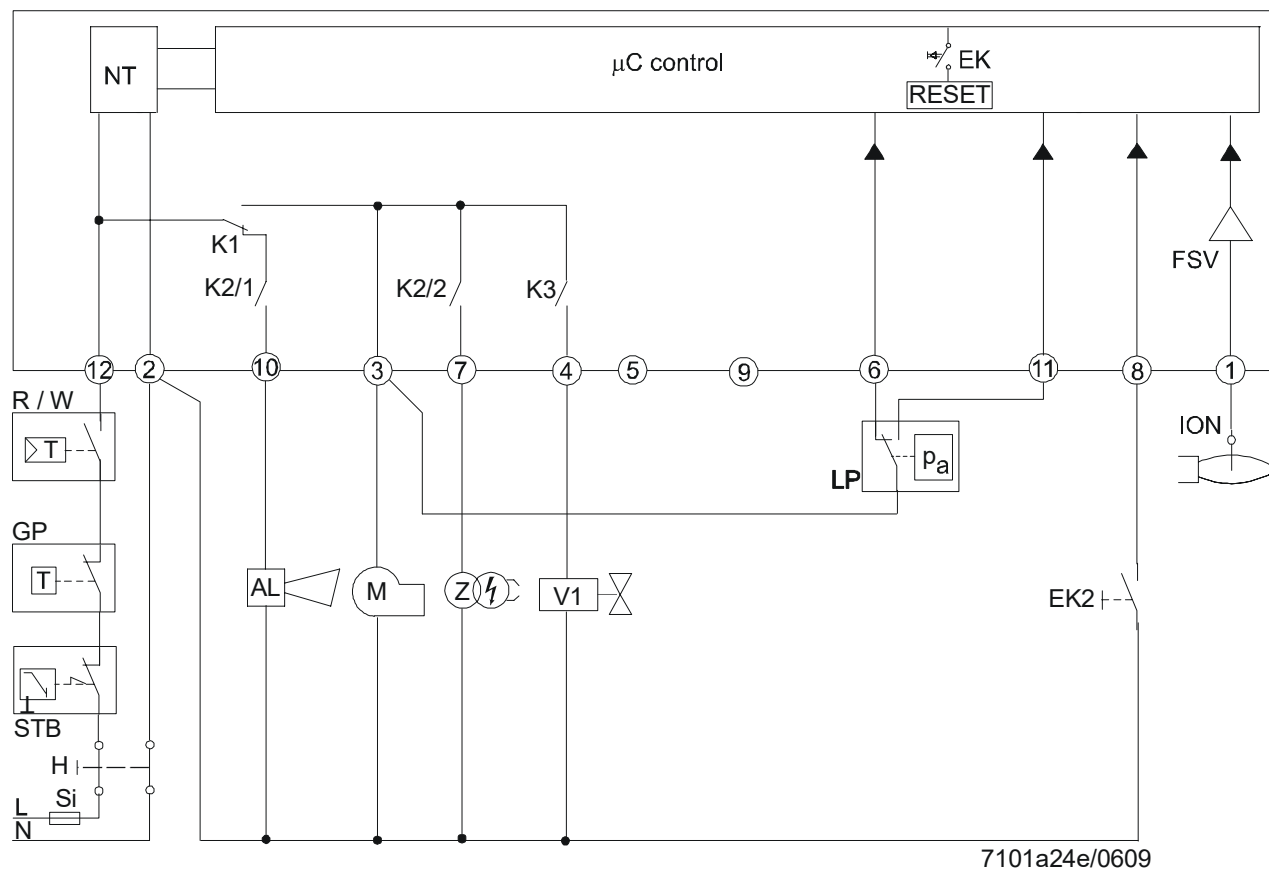
Error code table

| Red blink code of signal lamp (LED) | Alarm at term. 10 | Possible cause |
|-------------------------------------|-------------------|---|
| 2 blinks | ON | No establishment of flame at the end of safety time (TSA) <ul style="list-style-type: none"> - Faulty or soiled fuel valves - Faulty or soiled flame detector - Poor adjustment of burner, no fuel - Faulty ignition equipment |
| 3 x blinks | ON | Air pressure switch faulty <ul style="list-style-type: none"> • Loss of air pressure once the specified time (t10) has elapsed and during operation for the air pressure message • Air pressure switch welded in normal position • Fault during valve proving (only in conjunction with LDU11) |
| 4 blinks | ON | Extraneous light when burner is started up |
| 5 blinks | ON | Air pressure switch time supervision <ul style="list-style-type: none"> - Air pressure switch welded in working position |
| 6 blinks | ON | Free |
| 7 blinks | ON | Too many losses of flame during operation (restart limitation) <ul style="list-style-type: none"> - Faulty or soiled fuel valves - Faulty or soiled flame detector - Poor adjustment of burner |
| 8 x blinks | ON | Free |
| 9 blinks | ON | Free |
| 10 blinks | OFF | Wiring error or internal error, output contacts, other faults |
| 14 blinks | ON | CPI contact not closed |

During the time the cause of fault is diagnosed, the control outputs are deactivated

- Burner remains shut down
- External fault indication remains deactivated
- Fault status signal (alarm) at terminal 10, according to the error code table

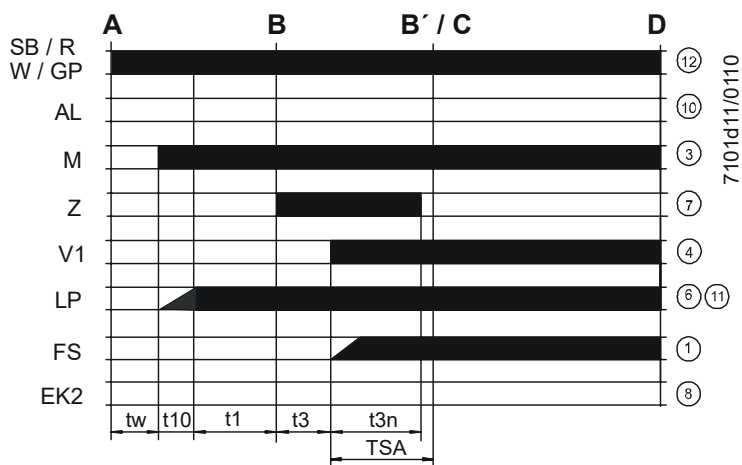
The diagnostics of the cause of fault is quit and the burner switched on again by resetting the burner control. Press the lockout reset button for about 1 second (<3 seconds).

