GOK

Components • Solutions • Systems



Control technology

CATALOGUE

Automated lab safety system
for **classroom or laboratory**

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All relevant information concerning the automated lab safety system as well as its components is available here:

https://gok.de/en/Automated-lab-safety-system/

On this page, you can access information such as:

- installation and operating manual
- tender texts for technical components
- tender texts for services
- technical specifications

GOK offers a variety of support and services surrounding the installation, maintenance and testing of the system. All details including prices are available here:

https://gok.de/en/Automated-lab-safety-system-type-LCU-300-AG35528

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VAT ID: DE 133017271 | WEEE Reg. No.: DE 78472800 | Batt Reg. no. DE 85959650

Areas of application

Automated lab safety system

Fully automated closed position control with optional leak testing for gas withdrawal points in school and laboratory facilities

Safe gas supply for laboratories in schools and research facilities – standard-compliant, reliable, automated.

Can be used flexibly anywhere – from the classroom to the research lab



Classrooms

Ensures a safe and standard-compliant gas supply in the classroom.



Teacher & student benches

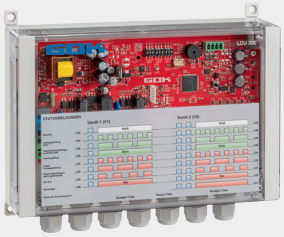
Ensures safe use through the separate monitoring of the withdrawal points for teachers and students.



Research labs

Monitors the gas supply in demanding laboratory environments.

Components of the automated lab safety system



Lab control unit type LCU 300 ADWML
page 9



Valves for the automated lab safety system
page 11



Under-glass emergency stop button type GNA – **page 13**



Lab control unit type LCU 300 ADWCL
page 9



Remote control type FB 300 for the auto. lab safety system – **page 12**



Valve controller type SCU
page 13

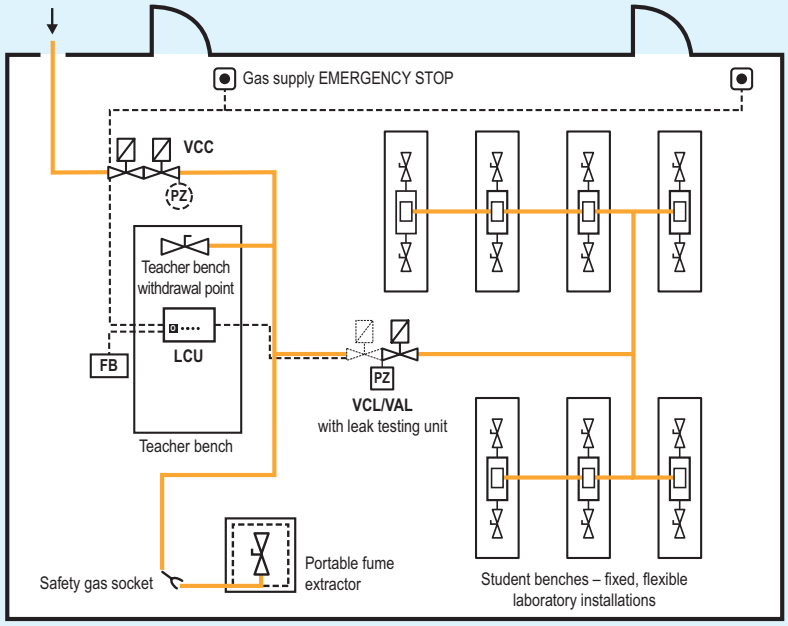
Installation

Classroom

Intermediate shut-off: student bench / fume hood I
Before each use, the lab control unit automatically checks the entire installation at the student benches downstream of the laboratory safety valve (VCL/VAL to ensure the valves are closed and that there is sufficient inlet pressure.
The lab control unit only enables the flow of gas if all withdrawal points are closed, rendering the student benches ready for operation.
In the event of a gas supply failure the gas supply is automatically shut off.

