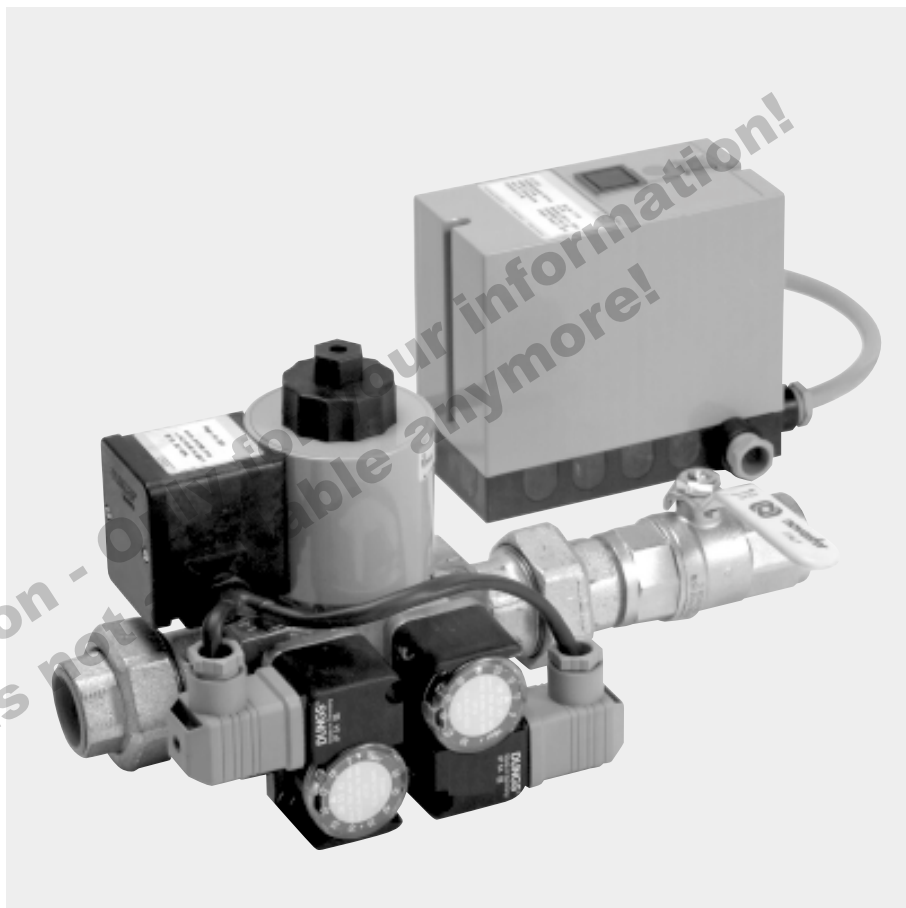


Line control unit LKE 2A

8.06

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Technical description

The LKE 2A line control unit checks the line between the solenoid valve fitting and the gas tapping points for leakages before gas supply to the usage points is released. Moreover, the LKE 2A line control unit protects the system reliably if there is a lack of gas and/or current.

Application

Preferred applications are systems which use a central shut-off fitting (solenoid valve). Here the risk could be that one or several gas tapping points are not shut off, e.g.:

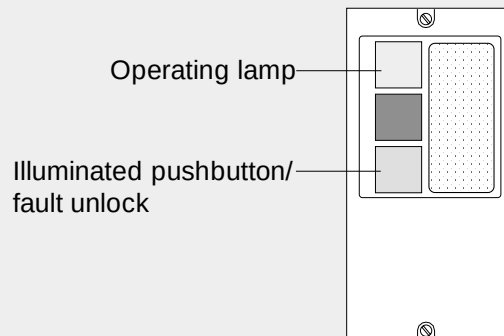
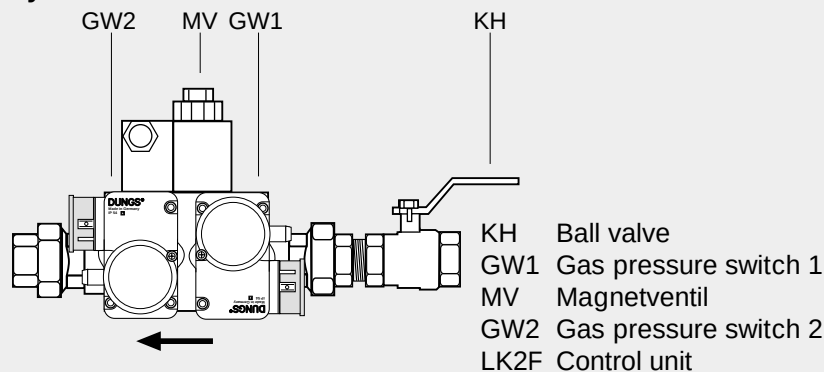
- Gas systems in chemical, physical and school laboratories
- Gas installations in process engineering systems

- Cooking stoves in hotel, restaurant and hospital kitchens

As per DVGW worksheet G 621, UVV casting machines VGB 32 § 12 and DVGW worksheet G 634.