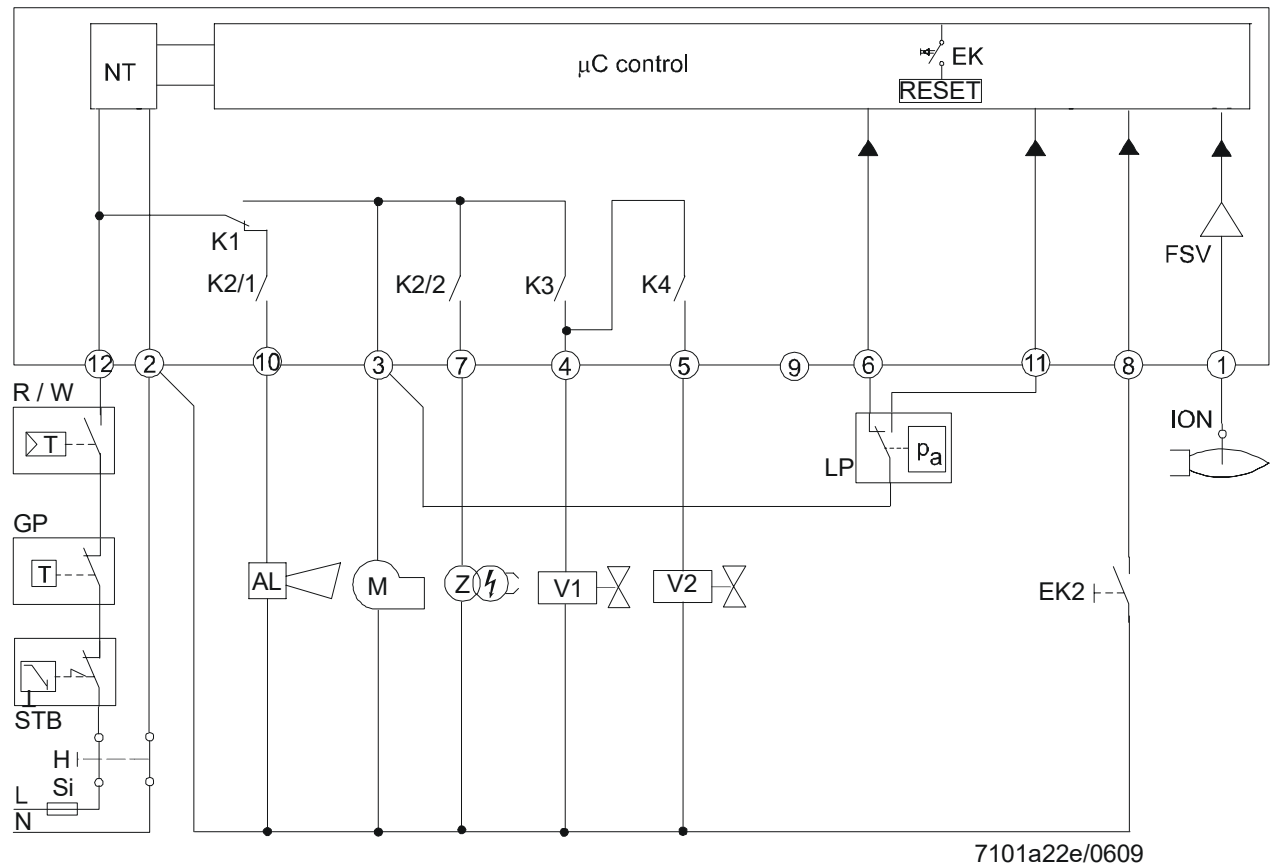


Caution!

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 LME must be replaced.

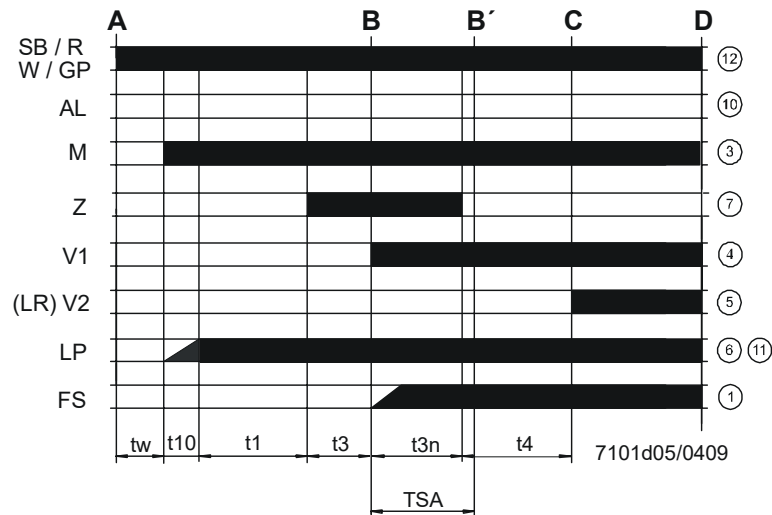




Caution!

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 LME must be replaced.

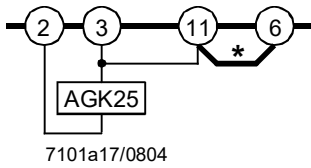




Caution!

The connection diagrams shown are merely examples which must be verified in the individual case depending on the application!

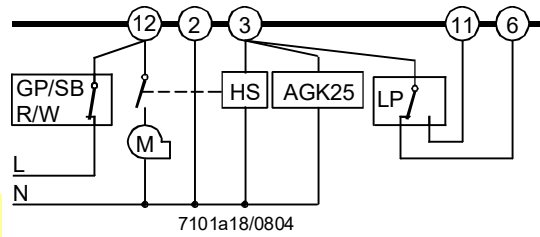
Burner without fan and without air pressure switch (LP)



*** Note!**

Different from LGB.