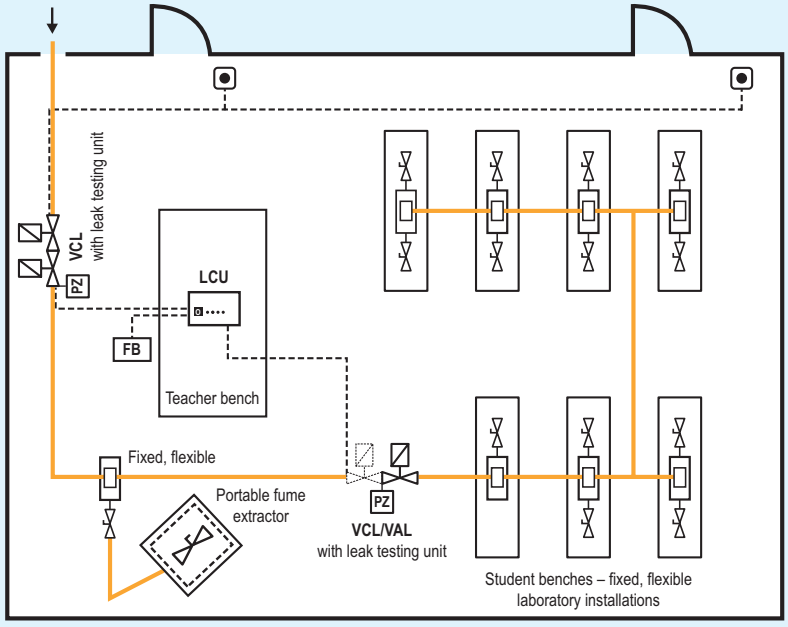
Intermediate shut-off: teacher bench / fume hood II
The central shut-off device VCC on the teacher bench can be operated via the laboratory control system (optionally by remote control).

LCU 300 ADWML/ADWCL
The LCU 300 ADWML or the LCU 300 ADWCL with integrated remote control is equipped with a leak detection system and checks the gas withdrawal points in classrooms with fixed, flexible laboratory installations for leak-tightness every 28 days. This complies with the requirements of DIN 30666.



Example classroom installation
fixed laboratory installation for teachers; fixed, movable laboratory installations for students

Key	
LCU	Lab control unit
FB	Remote control (optional)
VCC	Central shut-off device
VCL/VAL	Laboratory safety valve

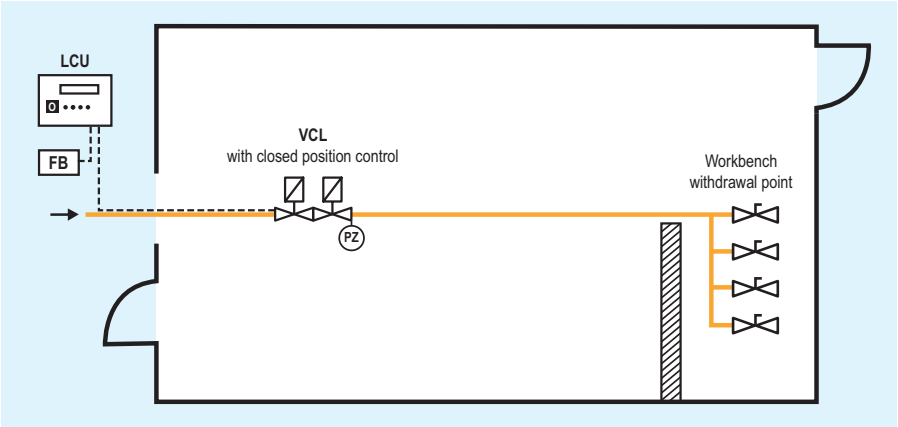


Example classroom installation
fixed, flexible laboratory installations for the teacher; fixed, flexible laboratory installations for students

Key	
LCU	Lab control unit
FB	Remote control (optional)
VCL/VAL	Laboratory safety valve

