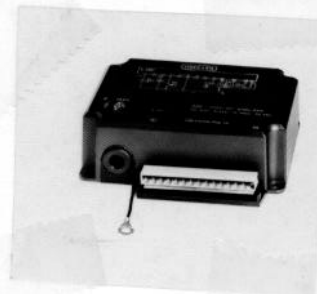


Gas Burner Controls with integrated electronic Ignition

LGC...



FM739



Gas burner controls with integrated electronic ignition for the ignition and supervision of flames from small natural draught burners of up to approx. 60 kW nominal output.

The flame supervision is carried out by an ionization current detector electrode.

The model is suitable for any kind of mounting below the boiler covering.

The LGC...-type gas burner control operates safely even at abnormally low supply voltages which are below the specified tolerance limit.

Application

Gas burner controls with integrated electronic ignition are devices consisting of a flame detector and a control unit. They ignite and supervise the flames of natural draught burners.

Burners having LGC...- systems do not need the pilot flame (low, continuously burning flame which serves to ignite the main flame). For automatic operation an electric ignition device is thus necessary.

The gas burner controls of the LGC21... series are designed for mounting on to gas boilers (floor or wall models), gas water heaters, infrared radiators and other modern gas heating units.

For various reasons, condensing boilers can only be automated by using LGC...- units.

The applications of gas burner controls with integrated electronic ignition are limited to small burner outputs of up to approx. 60 kW.

However, this range of output suffices completely for providing heat and hot water to apartments, single-family houses and small multi-family houses.

Summary of Types

Type Reference	LGC21.011A27	LGC21.051A27
Waiting time t_w	≤ 2 s	≤ 2 s
Safety time t_s	≤ 10 s	≤ 5 s

Design Features

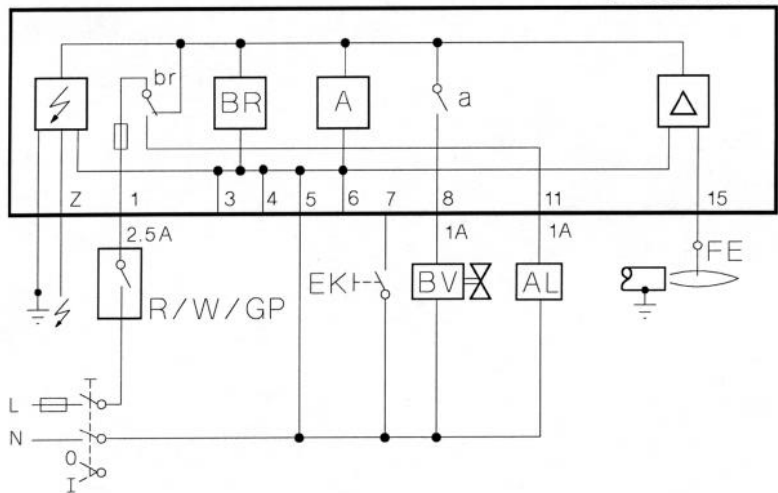
The gas burner controls type LGC... are designed for mounting into gas boilers. The simple construction and the plug-in electrical connections permit the burner manufacturers to mount them on very easily.

The place and position of mounting can be chosen at will, since the resetting (after a burner failure) is done via a separately mounted push contact. This means that the operation of the LGC-units is not influenced in any way.

A single pc-board carries all the components and also the electrical pin contacts. These can be connected with plug-in block terminals of the commercially available type (e.g. Phoenix).

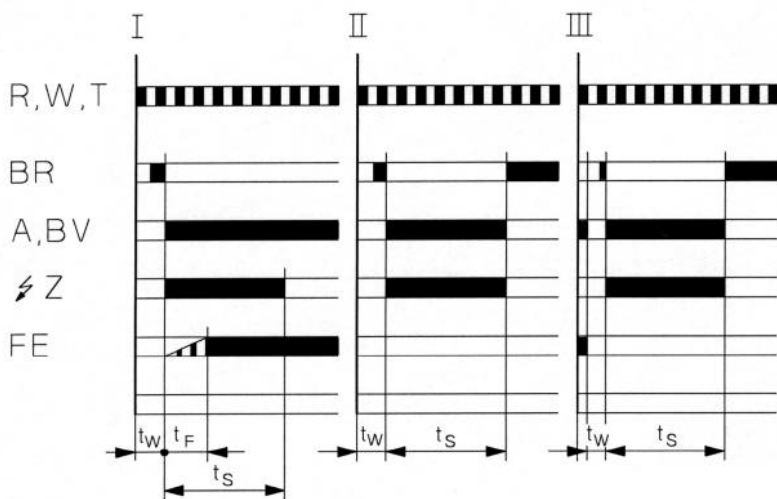
The aforementioned pc-board is built into a plastic housing to protect it from dirt deposits and mechanical damage. The housing also ensures the necessary insulating protection against handling and creep currents on the mounting surface.