Only for burner with fan control via auxiliary contactor (HS) with air pressure switch (LP)




Caution!

The connection diagrams shown are merely examples which must be verified in the individual case depending on the application!

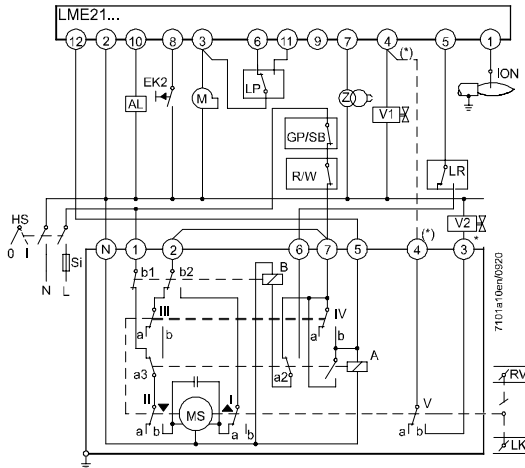
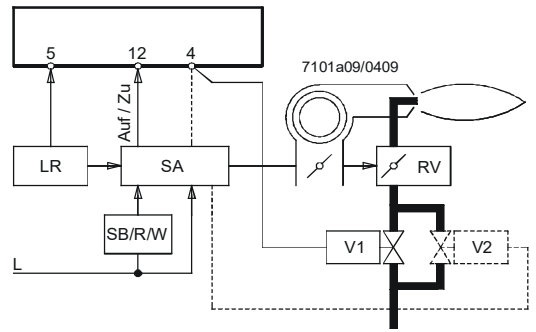
Control of actuators of 2-stage or 2-stage modulating burners. Controlled prepurging with low-fire air volume. Same low-fire actuator position during startup and operation.

For information about actuators (SA)::

SQN3: Refer to Data Sheet N7808

SQN7: Refer to Data Sheet N7804

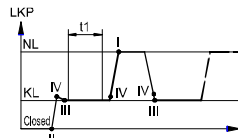
SQN9: Refer to Data Sheet N7806



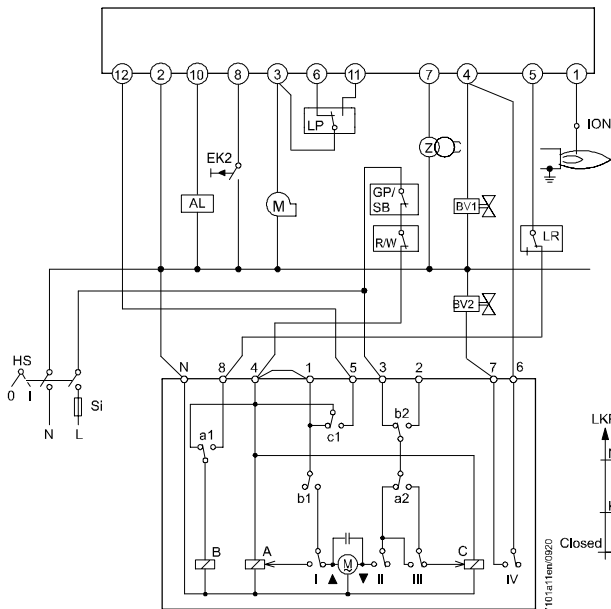
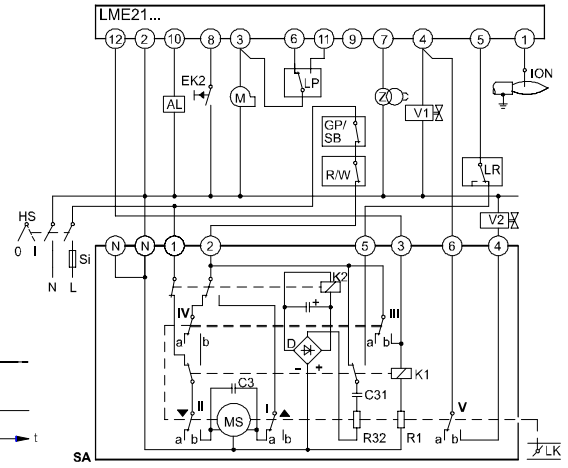
SQN3x.121xxx / 2-stage control

*** Note**

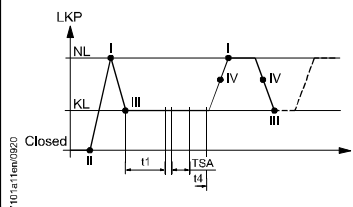
With 2-stage modulating burners (with gas regulation damper (RV)), fuel valve (V2) and the dotted connection between terminals (*) are not required.



