



LAL...

- For oil atomizing burners of medium to large capacity
- For multistage or modulating burners in intermittent operation
- With or without air pressure supervision for checked air damper control
- Flame supervision
 - with photoresistive detector QRB1/QRB3
 - or blue-flame detector QRC1
 - or photocell detector RAR9

Use

- For the control and supervision of oil atomization burners
- For burners of medium to high capacity
- For intermittent operation (at least one controlled shutdown every 24 hours)
- Can be universally used with multistage or modulating burners
- Suited for use with stationary air heaters (WLE)

Flame supervision is ensured by means of photoresistive detector QRB1/QRB3, blue flame detector QRC1, or photocell detector RAR9.

LAL1	- Yellow- and blue-flame burners without air pressure supervision
LAL2	- Yellow-flame burners with air pressure supervision
LAL3.25	- For special applications, e.g. burners of incinerator plant (for details, refer to «Type summary» and «Notes»)

Supplementary documentation

Product type	Type of documentation	Documentation number
LOK16 (For burner controls used in connection with burners for continuous operation)	Data Sheet	N7785

Warning notes



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

Do not 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
- Ensure protection against electric shock hazard by providing adequate protection for the burner control's connection terminals
- 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»
- Press the lockout reset button only manually (applying a force of no more than 10 N), without using any tools or pointed objects
- Do not press the lockout reset button on the unit or the remote reset button (input 21) for more than 10 seconds since this will damage the lockout relay in the unit
- 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
- For safety reasons – self-test of the flame supervision circuit, etc. – at least one controlled shutdown must take place every 24 hours

Mounting notes

- Ensure that the relevant safety regulations are complied with
- Connect the earthing lug inside the terminal base to burner ground using a screw with a lockwasher



Note!

In applications involving air heaters (WLE), or in the case of oil burners with a maximum throughput of >30 kW/h, removing wire link **B** is not permitted.

Installation notes

- Always run high-voltage ignition cables separately, with the greatest possible distance to the unit and to other cables
- Live and neutral conductors must not be mixed up
- 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 LAL must be replaced.
- Make certain that the maximum permissible current rating of the connection terminals will not be exceeded
- The insulation on internal wiring which is subjected to the mains voltage must withstand the electrical stress occurring during correct use

Electrical connection of the flame detector

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

- Never run the detector cable together with other cables
 - Line capacitance reduces the magnitude of the flame signal
 - Use a separate cable
- Observe the permissible cable lengths (refer to «Technical data»)

