



ISO 9001



Gas Burner Controls

LGD1...



Gas burner controls for the startup, control and supervision of atmospheric gas burners, without fan assistance, in intermittent operation.

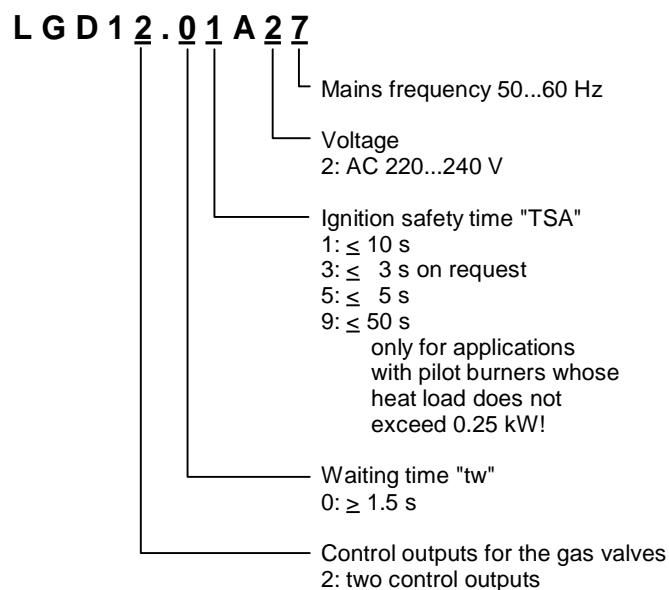
The LGD1... and this data sheet are intended for use by OEMs which integrate the burner controls in their products.

Use

Gas-fired heating boilers with or without d.h.w. heating, direct-fired air heaters, and dark radiators.

It is possible to control one or two fuel valves and one external ignition device. The flame is supervised by means of an ionization current detector electrode.

Type summary



Warning notes



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

It is not permitted to open, interfere with or modify the unit!

- Before performing any wiring changes in the connection area of the LGD1..., the burner control must be completely isolated from the mains supply!
- Ensure protection against electrical shock hazard on the unit itself and on all electrical connections through appropriate mounting!
- Check the wiring and all safety functions!
- Always press the reset button manually without using any tools or pointed objects!
- To protect the burner control, it is recommended to use an external fuse!

Mounting notes

- Observe the relevant national safety regulations!
- Locate and adjust the ignition and detector electrodes such that the ignition spark cannot arc over to the detector electrode!
→ Risk of electric overloads!

Installation notes

- Installation and commissioning work may only be carried out by qualified staff!
- Observe the permissible length and shielding of the detector cables!
→ Refer to «Technical data»
- Always run the ignition cables separate from the unit and other cables while observing the greatest possible distances!

Ordering

LGD1...

When ordering, please give the complete type reference.

Accessories

Plug-in base **AGK11**

Cable gland holder **AGK65**

Cable holder **AGK66**



Cable holder **AGK67...**

For a description of the AGK11, AGK65, AGK66 and AGK67..., refer to data sheet 7201.

Test unit, with signal lamp and manual / automatic function **KF8890**

RC unit, for ionization current supervision in networks with a non-earthed neutral
ARC 4 668 9066 0