SQN91.140xxx / 2-stage control

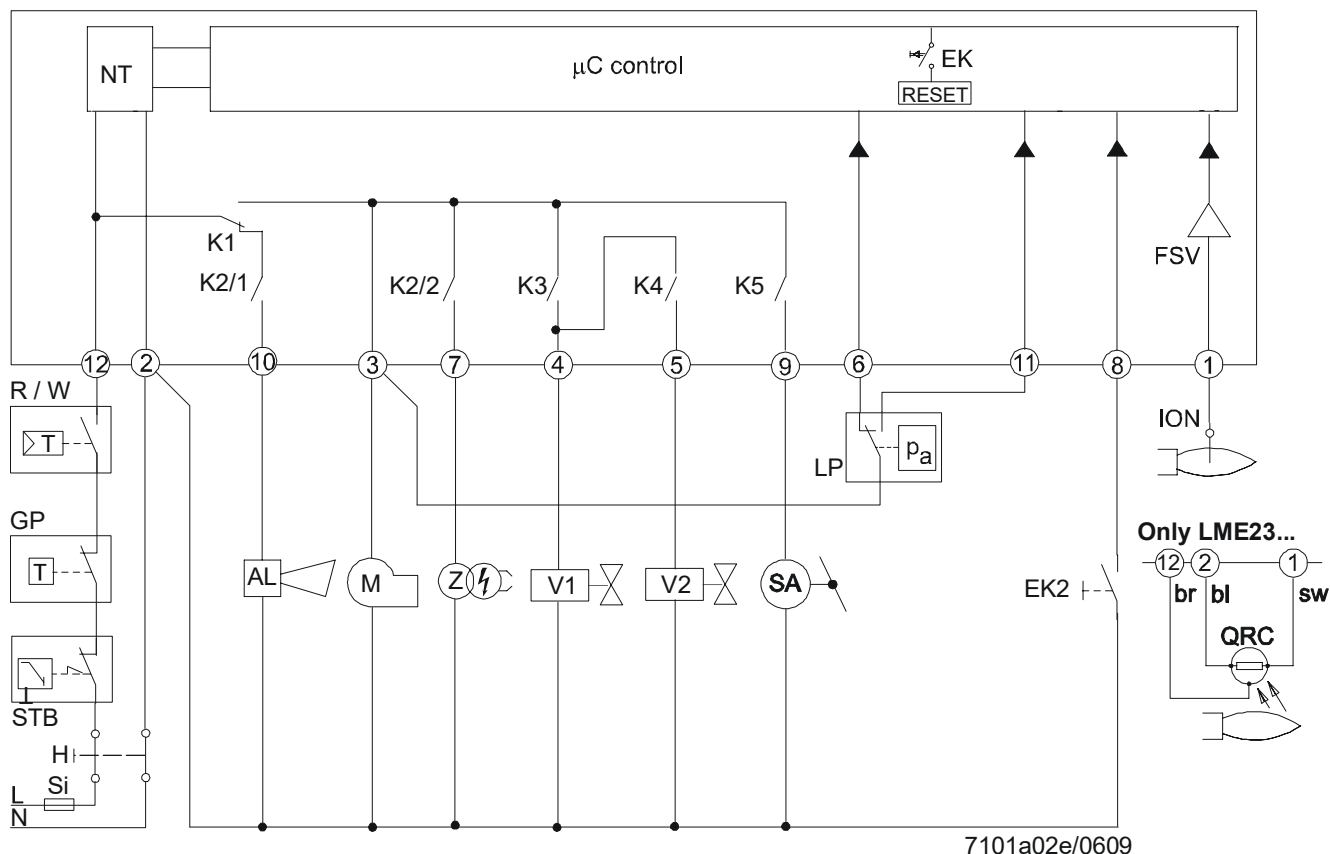


SQN7x.244xxx / 2-stage control


Caution!

Risk of damage to the switching contacts!

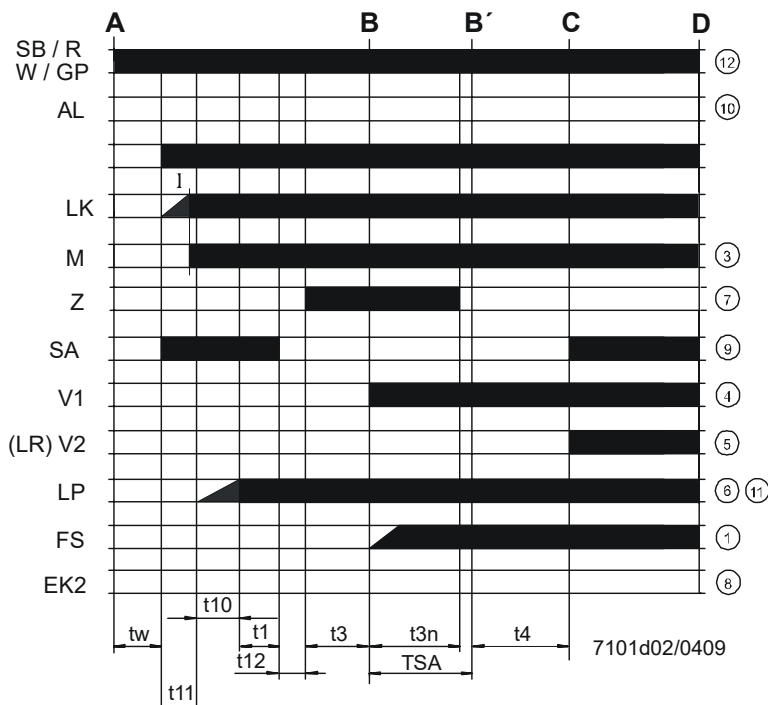
If the external primary fuse (Si) is blown due to overload or short-circuit at the terminals, the LME must be replaced.



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 LME must be replaced.





Caution!

The connection diagrams shown are merely examples which must be verified in the individual case depending on the application!

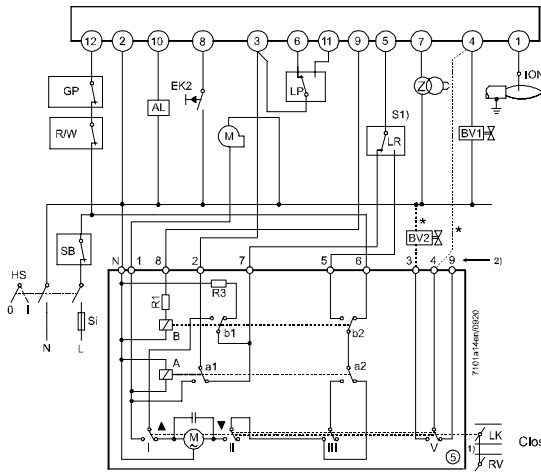
Control of actuators of 2-stage or 2-stage modulating burners. Controlled prepurging (t1) with high-fire air volume.