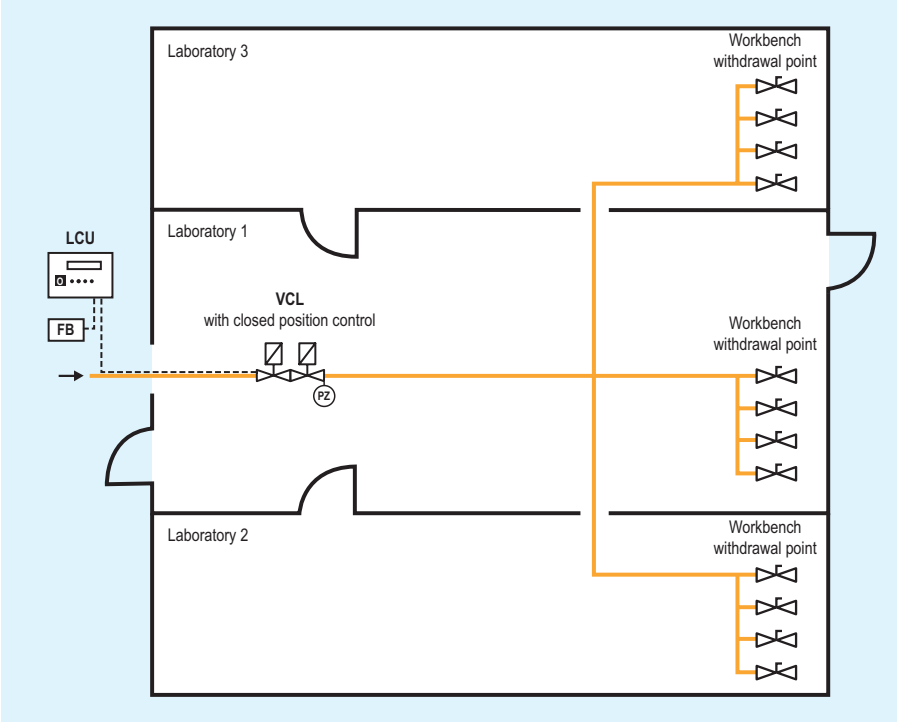
Laboratory

Laboratory with few withdrawal points



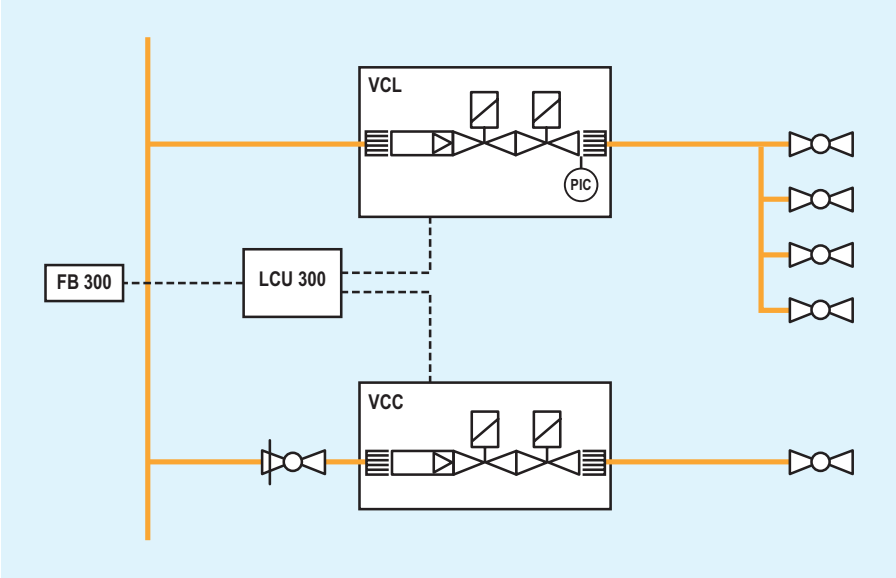
Key	
LCU	Lab control unit
FB	Remote control (optional)
VCL	Laboratory safety valve

Laboratory 1, 2 and 3



Key	
LCU	Lab control unit
FB	Remote control (optional)
VCL	Laboratory safety valve

Installation



Key	
LCU 300	Lab control unit
FB 300	Remote control (optional)
VCL	Laboratory safety valve
VCC	Central shut-off device

Remote control FB 300ADM (surface-mounting plastic housing)

Remote control for external operation of a lab control unit LCU 300 ADWML, featuring a key switch in a Smart Box housing. Controlled via membrane buttons for valve 1 and valve 2; status indication via green/red LEDs (per valve: test in progress, test OK / valve open, test: not OK, low gas pressure); with reset button. Connection to the LCU 300 is made via terminals 20–31 with on-site 12-core cable type LiHH 12 x 0.25 mm^2.



FB 300	
Supply voltage	24-29 VDC supplied by LCU 300
Protection type	IP 54
Lower part of housing	Surface-mounting plastic housing in RAL 7035
Upper part of housing	with membrane keypad
Ambient temperature	0 °C to +60 °C

Design basis

The following table can be used to calculate the total consumption of classrooms/laboratories.