Technical data

LGD1...	Mains voltage	AC 220 V +10 %...240 V -15 %	Power consumption	max. 10 VA
	Mains frequency	AC 220...240 V 50 Hz ±5 % AC 220 V 60 Hz ±5 %	Perm. terminal rating	
	Unit fuse		- Terminal 1 «R / W / GP / SB»	max. 2 A
	- Externally	min. T6,3H250V	- Terminals 4 and 5 «BV...»	max. 0.5 A each
	- Internally	T4H250V		cos φ > 0.4
			- Terminal 7 «Z»	max. 0.5 A; cos φ > 0.4
			- Terminal 10 «AL»	max. 0.5 A; cos φ = 1.0
			Degree of protection to IEC 529	IP 40
	Environmental conditions			
	Transport	IEC 721-3-2	Mounting orientation	optional
	Climatic conditions	class 2K2	Weight	approx. 140 gr
	Temperature range	-20...+70 °C		
	Humidity	< 85 % r.h.	Identification code to EN 298	A T C L X N
	Mechanical conditions	class 2M2		
	Operation	IEC 721-3-3	CE conformity	
Climatic conditions	class 3K5	According to the directives of the European Union		
Temperature range	0...+60 °C	Electromagnetic compatibility EMC		
Humidity	< 60 % r.h.	89 / 336 EEC incl. 92 / 31 EEC		
 Condensation, formation of ice and ingress of water are not permitted!		Directive for gas appliances	90 / 396 EEC	
Flame supervision	Safety time operation «TSE max.»	< 1 s	Min. switching threshold	
			→Limit value	
	Max. ionization current in operation	< 9 µA	- Switching on	0.9 µA
			- Switching off	0.3 µA
	Required ionization resistance of detector electrode and cable against earthed burner components	> 50 MΩ	Max. short-circuit current (AC)	< 200 µA
	Max. capacitance of detector cable and detector electrode	≤ 1 nF	Max. perm. cable length	3 m at 100 pF/m
Times	Waiting time «tw»	min. 1.5 s	Ignition delay time «tzv»	2...3 s
			(from establishment of flame to max. «TSA» at an	
	Ignition safety time «TSAmax»	5 s/ 10 s/ 50 s 3 s (on request)	ionization current of 1 µA)	
Function	For the program sequence, refer to the «Sequence diagram».			
Control program in the event of fault	<p>In the event of any type of fault, the gas valves will immediately be shut down and the ignition switched off.</p> <p>Lockouts are indicated by an integrated and external fault signal lamp «Alarm».</p> <p>The LGD1... makes possible lockout indication and reset only if the control thermostat is closed.</p> <p>In the case of extraneous light during the waiting phase, the burner will not be started up. A restart will take place after loss of flame during operation.</p>			
Lockout	Lockout will occur if the burner does not ignite if, at the end of «TSA», there is no flame signal.			
Reset	After lockout, the LGD1... must be manually reset with the reset button.			
	 A reset may be made no earlier than 10 seconds after lockout. If this is not observed, the reset will not be made correctly!			

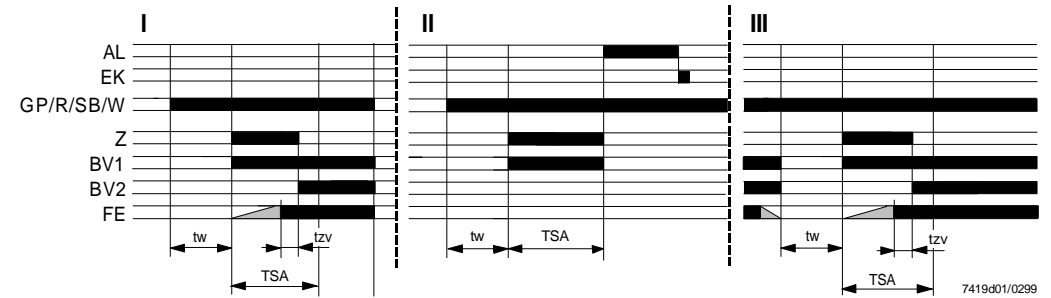
Flame supervision

The flame is supervised by means of an ionization current detector electrode. The d. c. component (ionization current) produced by the flame generates the flame signal which is fed to the input of the flame signal amplifier. The amplifier is designed such that it responds only to the d.c. component of the flame signal. This ensures that a short-circuit between detector electrode and ground cannot simulate a flame signal.