For information about actuators:

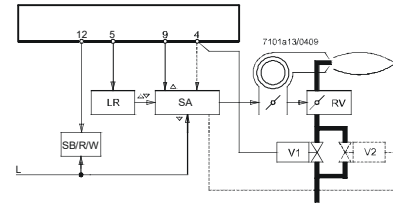
SQN3: Refer to Data Sheet N7808

SQN7: Refer to Data Sheet N7804

SQN9: Refer to Data Sheet N7806



SQN3x.151xxx or SQN3x.251xxx

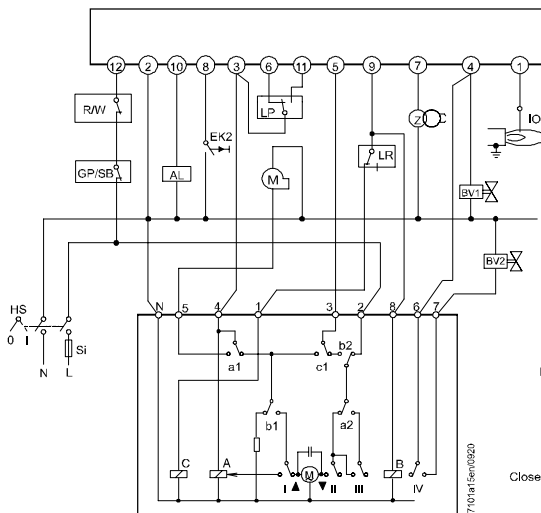


SQN90.220xxx / 2-stage modulating control

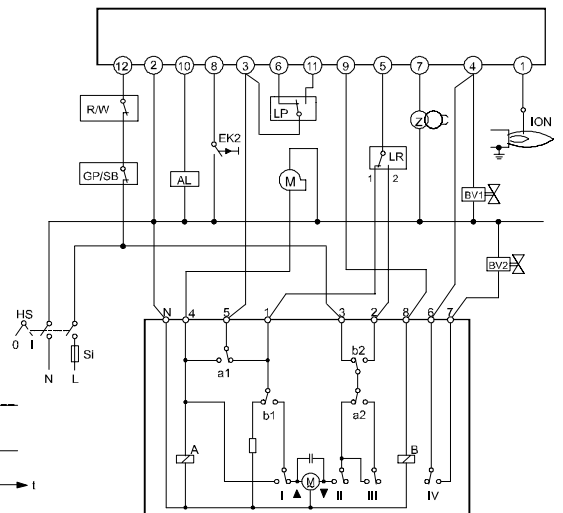


*** Note**

With 2-stage modulating burners (with gas regulation damper (RV)), fuel valve (V2) and the dotted connection between terminals (*) are not required.



**SQN7x.454xxx / 2-stage control
1-wire control**



**SQN7x.424xxx / 2-stage control
2-wire control**

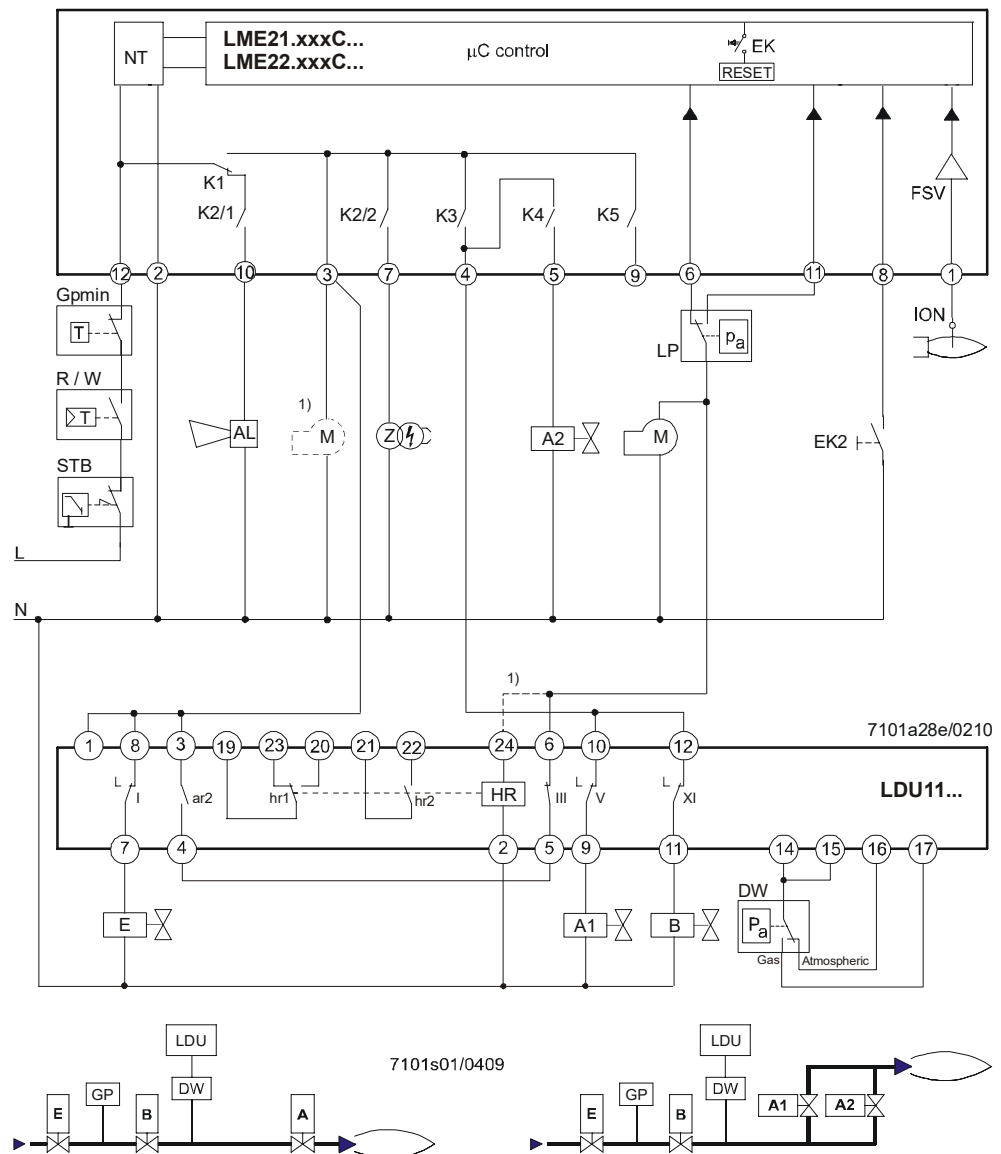


Caution!

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 LME must be replaced.