Valves	DN XX	Propane (LPG) m^3/h[1]	Natural gas m^3/h[1]	Max. number of lab burners (approx. 1.1-1.25 kW per burner)[2]	Typical application
VAL 315 R05WL	15	2.5	–	60	School
VAL 315 R05WE	15	–	4.0	35	
VCC/VCL 320 R03W (L)	20	2.5	–	60	
VCC/VCL 320 R03W (E)	20	–	4.0	35	
VCC/VCL 4xx VH05W (L)	15-25	4.5	–	~100 (theoretical)	Laboratory
VCC/VCL 4xx VH05W (E)	15-25	–	7.0	60	

[1] In the case of a pressure loss of 1 mbar at the valve.
[2] Observe additional losses of local piping!
[3] Definition and selection aid for pipe volumes: refer to page 6

Design basis

The system volume is limited to a maximum of 60 litres (105 m piping, nominal size DN 25). The system volume V_P is calculated from the valve volume V_V, added to the volume of the piping V_R for each additional metre L ($V_P = V_V + L \times V_R$). If the piping volume (on-site installation), the inlet pressure range or the type of gas change, the start-up must be performed again by the installer/expert.

Valves	DN	Valve volumes V_V [l]	Piping volumes per metre V_R [l/m]
VCL 3xx / VCC 3xx	15-25	0.05	0.3-0.5
VCL 4xx / VCC 4xx	15-25	0.05	0.3-0.5
VAL 315	15	0.07	0.3

Decision-making aids, volume per metre of piping

Diameter	V/m	3 l correspond to	6 l correspond to
Cu Ø 12 mm	0.08 l	37.0 m	–
Cu Ø 15 mm	0.14 l	21.0 m	42 m
Cu Ø 18 mm	0.20 l	15.0 m	30 m
Cu Ø 22 mm	0.31 l	9.5 m	19 m
Cu Ø 28 mm	0.49 l	6.1 m	12 m

Diameter	V/m	30 l correspond to	60 l correspond to
Cu Ø 18 mm	0.20 l	150.0 m	–
Cu Ø 22 mm	0.31 l	96.7 m	193 m
Cu Ø 28 mm	0.49 l	61.2 m	122 m
Cu Ø 35 mm	0.80 l	37.5 m	75 m

Setting during start-up

In the event of deviating inlet pressures (including brief pressure fluctuations), the settings of the on-site pressure regulator must either be adjusted or an additional pressure regulator must be installed directly upstream of the laboratory safety valve VCL. To ensure problem-free operation, the entire system on the input and output sides must therefore be vented and leak-proof before start-up.

The duration of tests is to be selected on the basis of the existing piping volume

School	DIP 7 OFF	Natural gas switching point	LPG / liquid gas switching point
Small volume, e.g. teacher up to 3 l	DIP 3 / 4 OFF	20 s	20 s
Large volume, e.g. students over 3 l to approx. 6 l	DIP 3 / 4 ON	45 s	45 s

Laboratory	DIP 7 ON	Natural gas switching point	LPG / liquid gas switching point
Small volume – laboratory up to 30 l	DIP 3 / 4 OFF	80 s	80 s
Large volume – laboratory up to 60 l	DIP 3 / 4 ON	120 s	120 s

Function & purpose

Safety, convenience and compliance with applicable standards in one unit

Fully automated gas shut-off

Before each use, the system checks whether the gas withdrawal points in the classroom or laboratory are closed and only enables the gas supply once this has been confirmed.

Reliable protection against gas accumulation and explosions

The safety valve consists of a dual solenoid valve with an integrated pressure sensor and prevents gas leaks. In the event of a fault – such as a gas leak or a drop in pressure – it automatically and reliably shuts off the gas supply.

