



Burner Controls

LGB...

Burner controls for the supervision, startup and control of 1- or 2-stage gas burners.

As well as for gas burners of small to medium capacity (typically up to 350 kW), with or without fan in intermittent operation.

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

Use, features

Use

The LGBs are used for the startup and supervision of 1-stage or 2-stage gas burners or gas burners in intermittent operation.

Depending on the type of burner control used, the flame is supervised either by an ionization probe, a blue-flame detector QRC1 for forced draft gas burners, or a UV flame detector QRA (with ancillary unit AGQ1.xA27).

Using the appropriate adapter, the LGB can replace the predecessor types LFI7 and LFM1 in terms of function (refer to *Replacement types* under *Ordering*).

- Applications in accordance with EN 676: Automatic forced draft burners for gaseous fuels
- Type-tested in accordance with EN 298: 1994-02 or EN 298: 1993

Use, features (continued)

General features	• Undervoltage detection • Air pressure supervision with function check of the air pressure switch during startup and operation • Electrical remote reset facility
Undervoltage detection	In the event that the mains voltage drops below about AC 165 V, an electronic circuit ensures that the gas burner control will prevent burner startup or – without releasing fuel – lockout will be initiated.
Special features	LGB41 for use with atmospheric gas burners.



Note!
Do not use for new designs.



Note!
The following burner controls can be used for new designs:

- LME1
- LME2
- LME3
- LME4

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 performing any wiring changes in the connection area of the LGB, completely isolate the plant from the mains supply (all-polar disconnection). Ensure that the plant cannot be inadvertently switched on again and that it is indeed dead. If not disconnected, there is a risk of electric shock hazard
- Ensure protection against electric shock hazard by providing adequate protection for the burner control's connection terminals. If not observed, there will be 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 not observed, the safety functions are no longer ensured and there will be a risk of electric shock
- Press the lockout reset button only manually (apply a force of no more than 10 N), without using any tools or pointed objects. If not observed, the safety functions are no longer ensured and there will be 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 not observed, the safety functions are no longer ensured and there will be a risk of electric shock

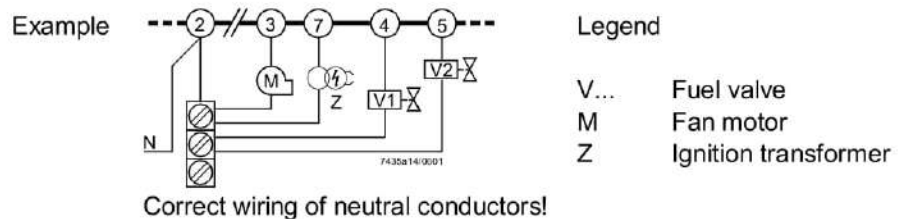


Attention!
Earth the burner in compliance with the relevant regulations; earthing the boiler alone does not suffice!

Mounting notes

Ensure that the relevant national safety regulations are complied with.

- Always run the ignition cables separate from the unit and other cables while observing the greatest possible distance
- Make absolutely certain that live and neutral conductors are correctly connected to terminals 1 and 2 of the burner control; otherwise, no flame signal will be generated
- Install switches, fuses, earthing, etc., in compliance with local regulations
- Ensure that the maximum permissible current load for the connecting terminals is not exceeded, refer to *Technical data*
- The connection diagrams show the burner controls with earthed neutral conductor. In networks with nonearthed neutral conductor and ionization current supervision, terminal 2 must be connected to the earth conductor via an RC unit (type reference 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 230 V / 50 Hz mains voltage produces peak leakage currents of 2.7 mA
- Do not feed external mains voltage to the control outputs of the unit. When testing the devices controlled by the burner control (fuel valves, etc.), the burner control must not be connected
- To isolate the burner control from the mains supply, use an all-polar switch with a contact gap of at least 3 mm
- Secure the earthing lug in the base with a metric screw and a lockwasher
- Switches, fuses, earthing, etc., must be in compliance with local regulations; primary fuse max. 6.3 A, slow
- Connect the gas pressure switch and other controller (whose contacts must be closed from startup to controlled shutdown) in series with control thermostat or pressurestat (R) and limit thermostat or temperature limiter (W)
- In the case of burners with no fan, the AGK25 must be connected to terminal 3 as a burden, or else the burner cannot reliably start
- For safety reasons, feed the neutral conductor to the neutral distributor in the plug-in base, or to terminal 2. Connect the burner components (fan, ignition transformer and fuel valves) as represented in the figure 7435a14, to the neutral distributor as shown below. The connection between neutral conductor and terminal 2 is prewired in the base



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 flame detector cables (refer to *Technical data - Flame supervision* and Data sheet/ Flame detector QRA (N7712) or QRC (N7716))
- The ionization probe and the ignition electrode are not protected against electric shock hazard
- Locate the high-voltage 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 flame detection must not exceed 20 m
- Insulation resistance
 - the insulation resistance must be $>50\text{ M}\Omega$ 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.

- The burner (as the counter-electrode) must be correctly earthed, or else no ionization current will flow
- Only for atmospheric burners:
Since the burner bars form the earthed counter-electrode, the burner must be adjusted so that the flame is hot and stable and in firm contact with the burner bars. With pulsating flames or yellow-burning flames resulting from lack of air, a very low or even no ionization current is generated so that the burner enters malfunction

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 ionization probe and flame detector darkened in the case of QRA or QRC1	Lockout at the end of safety time (TSA)
b)	Burner operation with simulated loss of flame. For that purpose, cut off the gas supply (e.g. disconnect the fuel valve while ensuring protection against electric shock hazard)	Immediate lockout
c)	Burner operation with simulated air pressure failure (not with atmospheric burners)	Immediate lockout