Documentation

Pressure Leak Detector DLR-G

Please read instructions prior to commencing any work

As of: 11/2024

Item no.: 604102

Overview of the design variants

DLR pressure leak detectors are available in different versions that are described more precisely by the suffix characters. The levels of availability and the possible combinations depend on the device. Please contact our sales team. Phone +49 271 48964-0 email sgb@sgb.de

DLR-… .. P M N Si

„**S**ervice **i**ndication”: integrated service indicator (LED) with an adjustable service period

„**N**/Feed required“: The leak detector indicates by means of a diode that the pressure in the interstitial space has decreased and that the pressure must be built up again

„**M**anometer/Digital pressure display“: The leak detector is equipped with a digital pressure display in the housing cover

„**P**rotected“: Construction of the leak detector in a weatherproof housing

„**..**“ = „Numerical value“ for the alarm-vacuum of the leak detector.

„**G** = **G**as (bottle)“: A pressure gas bottle is used for pressure generation, usually nitrogen

„**P** = **P**ump“: A pump integrated in the leak detector is used for pressure generation

„**GS** = **G**as (bottle) **S**tatic“: A static pressure generator must be brought to the site since the leak detector does not have a pump or automatic feed mechanism

„**DLR**/Pressure **L**eak Detector **P**ipe“: The leak detector operates with overpressures towards the atmosphere and is designed for application on double-walled pipes

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1. General

1.1 Information

These instructions provide important notes on using the leak detector DLR-G. Complying with all safety instructions and guidelines is a prerequisite for safe working.

Furthermore, any local regulations for prevention of accidents applicable at the site of use of the leak detector and general safety instructions must be complied with.

1.2 Explanation of Symbols

In these instructions, warnings are marked with the adjacent symbol.

The signal word expresses the level of hazard.

DANGER:
Imminently hazardous situation which, if not avoided, will result in death or serious injury.

WARNING:
Potentially hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION:
Potentially hazardous situation which, if not avoided, could result in minor or moderate injury.

INFORMATION:
Highlights useful tips, recommendations and information.

1.3 Limitation of Liability

All information and instructions in this documentation have been compiled considering the applicable norms and regulations, the state of the art and our longstanding experience.

SGB does not assume any liability in case of:

- Noncompliance with these instructions
- Unintended use
- Use of unqualified personnel
- Unauthorized modifications
- Connection to systems not approved by SGB

1.4 Copyright

1.5 Warranty Conditions

We provide warranty for the leak detector DLR-G for a period of 24 months from the day of installation on site in accordance with the General Terms & Conditions.

The maximum warranty period is 27 months from our date of sale.

Warranty is subject to submission of the functional/test report on initial commissioning by qualified personnel.
Stating the serial number of the leak detector is required.

The obligation of warranty shall cease to exist in case of
- inadequate or improper installation
- unintended use
- modifications/repairs without the manufacturer's consent.

Our warranty does not include parts, which may be perished prematurе due to their consistence or category of usage (e.g., pumps, valves, gaskets, etc.). Furthermore, we are not liable for defects or corrosion damages caused by humid or inappropriate installation environments.

1.6 Customer Service

Our customer service is available for any inquiries.

For information on contacts please refer to our website sgb.de/en or the label of the leak detector.

2. Safety

2.1 Intended Use

- Operating mode "I" (I = "interval", i.e., gas pressure bottle is connected for commissioning and functional check): For double-walled pipes/fittings installed underground or indoors only.
- Operating mode "C" (C = "continuous", i.e., gas pressure bottle is continuously connected to the leak detector): For double-walled pipes/fittings installed above or underground.
- Pipes monitored with this leak detector may not be filled with hot media. Doing so despite this prohibition requires coordination with SGB GmbH.
- Only operate the leak protector with pressure reducers tested and approved by SGB. When using other pressure reducers, provide evidence that failure of the pressure reducer will not result in unacceptable pressure increases.
- Set up the pressurized gas cylinder in such a way that there is no danger from an increase in concentration.
- Only intended for use with pressure gas bottles up to a pressure of 200 bar.
- The leak detector alarm pressure must be at least 1 bar higher than the maximum feed pressure in the product-transporting pipe.