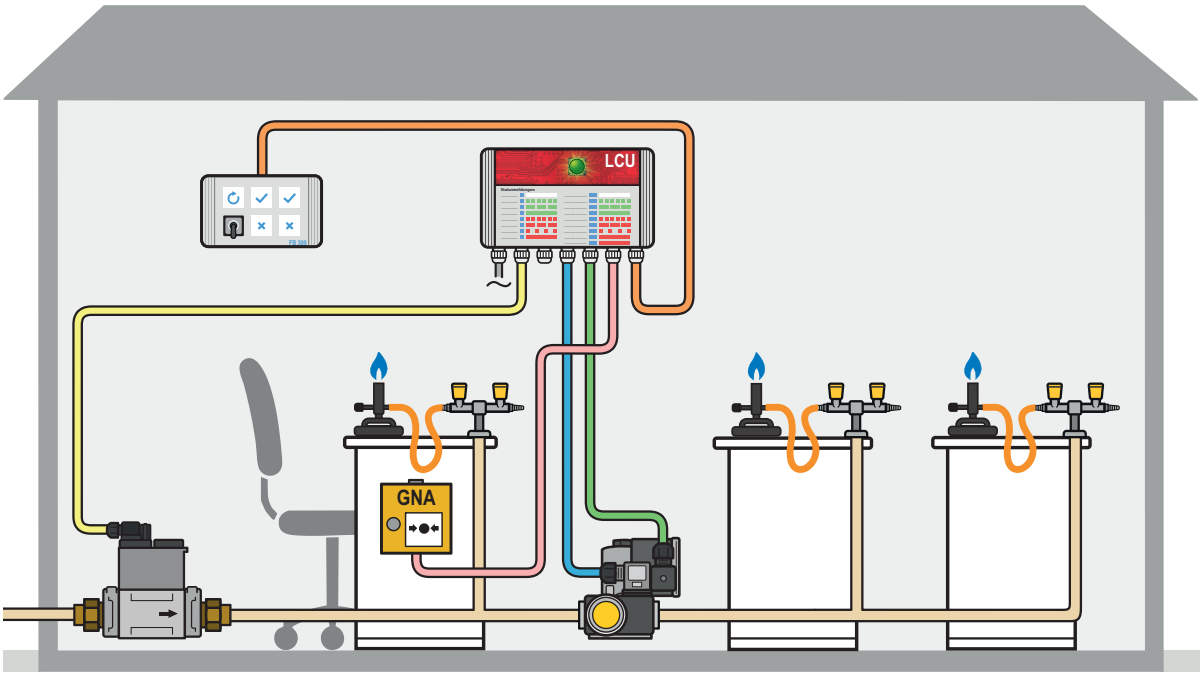
Easy to operate

The system is operated directly on the LCU 300 Compact itself or via push-buttons on the connected remote control FB 300. All operating states are displayed clearly on the remote control and indicated by a multicolour LED display on the unit. An overview of the meaning of the LEDs is provided on the housing cover.

Standard-compliant & certified

Meets the requirements of DVGW worksheet G 621 and DIN 30666 – ideal for schools, laboratories and research facilities.

Automated lab safety system - according to DVGW worksheet G 621 (A)



Automated lab safety system type LCU 300

Part no.

fully automated closed position control with optional leak testing for schools and laboratories

Before each use, the system checks whether the gas withdrawal points in the classroom or laboratory are closed and only enables the gas supply once this has been confirmed.

Available as lab control unit type LCU 300 ADWCL in a compact version with integrated remote control or as lab control unit type LCU 300 ADWML with separate remote control type FB 300 (available as an accessory).

For further information, visit the **landing page for the automated lab safety system**.

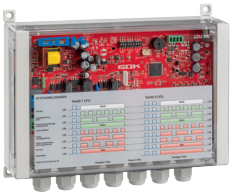
Advantages and equipment

- lab control unit type LCU 300 ADWCL or type LCU 300 ADWML as central control unit
- easy to operate, in the case of the LCU 300 ADWCL, directly on the device, or, with the LCU 300 ADWML, via the buttons on the connected remote control type FB 300
- display of all relevant operating conditions and error messages via an LED; simple explanations of displays on the device for the user
- separate control of two different valves possible:
  - central shut-off device type VCC without closed position control
  - laboratory safety valve type VCL with dual solenoid valve with closed position control
  - or laboratory safety valve type VAL with one solenoid valve with closed position control
- separate monitoring of withdrawal points for teachers and students possible:
  - if the withdrawal point is visible to the teacher, the closed position control and leak testing can be disabled via a DIP switch
- optional leak testing according to DIN 30666; can also be enabled easily via DIP switch



Conformity

- CE marking according to EMC, LVD and RoHS
- EC type examination certificate GAR



Lab safety system

type LCU 300 ADWCL

Lab control unit LCU 300 Compact with leak testing and integrated remote control — 92 300 01

type LCU 300 ADWML

Lab control unit with leak testing for use with external remote control type FB 300 (not included in the scope of delivery) — 92 300 03