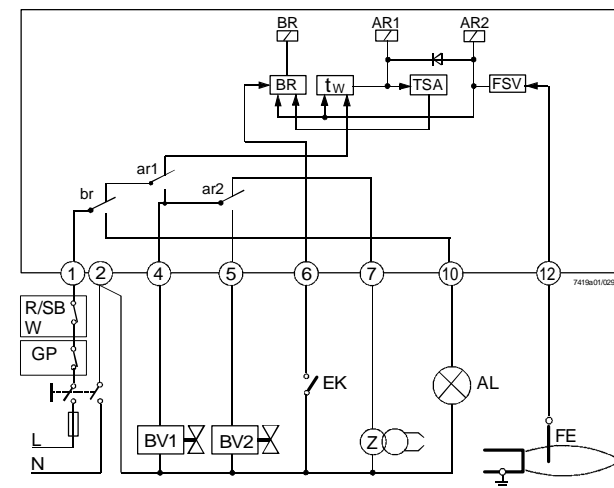
Reserved polarity protection

In the case phase and neutral are interchanged, lockout will occur on completion of «TSA».

Sequence diagram



Connection diagram



Legend

- I Normal burner startup, operation and shutdown
- II No establishment of flame during «TSA»
- III Operation followed by loss of flame and restart

- Signal may be present
- Signal must be present

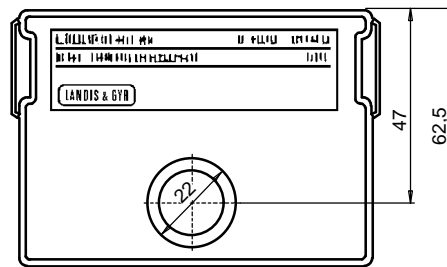
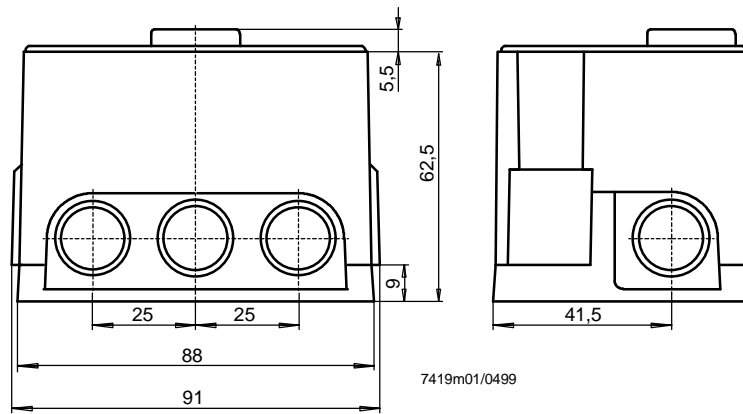
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|-------|--------------------------------------|-----|--------------------------------|
| AL | Fault signal (alarm) | FSV | Flame signal amplifier |
| AR... | Load relay | GP | Gas pressure monitor |
| BR | Lockout relay | R | Control thermostat |
| BV... | Fuel valve | SB | Safety limit thermostat |
| EK | Reset button | W | Thermal reset limit thermostat |
| FE | Detector electrode for the gas flame | Z | Ignition transformer |

- TSA Ignition safety time
- tw Waiting time
- tzv Ignition delay time

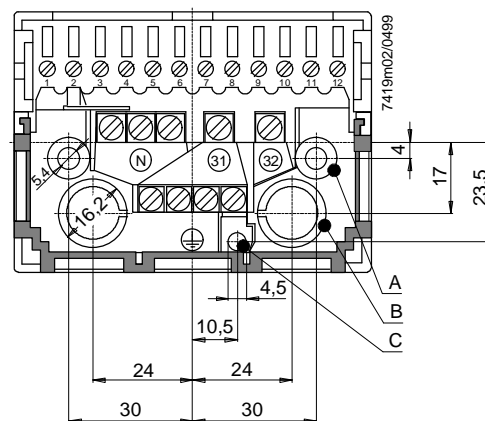
Dimensions

LGD1... with plug-in base and cable gland holder

Dimensions in mm



Plug-in base AGK11



Legend

- Below N Four earth terminals joining in lug «C»
- Hatched Position of the insertable cable gland holder or cable holder
- A Through-holes for the fixing screws
- B Holes for the cable entry from below
- C Earthing lug for earthing the burner, **must be connected to the burner chassis!**
(Using a metric screw with a lockwasher)
- 31, 32 Auxiliary terminals
- N Neutral terminals, connected to the neutral input (terminal 2)!