- LME21.xxxC/LME22.xxxC with LDU11 valve proving
- Valve supervision before startup of burner
- With plants without vent pipe to atmosphere



1) In connection with fan motor to terminal 3 of the LME21.xxxC/LME22.xxxC

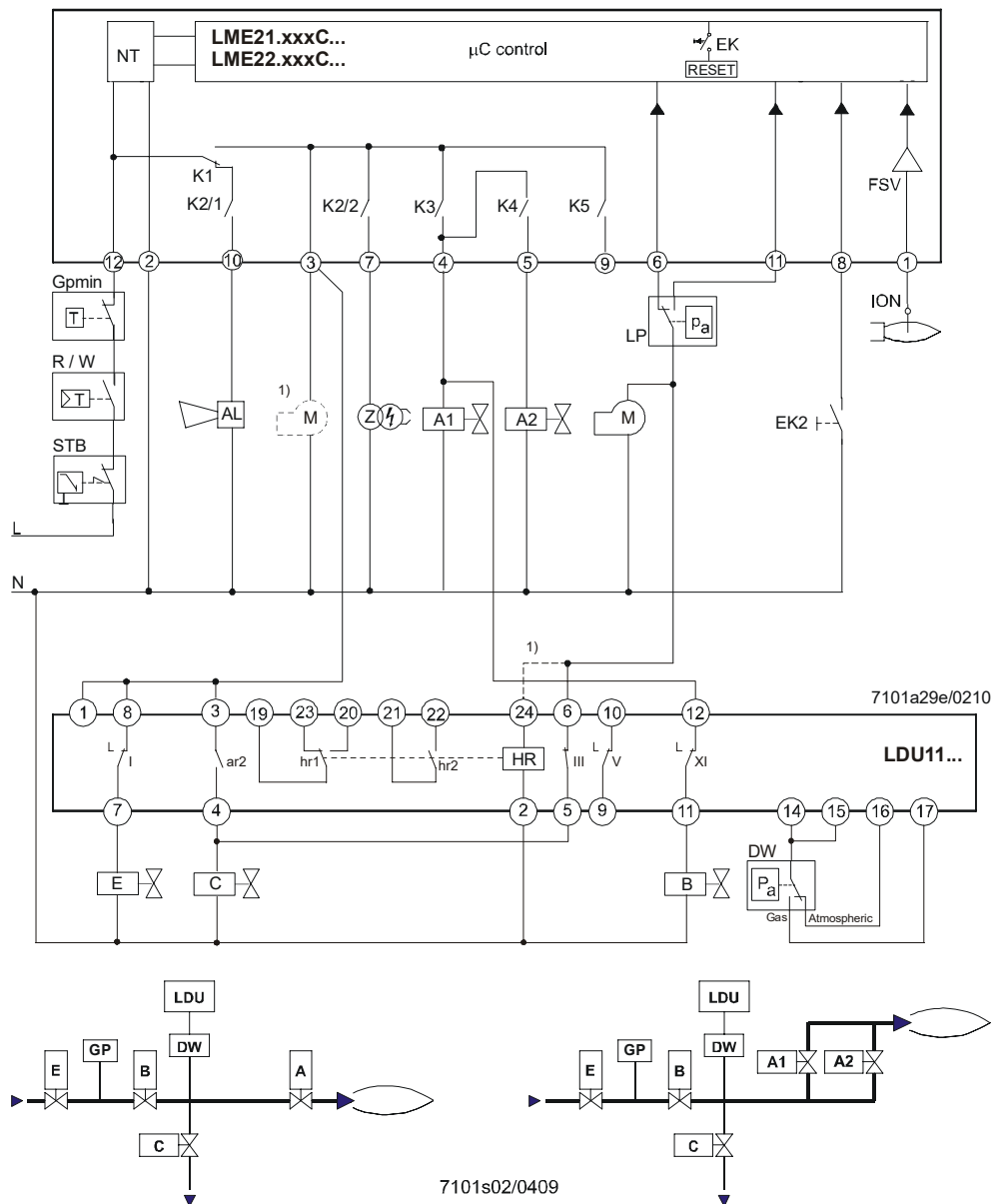
- Start valve proving each startup, with connection of terminal 3, after controller ON or after lockout
- The valve proving after each lockout of the LDU11 can take up to 160 seconds. Therefore, the maximum permissible air pressure switch flame-out time is 180 seconds
- With the LDU11, faults during valve proving lead to lockout and, with the LME21.xxxCx, to a non-alterable lockout due to air pressure switch timeout (blink code 03)



Note!

- A faulty air pressure switch (air pressure switch does not close) leads to a non-alterable lockout (blink code 03) on completion of the pressure switch response time of 180 seconds and can only be distinguished from a non-alterable lockout due to faulty valve proving because the LDU11 did not go to lockout
- The fan motor can be connected either to terminal 3 in connection with a link between terminals 6 and 24 of the LDU11 (motor active during valve proving) or to terminal 6 of the LDU11 (motor active on completion of successful valve proving)

- LME21.xxxC/LME22.xxxC with LDU11 valve proving
- Valve supervision before startup of burner
- With plants with vent pipe to atmosphere