Automated lab safety system type LCU 300	Part no.
Accessories	
Under-glass emergency stop button type GNA	92 001 00
Central shut-off device type VCC 320R03W, both sides Rp 3/4 F DN 20	92 301 00
Central shut-off device type VCC 415VH05W with brass screw connections, both sides Rp 1/2 F DN 15	92 301 01
Central shut-off device type VCC 420VH05W with brass screw connections, both sides Rp 3/4 F DN 20	92 301 02
Central shut-off device type VCC 425VH05W with brass screw connections, both sides Rp 1 F DN 25	92 301 03
Laboratory safety valve with one solenoid valve type VAL 315R03WE for natural gas, both sides Rp 1/2 F DN 15	92 302 01
Laboratory safety valve with one solenoid valve type VAL 315R03WL for LPG, both sides Rp 1/2 F DN 15	92 302 02
Laboratory safety valve with one solenoid valve type VAL 315R03WZ with 14 mbar switching point, both sides Rp 1/2 F DN 15	92 302 04
Laboratory safety valve with dual solenoid valve type VCL 320R03WE for natural gas, both sides Rp 3/4 F DN 20	92 303 01
Laboratory safety valve with dual solenoid valve type VCL 320R03WL for LPG, both sides Rp 3/4 F DN 20	92 303 02
Laboratory safety valve with dual solenoid valve type VCL 415VH05WE with brass screw connections for natural gas, both sides Rp 1/2 F DN 15	92 303 07
Laboratory safety valve with dual solenoid valve type VCL 415VH05WL with brass screw connections for LPG, both sides Rp 1/2 F DN 15	92 303 08
Laboratory safety valve with dual solenoid valve type VCL 420VH05WE with brass screw connections for natural gas, both sides Rp 3/4 F DN 20	92 303 09
Laboratory safety valve with dual solenoid valve type VCL 420VH05WL with brass screw connections for LPG, both sides Rp 3/4 F DN 20	92 303 10
Laboratory safety valve with dual solenoid valve type VCL 425VH05WE with brass screw connections for natural gas, both sides Rp 1 F DN 25	92 303 11
Laboratory safety valve with dual solenoid valve type VCL 425VH05WL with MS screw connections for LPG, both sides Rp 1 F DN 25	92 303 12
External remote control type FB 300	92 300 04
Valve controller type SCU 100ADW - version in surface-mounting plastic housing	92 400 00
Valve controller type SCU 100EDW - version in fixed installation plastic housing	92 401 00
Valve controller type SCU 100UDW - version in flush-mounting plastic housing	92 402 00

The use of an emergency stop button of type GNA is recommended!

Valve for lab safety system type LCU 300

Part no.

the automated lab safety system type LCU 300 enables monitoring of two different valves

For further information, visit the **landing page for the automated lab safety system**.

Advantages and equipment

- the following valves are possible:
  - central shut-off device type VCC for all combustible gases according to DVGW worksheet G 260, consisting of: a dual solenoid valve without closed position control, serving as a shut-off valve upstream of the laboratory safety valves
  - laboratory safety valve type VCL, consisting of: a dual solenoid valve with closed position control and optional leak testing; in accordance with DVGW Set of Rules, worksheet G 621 (A)
  - laboratory safety valve type VAL, consisting of: a solenoid valve with closed position control and optional leak testing; in accordance with DVGW Set of Rules, worksheet G 621 (A)
- the laboratory safety valves type VCL and VAL consist of a dual or single solenoid valve with an integrated pressure sensor and prevent gas leaks. In the event of a fault – such as a gas leak or a drop in pressure – it automatically and reliably shuts off the gas supply.

Conformity

- EC type; tested and certified within the scope of application of the EU Gas Appliances Regulation (EU/2016/426)

Technical data

- maximum inlet pressure: pe_{max} 360 mbar (with designation “03”)
  pe_{max} 500 mbar (with designation “05”)
- connection: Rp female thread both sides
  (optionally with brass screw connections)
  or Viega screw connections both sides
- nominal size: DN 15, DN 20 or DN 25