In industrial and commercial gas consuming installations as well as for gas systems in laboratories and classrooms, special safety-related measures must be taken as per SVGW gas guidelines G1, 6.640 and 6.650.

System LKE 2A



System scope

The LKE 2A line control unit consists of the following elements (considered in flow direction):

Ball valve (KH) - gland - pressure switch 1 (GW1) - solenoid valve (MV) - pressure switch 2 (GW2) - gland and LK 2F control unit (LK 2F).

The units are mounted ready to operate, sealed and checked for leakage and function.

The unit is cabled and wired ready for attaching plugs. Connection cable length: 1 m.

Functional description

The actual test section is defined by the central shut-off fitting (solenoid) and shut-off facility on the individual gas tapping points.

Leakage check

The control unit checks the test path for leakages using the solenoid valve and pressure switch 2. After the test has been completed successfully, the control unit finally releases gas supply.

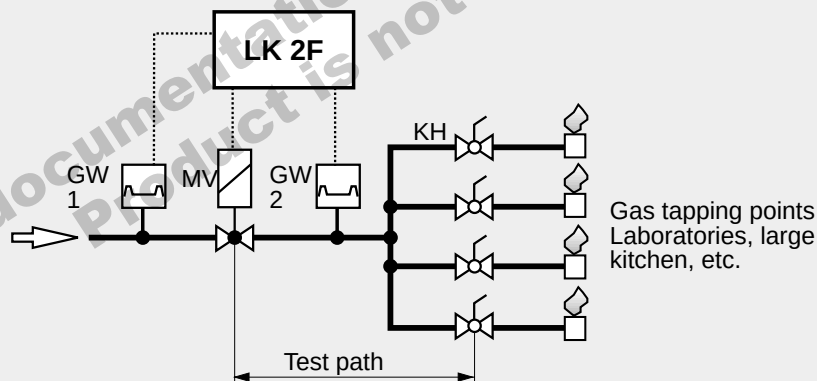
Gas lacking fuse

Pressure switch 1 monitors the gas supply pressure and interrupts the control circuit if pressure drops below the reference value (gas lacking situation). Once the gas supply pressure has reached the reference value, the pressure switch closes the control circuit and starts normal switch-on procedure by means of a leakage check.

Current lack fuse

In case of current failure or impermissible voltage fluctuations, the solenoid valve is closed and gas supply is interrupted. If power supply is ensured again, the switch-on procedure is started and a leakage check is performed automatically.

Block diagram



Program sequence

A program switching mechanism controls the test program. If voltage is applied by the main switch (key switch), the program sequence starts as described below:

1. The solenoid valve opens for approx. 2 s and gas pressure is applied to the test path. This switching procedure is repeated for max. ten times at intervals of one minute. If the required pressure in the test path is not reached, the control unit goes to fault locking position. The solenoid valve remains closed and the gas

supply is not released. The fault is displayed on the control unit. It is possible to display the fault by remote alarm.

2. If the requested pressure is reached in the test path, a feedback is sent from pressure switch 2 which releases the program run.

3. After the following test period of approx. 60 s, the requested minimum pressure in the test path must be kept. During this phase, no gas may be used.

4. If the pressure set on pressure switch 2 is still the same on expiry of the test period, the control unit releases the solenoid valve. The yellow operating lamp (1) which lights up at the same time indicates that the system is ready to operate.

5. If the pressure drops below the minimum pressure during the test period, gas switch 2 switches back. The control unit goes to fault locking position.

The solenoid valve remains closed and gas supply is not released. The fault is displayed on the control unit. It is possible to display the fault by remote alarm.

interrupted and the solenoid valve closes. If the supply pressure rises again over the minimum pressure set on pressure switch 1, the control unit restarts the program at item 1.

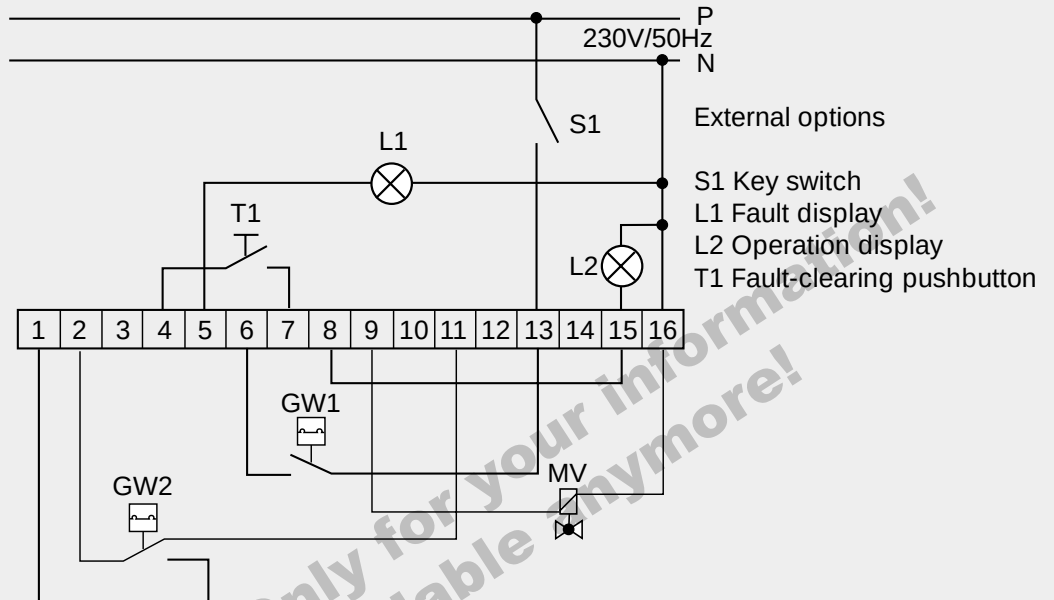
Once the voltage and/or power supply is assured in the required quality, the control unit restarts the program at item 1.

