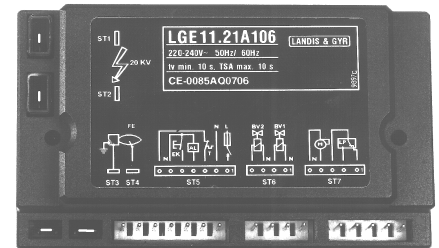




Gas Burner Controls

with integrated electronic ignition
with or without fan

LGE...



Burner controls with integrated electronic ignition for startup, control and supervision of atmospheric gas burners in intermittent operation, with or without auxiliary fan.

The burner controls are tested in accordance with EN 298 and CE certified on the basis of the guidelines on gas consumer devices and electromagnetic compatibility.

Use

The typical application field includes gas heating boilers with or without domestic hot water heating, warm air heaters, dark radiators, etc.

according to standards

LGE10...

until 70 kW DIN EN297 (11.94)
until 300 kW DIN EN656 (07.92/draft)

LGE11...

until 70 kW pr EN483 (10.95)

It is possible to control one or two fuel valves as well as one fan.

In case of LGE11... the fan is monitored by means of an air pressure monitor.

Flame supervision takes place by means of an ionization current detector electrode.

Type Summary

LGE1 0 . 1 1 A 0 ...

Version number

Pre-purge / waiting time

0: > 1,5 s

1: > 10 s

2: > 20 s

3: > 30 s

Ignition safety time (TSA)

1: TSA ≤ 10 s

3: TSA ≤ 3 s

5: TSA ≤ 5 s

Control outputs for gas valves

1: one control output

2: two control outputs

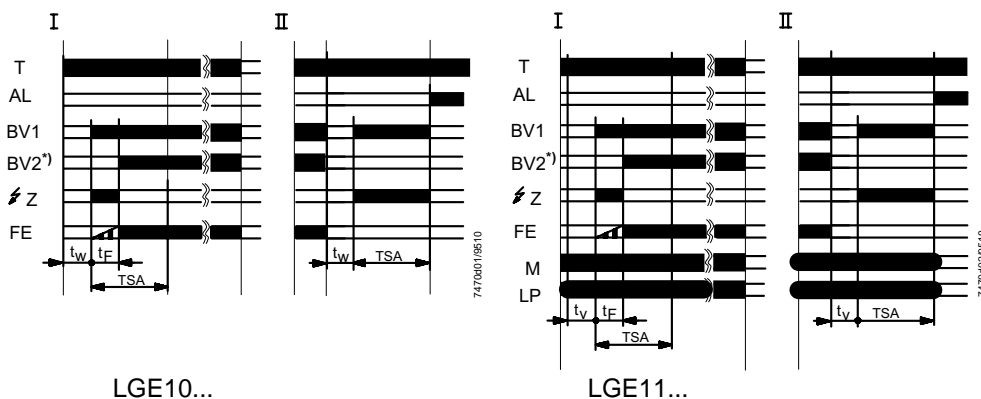
Fan

0: without fan / air pressure monitor

1: with fan / air pressure monitor

Ordering	When ordering, please give type reference according to "Type summary".
Functions	The sequence diagrams below explain the program sequence.
Preconditions for burner startup / operation	<ul style="list-style-type: none"> – Voltage supply within the tolerance band – Burner control reset – Control thermostat / thermal reset limit thermostat closed – Correct flame signal – Correct air pressure signal (with LGE11...) <p>If one of the required input signals is missing, the burner control interrupts the program sequence and remains in start prevention mode until all preconditions for burner startup have been fulfilled.</p>
Control program under fault conditions	<p>In case of fault, the gas valves and the ignition are always switched off immediately. Lock-outs are indicated by an external fault signaling lamp (alarm).</p> <p>LGE... permits lock-out indication and reset even if the control thermostat is open. In case of extraneous light during the waiting or pre-purge time, the burner does not start.</p> <p>A restart takes place after a loss of flame or not correct air pressure signal during operation.</p>
Lock-out	In case the burner does not ignite, when no flame signal is present after the "Ignition safety time" has expired.
Reset	After a lock-out, LGE... must be reset manually with the external reset button. This may take place at the earliest 3 s after interlocking, as otherwise the reset will not be correct!
Flame supervision	Flame supervision takes place by means of an ionization current detector electrode. The direct current flowing when a flame is present (ionization current) produces the flame signal which is delivered to the input of the flame signal amplifier. This amplifier is designed such that it reacts only to the DC component of the flame signal. This ensures that a short-circuit between detector electrode and earth cannot simulate a flame signal.
Reversed polarity protection	Phase and neutral must be connected correctly. In case these are interchanged, a lock-out takes place after the "Ignition safety time" has expired.