Valve for lab safety system type LCU 300
Central shut-off device
type VCC 320R03W
Rp 3/4 F x Rp 3/4 F DN 20 — 92 301 00

type VCC 415VH05W
with brass screw connections
Rp 1/2 F x Rp 1/2 F DN 15 — 92 301 01



type VCC 420VH05W
with brass screw connections
Rp 3/4 F x Rp 3/4 F DN 20 — 92 301 02

type VCC 425VH05W
with brass screw connections
Rp 1 F x Rp 1 F DN 25 — 92 301 03



Laboratory safety valve with one solenoid valve
type VAL 315R05WE
for natural gas
Rp 1/2 F x Rp 1/2 F DN 15 — 92 302 01

Laboratory safety valve with one solenoid
type VAL 315R05WL
for LPG
Rp 1/2 F x Rp 1/2 F DN 15 — 92 302 02



type VAL 315R05WZ
with 14 mbar switching point
Rp 1/2 F x Rp 1/2 F DN 15 — 92 302 04







CE



Valve for lab safety system type LCU 300	Part no.
Laboratory safety valve with dual solenoid valve **type VCL 320R03WE** **for natural gas**	
Rp 3/4 F x Rp 3/4 F DN 20	92 303 01
type VCL 320R03WL **for LPG**	
Rp 3/4 F x Rp 3/4 F DN 20	92 303 02
type VCL 415VH05WE **with brass screw connections for natural gas**	
Rp 1/2 F x Rp 1/2 F DN 15	92 303 07
type VCL 415VH05WL **with brass screw connections for LPG**	
Rp 1/2 F x Rp 1/2 F DN 15	92 303 08
type VCL 420VH05WE **with brass screw connections for natural gas**	
Rp 3/4 F x Rp 3/4 F DN 20	92 303 09
type VCL 420VH05WL **with brass screw connections for LPG**	
Rp 3/4 F x Rp 3/4 F DN 20	92 303 10
type VCL 425VH05WE **with brass screw connections for natural gas**	
Rp 1 F x Rp 1 F DN 25	92 303 11
type VCL 425VH05WL **with brass screw connections for LPG**	
Rp 1 F x Rp 1 F DN 25	92 303 12

Remote control type FB 300 for lab safety system type LCU 300

Part no.

remote control for external operation of a lab control unit type LCU 300 ADWML

For further information, visit the **landing page for the automated lab safety system**.

Advantages and equipment
- with key switch in the SmartBox housing
- operation via membrane buttons for valve 1 and valve 2
- display via green/red status LEDs (per valve)
- reset button for acknowledging error messages
- connection to the LCU 300 is made via 12-core cable type LiHH 12 x 0.25 mm² to be provided on-site

Conformity
- CE marking according to EMC and RoHS

Technical data
- supply voltage: 24 to 29 V DC (supply via LCU 300)
- protection type: IP54
- bottom part of housing: surface-mounting plastic housing in RAL 7035
- upper part of housing: with membrane keypad
- ambient temperature: 0 °C to +60 °C

Remote control
type FB 300 ADWM
complete — 92 300 04

Under-glass emergency stop button type GNA

Part no.



for manual shut-off of the gas supply in the case of a fire or emergency

For further information, visit the **landing page for the automated lab safety system.**

Advantages and equipment
- the housing includes printed circuit boards with terminal connections, a set of contacts and an actuating button
- the replaceable, standardised thin glass pane in the door, which can be locked using a standard key, protects against accidental activation
- the special locking mechanism holds the button in the pressed position while the manually operated locking lever allows it to be reset

Conformity
- CE marking according to EMC, LVD and RoHS

Technical data
- dimensions H/W/D: 125 x 125 x 34 mm
- switching power: 250 V AC / 2 A
- protection type: IP43

Under-glass emergency stop button type GNA

complete	92 001 00

Valve controller type SCU

Part no.



for electrical control of a gas solenoid valve (e.g. central shut-off device type VCC)

For use in science classrooms and laboratories according to DVGW worksheet G 621 or in industrial applications.

For further information, visit the **landing page for the automated lab safety system**.