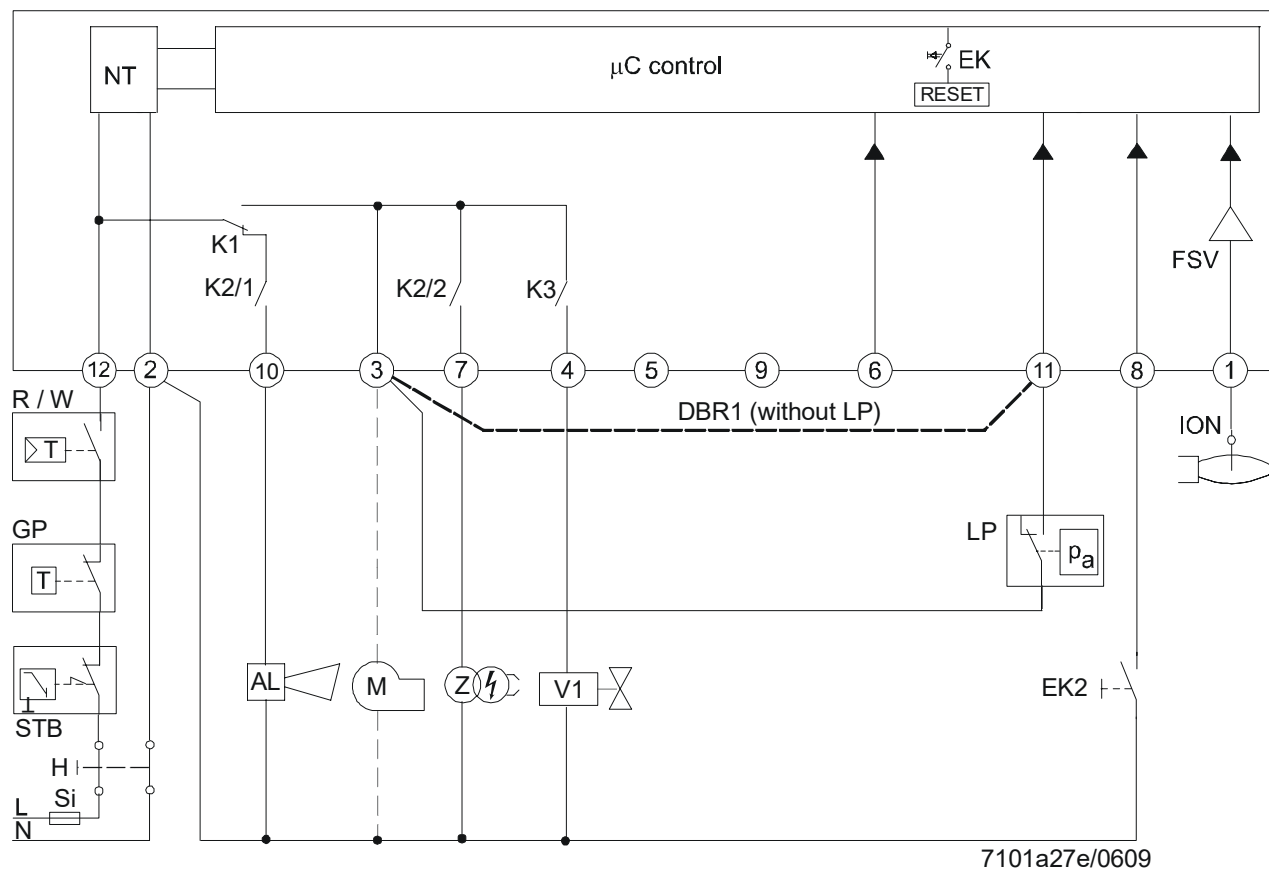
- 1) In connection with fan motor to terminal 3 of the LME21.xxxC/LME22.xxxC

- Start valve proving each startup, with connection of terminal 3, after controller ON or after lockout
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Note!

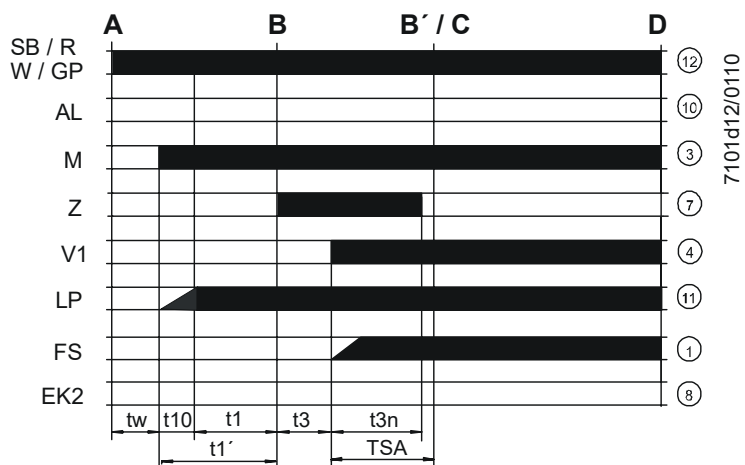
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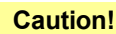
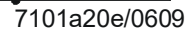


Caution!

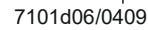
Risk of damage to the switching contacts!

If the external primary fuse (Si) is blown due to overload or short-circuit at the terminals, the LME must be replaced.








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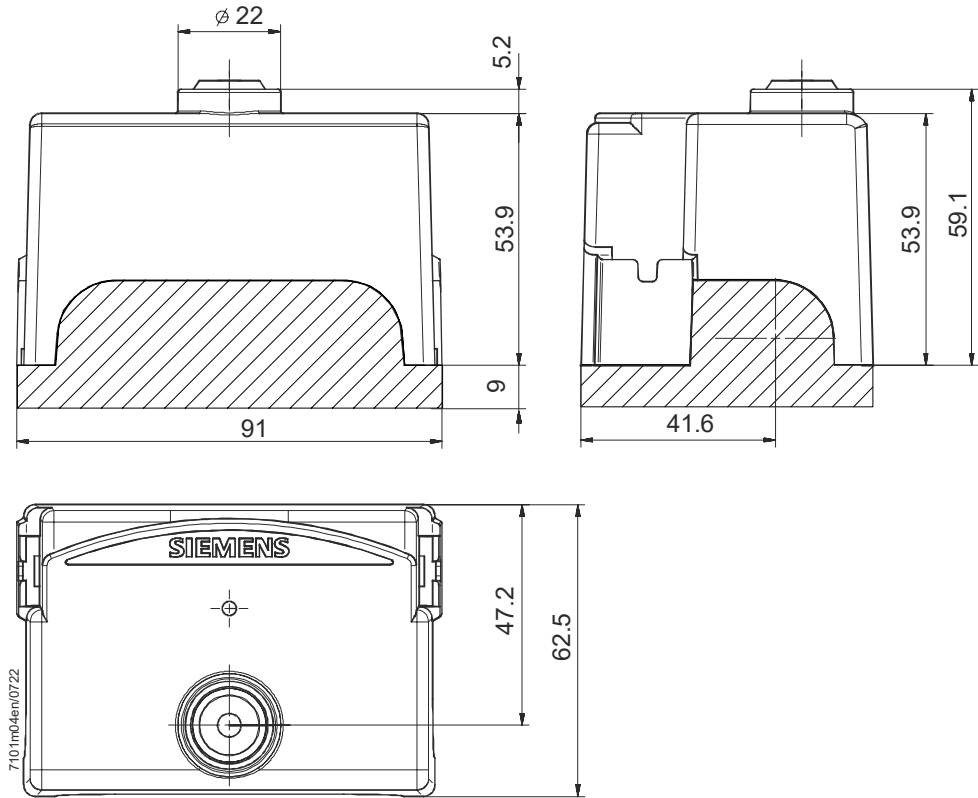
Legend