6.If the supply pressure drops below the minimum pressure set on pressure switch 1 during operation (not enough gas), the control circuit is

7.If the supply voltage fluctuates during operation or if power supply fails (no current situation), the solenoid valve automatically closes tightly.

LKE 2A wiring

Options:
Wire LK 2A externally or wired internally



Set switching pressure on pressure switch

Inlet-end pressure switch: GW 1
Set the switching pressure on pressure switch 1 to 50% of the blocking pressure (pressure with tapping points closed).
Factory setting: 10 mbar

Outlet-end pressure switch GW: 2
Set the switching pressure to pressure switch 2 to the value calculated from normal blocking pressure less 2 mbar.
Factory setting: 17 mbar

Fault unlock

If the control unit detects an impermissible pressure drop during the test period in the test path, the program is aborted.
The unit goes to fault locking position and displays it at the same time.
After eliminating the fault reason, you can unlock the line control unit.
Press the red illuminated pushbutton (2) on the control unit or the remote unlock pushbutton (closing device) to release the fault unlock. Then the control unit restarts the test at item 1 of the program run.

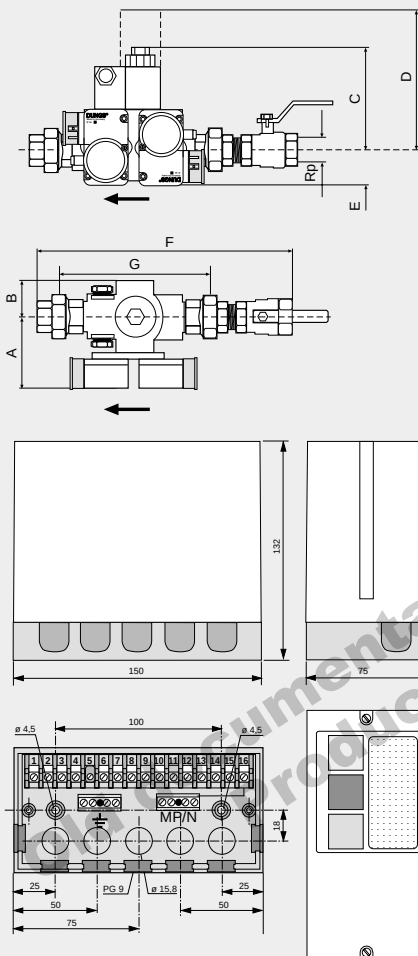
Maintenance and control

The LKE 2A line control unit requires no special maintenance.
We recommend to run a gas consuming device once a month during the test procedure to check pressure switch 2 for correct functioning. Lower the gas pressure until fault switching occurs.
If a fault switch-off cannot be started, check pressure switch 2 and its connections and electrical connection lines.
After successful fault switch-off, start the system as per section "Fault unlock".

Line control unit LKE 2A

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Dimensions [mm]



Specifications

Operating voltage	230 V, 50 Hz +6%
Frequency	50 Hz
Performance rating	max. 5 VA, w/o peripherals
Back-up fuse	max. 6 A slow-blow or 10 A quick-acting
Contact load	max. 4 A switching performance (inductive) max. 1 A for fault signal min. 1 A for pressure switch min. 0.2 A for fault unlock
Switching performance	max. 4 A
Degree of protection	IP 40
Ambient temperature	0°C - 60°C

Type	Rp	Order No.	Dimensions [mm]							Weight [kg]
			A	B	C	D	E	F	G	
LKE 2A	Rp 1/2	229 036	86	35	95	145	30	252	138	3,3
LKE 2A	Rp 3/4	229 037	91	40	100	150	30	287	165	3,8
LKE 2A	Rp 1	229 038	96	45	130	195	30	336	187	4,9
LKE 2A	Rp 1 1/4	229 039	96	45	130	195	30	446	276	6,3
LKE 2A	Rp 1 1/2	229 040	109	58	140	205	45	417	235	7,9
LKE 2A	Rp 2	229 041	116	65	170	260	50	479	275	10,6

We reserve the right to make any changes in the interest of technical progress.



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