Sequence Diagrams



Legend

- I Normal burner startup, operation and shutdown
- II Operation followed by loss of flame and unsuccessful restart
- Signal must be present
- ▨ Signal may be present
- AL Fault signal (alarm)
- BV... Fuel valves
- FE Sensor electrode for gas flame
- LP Air pressure switch
- M Fan motor
- T Control thermostat
- t_F Internal between release BV1 and flame establishment (always less than TSA)
- TSA Ignition safety time
- t_v Pre-purge time during burner startup
- t_w Waiting time
- Z High-voltage ignition
- *) If present

Technical Data

Burner control

Mains voltage	AC 220/240 V +10 %/-15 %
Mains frequency	50 / 60 Hz
Power consumption	
– Startup	12 VA max.
– Operation	9 VA max.
Degree of protection according to IEC 529	IP00
Mandatory after mounting	IP40 min.
Permissible ambient temperature:	
– Operation	-20 °C...+60 °C
– Transport an storage	-30 °C...+70 °C
Relative humidity	95 %/ 40 °C max. no operation permissible in case of condensation
Permissible load on terminals:	
– Control thermostat	2 A max., $\cos\phi > 0.4$
– BV1, BV2	each 0.5 A max., $\cos\phi > 0.4$
– Fan	1 A max., $\cos\phi > 0.4$
– Alarm	0.5 A max., $\cos\phi = 1$

Plug-and-socket system:

Term. 1..4: Quick connect. according to DIN46247	
– Terminals 1, 2	2.8 x 0.5
– Terminal 3	4.8 x 0.8
– Terminal 4	6.3 x 0.8
Terminals 5...7:	
– Recomm. Terminal Molex series 3001 (socket)	
– On request Plug-and-socket system with coding and locking	

Unit fusing:

– Externally	T6.3H250 V min.
– Internally	F3, 15H250 V

Mounting position

optional

Weight 190 g

Identification code acc. to EN 298 B M C L X N

Flame supervision

Reaction time to loss of flame	< 1 s
Switching threshold (limit values):	
– Switching on	1.5 μ A
– Switching off	0.5 μ A
Max. short-circuit current	< AC 200 μ A
Max. parasitic capacitance of the detector electrode	≤ 1 nF

Required insulation resistance of the detector electrode and cable against earthed burner parts > 50 M Ω

Lay detector cable separately and protect it against condensation!

Ignition

Peak voltage	20 kV (in case of idle running) 10 kV (in case of load 70 pF)
Spark rep. frequency	25 Hz (in case of 230 V)
Ignition cable length	2 m max.

Spark gap	2...4 mm
Power consumption	2.5 VA
Energy / ignition impulse	1.5 mJ

Lay ignition cable separately!

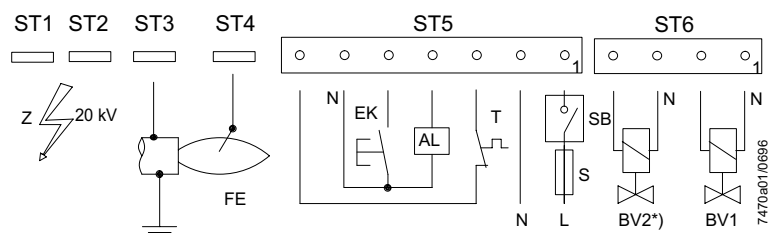
Times

Pre-purge time t_v (with LGE11...) min. 1.5s/10s/20s/30s
Waiting time t_w (with LGE10...) min. 1.5s/10s/20s/30s

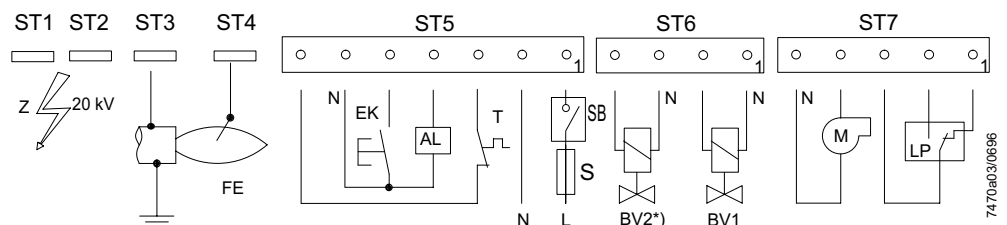
Ignition safety time TSA max. 3 s/ 5 s/ 10 s

Connection Diagram

LGE10...



LGE11...

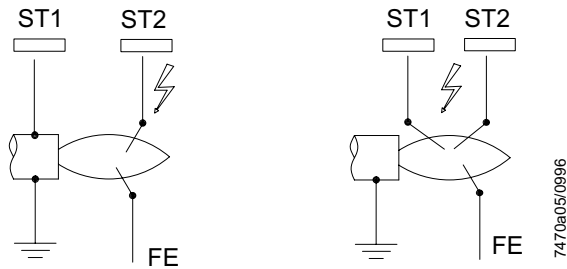


Legend

AL	Fault signal (alarm)	N	Neutral
BV...	Fuel valves	S	Fuse
EK	Reset button	SB	Safety limiter
FE	Sensor electrode	ST...	Terminals
L	Phase	T	Control thermostat
LP	Air pressure switch	Z	Ignition (see "Wiring/Ignition")
M	Fan motor	*)	if available

Wiring Ignition

Depending on the type of connection, the integrated ignition module permits single- or double-pole ignition.



Single-pole ignition

Double-pole ignition

Note

With single-pole ignition, ST1 must be connected to the burner head (burner chassis)!

Warning Notes

In the geographical areas where DIN standards are in use, the installation must be in compliance with VDE requirements; this concerns particularly the standards DIN/ VDE 0100, 0550 and 0722 !

The electrical wiring within the gas appliances must be made in accordance with national and local regulations !

LGE... are safety devices. It is therefore not permitted to interfere with, modify or open the units !

Check wiring carefully before putting the unit into operation !

LGE... must be completely isolated from the mains before performing any work on it.

Check all safety functions when putting the unit into operation or after replacing any fuses !

Ensure protection against electric shock on the unit and on all electrical connections by appropriate mounting !

Neither in operation nor during maintenance work may condensation water drip onto the burner control !

Electromagnetic emissions must be checked from an application point of view!

Dimensions

Dimensions in mm