| | |
|---|--|
| AGK25 | PTC resistor |
| AL | Error message (alarm) |
| Vx | Fuel valve |
| CPI | Closed Position Indicator |
| DBRx | Wire link |
| DW | Pressure switch valve proving |
| EK | Lockout reset button (internal) |
| EK2 | Remote lockout reset button |
| FS | Flame signal |
| FSV | Flame signal amplifier |
| GP | Gas pressure switch |
| H | Main switch |
| HS | Auxiliary contactor, relay |
| ION | Ionization probe |
| K1...4 | Internal relays |
| KL | Low-fire |
| LK | Air damper |
| LKP | Air damper position |
| LP | Air pressure switch |
| LR | Load controller |
| M | Fan motor |
| MS | Synchronous motor |
| NL | High-fire |
| NT | Power supply |
| QRA | UV flame detector |
| QRC | Blue-flame detector (bl = blue, br = brown, sw = black) |
| R | Control thermostat/pressurestat |
| RV | Gas regulation damper |
| SA | Actuator SQN |
| SB | Safety limiter |
| Si | External pre-fuse |
| STB | Safety limit thermostat |
| t | Time |
| W | Limit thermostat/pressure switch |
| Z | Ignition transformer |
| ZV | Extra valve |
| A | Start command (switching on by control thermostat or pressurestat) |
| B-B' | Interval for establishment of flame |
| C | Operating position of burner reached |
| C-D | Burner operation (generation of heat) |
| D | Controlled shutdown by control thermostat or pressurestat <ul style="list-style-type: none"> • Burner will immediately be shut down • Burner control will immediately be ready for new startup |
| I | Cam I actuator |
| t1 | Prepurge time |
| t1' | Purge time |
| t3 | Preignition time |
| t3n | Postignition time |
| t4 | Interval between ignition OFF and release of fuel valve V2 |
| t10 | Specified time for air pressure signal |
| t11 | Programmed opening time for actuator |
| t12 | Programmed closing time for actuator |
| t22 | Safety time |
| TSA | Ignition safety time |
| tw | Waiting time |
|  | Input signal / output signal 1 (ON) |
|  | Input signal / output signal 0 (OFF) |
|  | Input permissible signal 1 (ON) or 0 (OFF) |

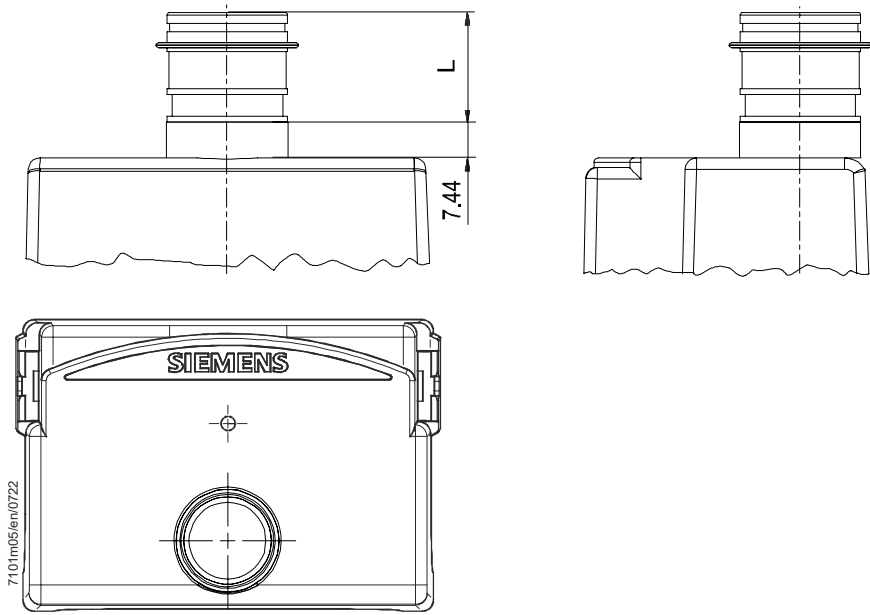
Dimensions in mm

LME


Plug-in base AGK11...



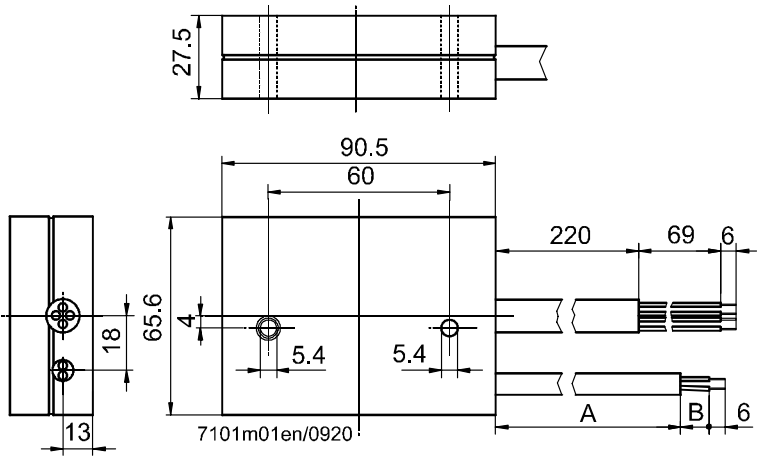
LME with extension of
lockout reset button
AGK20



| Product no. | Length (L) in mm |
|-------------|------------------|
| AGK20.19 | 19 |
| AGK20.43 | 43 |
| AGK20.55 | 55 |

Dimensions in mm

Ancillary unit
AGQ3.xA27



| Product no. | Dimensions | |
|-------------|------------|----|
| | A | B |
| AGQ3.1A27 | 500 | 19 |
| AGQ3.2A27 | 300 | 34 |