LGC21.011



7623A01

Function Diagram



7623D01

Legend:

- A, a Control block for gas valve
- AL Signal lamp
- BR, br Control block for alarm functions
- BV Gas valve
- EK Reset button, to be pressed after lock-out
- FE Detector electrode for gas flame (flame signal)
- GP Gas pressure switch
- L Phase wire
- N Neutral wire
- R Control thermostat in gas boiler
- T Room thermostat
- t_f Interval between release of BV and establishment of flame (always shorter than t_s)
- t_s Safety time, i.e. interval for establishment of flame
- t_w Waiting time during start of burner = 2 s for self-test of LGC... gas burner control
- W Thermostat in gas boiler
- Z High voltage ignition
- I Normal burner start
- II Unsuccessful start attempt of burner without establishment of flame
- III Burner operation followed by loss of flame and unsuccessful restart attempt

Protection in Case of Fault Condition

The gas burner control LGC... with integrated electronic ignition is designed to comply with the standards for burner controls, e.g. DIN 4788. The following safety features are included:

- Before each start-up, there is a functional self-test of the flame supervisory circuit and the safety devices for fault conditions. This test causes the switch-on command to the burner to be delayed by time of up to 2 seconds. If faults are detected, either the start-up is inhibited or a fault condition is initiated.
- Since the flame detector operates on the ionisation principle, a circuit could be selected which perceives an incorrectly poled mains supply connection and thus indicates a fault condition after each start-up attempt.
- A fault condition can only be reset by the manual actuation of an electrical push contact.
- The LGC...type burner controls operate safely even at abnormally low supply voltages which are below the specified tolerance limit. This feature is important in the case of faults in the mains supply having voltage deviations resulting in voltages below 187 V.
- The gas burner control LGC... is provided with a fine fuse, accessible from the top, to protect the electrical components, the relay contacts, etc. against external short-circuits. The special fuse holder, which can be withdrawn, also contains a reserve fuse.

Measures to take in Case of Faults

When replacing a fuse, the specified nominal current and the time lag must be taken into consideration. After each fuse replacement, a function control must be carried out: Switch-on thermostat or controller. Verify if the lock-out warning lamp flashes shortly before gas is emitted. After an unsuccessful burner start followed by lock-out, lock-out resetting and restart must only be made after **15 s** (for preventing deflagration).

Instructions for Mounting, Electrical Installation and Service

The mounting position can be chosen at will. However, care must be taken that at the place of mounting the permissible ambient temperature is not exceeded and that no condensate can flow over the gas burner control during operation or service.

The electrical wiring inside the gas boiler must comply with the national and local regulations. We also recommend that the LGC...units be connected to a single, non-subdivided, terminal block. This will simplify service work and exclude any errors when reconnecting the wires to the gas burner control.

Since the cable to the detector electrode must be very well insulated against earth (see «Technical Data»), this cable and the electrode itself must be protected against condensate and dew.

An electrical ignition spark produces high frequency energy which can cause radio and television interference. The high voltage cable leading to the ignition electrode acts as a transmission antenna.

The gas burner control LGC... therefore has an appropriate filtering device which prevents the high frequency from the ignition cable from reaching the other connections. This complies with the international radio interference protection regulations.

Because the high frequency energy spreads capacitively and inductively- i.e. not conductor dependent- care must be taken when laying the cables.

The ignition cable must be led to the ignition electrode via the shortest possible path, **without loops**.

It must never be laid parallel or too close to other electrical cables, or else the filtering effect of the gas burner control would be lost (see instructions in Data Sheet 7621, Electronic Ignition TQG11...).

Technical Data

Mains supply	AC 230 V ±15%
Mains frequency	50...60 Hz ±6%
Power consumption	< 6 VA
Permissible burner output	GB: ≤ 60 kW D: 120 kW
Special Features	Controlled directly by the mains network, i.e. a mains isolator switches the burner on and off
Remote resetting	Electrical push-button
Number of stages (gas valve connections)	1
Flame failure	Start repetition is followed by a lock-out if restart attempt is unsuccessful

Safety time

The data given under «Summary of Types» are valid also in the case of extreme mains supply voltages and ambient temperatures. Under extreme conditions, however, the times given in the table can become halved.

Radio interference protection

According to VDE 0871 part 2 and VDE 0875 part 1, pertaining to the electronics built into the gas burner control. For further data, see «Mounting Instructions».

- Permissible current load of the electric connections: see «Connection Diagrams».

Protection standard of housing

IP30, i.e. suitable for mounting in gas boilers, the housing of which guarantee a high degree of protection.

Flame detector

Detector electrode (not included in shipment)
Required direct current > 4 µA
(switching threshold) ≤ 2 µA
Short-circuit current limited for safety reasons.

Required insulation resistance of detector electrode and cable against housing min. 50 MΩ

Reaction time with loss of flame ≤ 1 s

Electronic ignition

Output voltage at separate high voltage connection,
Maximum voltage 14 kV
Output current (peak value) 200 mA
Spark repetition frequency 50 Hz
Energy 6 mJ/spark
or 300 mJ/s
Spark path ≤ 3 mm
Length of ignition cable max. 60 cm
Period of operation 50%; technical devices permit a longer operating time without damage

Test standards EN298

Permissible ambient temperature
- Storage and transport -30...+70°C
- Operation -10...+60°C

Mounting position optional

Weight 0,35 kg

Identification code to EN 298 A M C L X N

Type of the plug (Fa. Phoenix) MSTB2,5/15-ST-5,08

Dimensions

Dimensions in mm