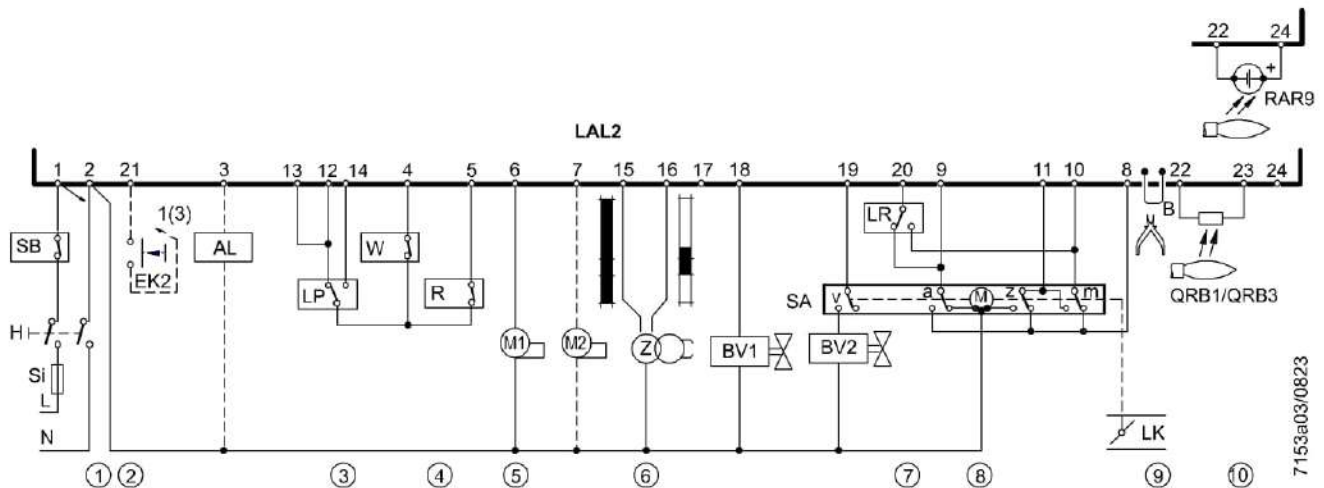
Commissioning notes

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

	Safety check to be carried out	Anticipated response
a)	Burner startup with flame detector darkened	Lockout at the end of safety time (TSA)
b)	Burner startup with flame detector exposed to extraneous light	Lockout after 40 seconds at the latest
c)	With wire strap «B»: Simulation of loss of flame during operation. For that purpose, darken the flame detector during operation and maintain that state	Lockout
d)	Without wire strap «B»: Simulation of loss of flame during operation. For that purpose, darken the flame detector during operation and maintain that state	Repetition followed by lockout at the end of «TSA»
e)	Burner startup with response of air pressure switch	Prevention of startup/lockout during prepurge time
f)	Burner operation with simulated air pressure failure	Immediate lockout

Engineering notes

- Install switches, fuses, earthing, etc., in compliance with local regulations
- Connect valves and other plant components as specified in the burner manufacturer's documentation



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 LAL must be replaced.

- ① Connect safety limit thermostats (manual reset) in the line (e.g. safety limit thermostat «SB»)
- ② Remote reset
When connecting lockout reset button «EK2» between terminals 21 and
 - terminal 3: For remote reset only
 - terminal 1: For remote reset and remote emergency shutdown
- ③ With LAL1: Required switching capacity of
 - switching devices connected between terminals 4 and 5 (refer to «Technical data»)With LAL2 / LAL3: Required switching capacity of
 - switching devices connected between terminal 12 and air pressure switch «LP» (refer to «Technical data»)
 - air pressure switch «LP» (refer to «Technical data»)
- ④ When using series connection, the control contacts of other devices contained in the burner plant must be connected as follows:
 - to terminal 4 or 5 → contacts that must be closed from startup to controlled shutdown → otherwise no startup or shutdown
 - to terminal 12 (not with LAL1) → contacts that must only be closed on startup → otherwise no startup
 - to terminal 14 (not with LAL1) → contacts that must be closed no later than at the beginning of short preignition or long preignition and that must remain closed until controlled shutdown occurs → otherwise lockout
- ⑤ Maximum current draw, refer to «Technical data»
- ⑥ Ignition «Z» connected to terminal 15 → short and long preignition
 -  For use in applications with short preignition, the oil supply must be equipped with two shutoff valves connected in series.

Observe the following:
EN 298:2012, Section 7.101.3.3 *Prepurge time for oil burner control systems and the corresponding application standards.*
- ⑦ Connection of fuel valve «BVx» to terminal 20, refer to «Connection examples»
- ⑧ When using burners without air damper, or with an air damper not controlled and monitored by the LAL, terminal 8 must be connected to terminal 6
- ⑨ Wire link «B» clearly marked on the underside of the LAL
When wire link «B» is fitted, the LAL initiates lockout if loss of flame occurs during operation. For repetition of the startup sequence, wire link «B» on the plug-in section of the LAL must be cut away. Just cutting is not permitted!
 -  **Note!**
In applications involving air heaters (WLE), or in the case of oil burners with a maximum throughput of >30 kW/h, removing wire link **B** is not permitted.
- ⑩ For the permissible lengths and laying of detector cables, refer to «Flame supervision»