Advantages and equipment
- with a key-operated “Gas valve on” switch, a “Gas valve in operation” indicator light and a “Gas valve off” button
- key-operated button installed in housing as standard

Conformity
- CE marking according to EMC, LVD and RoHS

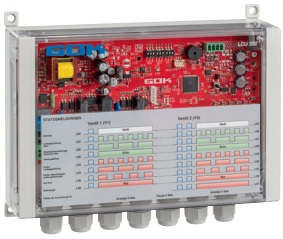
Technical data
- supply voltage: 230 V AC 50 to 60 Hz
- protection type: IP54 (version in surface-mounting plastic housing)
  IP40 (version in fixed installation or flush-mounting plastic housing)

Valve controller type SCU

100ADW	
Version in surface-mounting plastic housing	92 400 00
100EDW	
Version in fixed installation plastic housing	92 401 00
100UDW	
Version in flush-mounting plastic housing	92 402 00

Technical data

Technical data for lab control unit LCU 300



Type	LCU 300
Operating voltage	230 V ~ / 50–60 Hz
Power consumption	max. 90 VA
Protection type	IP 54
Ambient temperature	0 °C to 60 °C
Housing	Surface-mounting, plastic, light grey (RAL 7035), clear plexiglass cover
Display	RGB LED for operating- and fault statuses
Optional	Leak testing according to DIN 30666
Certification	DIN EN 13611, EU/2016/426, EC type-tested

Technical data for type lab control unit LCU 300 ADWCL



Type	LCU 300 ADWCL
Operating voltage	230 V ~ / 50–60 Hz
Power consumption	max. 90 VA
Protection type	IP 54
Ambient temperature	0 °C to 60 °C
Housing	Surface-mounting, plastic, light grey (RAL 7035)
Display	RGB LED for operating- and fault statuses
Optional	Leak testing according to DIN 30666
Certification	DIN EN 13611, EU/2016/426, EC type-tested

Technical data

Technical data of valves VCC, VCL and VAL



Valve versions	VCC = Central shut-off device VCL = Laboratory safety valve with dual solenoid valve VAL = Laboratory safety valve with one solenoid valve
Series	3 = series 3 4 = series 4
Nominal diameter	15 = DN 15 20 = DN 20 25 = DN 25
Connection	R = female thread Rp VH = female thread Rp with brass screw connection
Inlet pressure	3 = 360 mbar 5 = 500 mbar

Technical data of the valve control unit type SCU 100



Mains voltage	230 V, 50 / 60 Hz
Ambient temperature	0 °C to +60 °C
Protection type	IP 54
Integral housing material	Polypropylene
Housing protection type	IP 40
Flush-mounting material	Impact resistant polystyrene
Flush-mounting protection type	IP 40
Housing colour	RAL 7035 light grey
Message relay operation message	Max. 0.1 A, 230 V~
1 valve outlet	Max. current 2 A
Display	Gas valve IN OPERATION indicator light

Services & support

The safe and reliable operation of gas equipment in laboratories requires a functioning monitoring of all gas outlets. The services offered by GOK help operators, engineers and fitters ensure that the automated lab safety system is put into operation professionally and is checked on a regular basis.

Commissioning & instruction

Following the installation of the automated lab safety system, GOK takes care of its professional start-up.

Our services

- checking of installed components and connections
- checking the functioning of the monitoring device
- function check of the entire system
- instruction of operating personnel and handover of operating documentation

This way, we ensure that the system works correctly and complies with the requirements of the respective regulations.

Periodic inspections & maintenance

To ensure safe operating conditions, we recommend a regular inspection of the system.
The maintenance is initially performed 12 months after the start-up and annually thereafter.

Scope of service

- visual inspection of all assemblies and components
- leak-tightness and function check of safety devices
- function check of the entire monitoring device

Regular maintenance supports the safe and trouble-free operation of the system.

Documentation & evidence

All work carried out is comprehensively documented.

You will receive

- inspection and functional test records
- system evaluation and notes on operation
- proof of proper start-up and/or maintenance

This documentation serves as important proof for operators, engineers and public authorities.

Your benefits

- professional start-up by experienced service technicians
- support in compliance with the relevant regulations
- high degree of operational safety for laboratories
- transparent documentation and clear inspection reports

Maintenance cycles

VAL, VCC and VCL:
Yearly check for internal and external leak-tightness. If the flow rate decreases, clean the sieve at the inlet of the dual solenoid valve.
We will be happy to provide you with a quotation for maintenance services.

LCU and SCU:
LCU and SCU are low-maintenance.

Contact persons

Contact for engineers and fitters

Your local partner:

Region:
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APPLICATIONS of GOK PRODUCTS

■ Tank systems



■ Cylinder systems



■ Equipment for LPG tanks



■ Warming, burning, soldering



Components • Solutions • Systems

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