WARNING!

Danger from misuse

- Grounding in accordance with valid regulations[1].
- Tightness of the leak detection system according to section 7.3.4.
- Leak detector installed outside of the explosive area.
- Lead-throughs for connection lines into and out of the manhole chamber must be sealed gas-tight.
- Leak detector (electric) cannot be turned off.
- Use of air pressure as the leak detection medium:
  - Air pressure can always be used for conveyed media with a flash point > 60°C (for Germany > 55°C acc. to TRGS 509 and 751).
  - For conveyed media with a flash point ≤ 60°C (for Germany ≤ 55°C acc. to TRGS 509 and 751), only if their explosive vapor-air mixtures can be assigned to temperature code T1 to T3 and gas group II A or II B and if they have an inner wall that is not permeable for media that can lead to the development of explosive vapor-air mixtures.
  - For conveyed media with a flash point ≤ 60°C (for Germany ≤ 55°C acc. to TRGS 509 and 751), it must also be noted that in case of a leak in the inner pipe, air is pressed into the conveyed product. This must be considered when evaluating explosion protection of pumps/fittings.
- Section 3.5.5 must be complied with.

Any claims arising from misuse are excluded.

CAUTION! The protective function of the device may be impaired if it is not used as specified by the manufacturer.

2.2 Obligation of the Operating Company

WARNING!

Danger in case of incomplete documentation

The leak detector DLR-G is used in a commercial environment. The operating company is therefore subject to statutory occupational safety obligations.

In addition to the safety instructions in this documentation, all applicable safety, accident prevention and environmental regulations must be adhered to. In particular:

- Compiling a risk assessment and implementing its results in a directive
- Performing regular checks as to whether the directive is in compliance with the current standards
- The directive includes, among others, how to react to an alarm that might arise
- Arranging for an annual functional check

2.3 Qualification

The personnel must be capable of independently recognizing and avoiding potential risks based on their qualifications.

[1] For Germany: e.g. EN 1127

WARNING!

Danger to humans and the environment in case of inadequate qualification

Companies that put leak detectors into operation must be trained by SGB or an authorized representative.

National guidelines must be adhered to.

For Germany:

Technical service qualification for installation, commissioning and maintenance of leak detection systems.

2.4 Personal Protective Equipment

Personal protective equipment must be worn during work.

- Wear necessary protective equipment for the relevant work
- Note and comply with existing PPE signs

Entry in the "Safety Book"

Wear HV vest

Wear safety footwear

Wear hard hat

Wear gloves – where necessary

Wear safety goggles – where necessary

Use an oxygen warning device with the leak detection medium nitrogen

2.4.1 Personal Protective Equipment for systems that may be subject to risk of explosion

The parts listed here refer in particular to safety when working with systems that may be subject to risk of explosion.

If work is performed in areas in which an explosive atmosphere must be expected, the minimum required equipment is as follows:

- Suitable clothing (risk of electrostatic charge)
- Suitable tools (in accordance with EN 1127)
- Suitable combustible gas indicator calibrated to the existing vapor-air mixture (work should be performed only at a concentration of 50 % below the lower explosion limit)[2]
- Measuring equipment to determine the oxygen content in the air (Ex/O-meter)

2.5 Fundamental Hazards

DANGER

From electric current

When working on the leak detector, it must be disconnected from the power supply unless stated otherwise in the documentation.

Comply with relevant regulations regarding electric installation, explosion protection (e.g. EN 60 079-17), if necessary, and accident prevention.

DANGER

From explosive vapor-air mixtures

Ensure there is no gas present prior to performing work

Comply with explosion regulations, e.g., BetrSichV (and/or directive 1999/92/EC and the laws of the respective member states resulting therefrom) and/or others.

DANGER

From working in shafts

The leak detectors are mounted outside the manhole chambers. Pneumatic connection is usually performed inside the manhole chamber. Therefore, the chamber must be entered for mounting.

Before entering, the corresponding protective measures must be taken and it must be ensured that no gas and sufficient oxygen are present.

[2] Other manufacturers' or countries' regulations may provide different percentages.

3. Technical Data of the Leak Detector

3.1 General Data

Dimensions and drilling pattern:	see sections 12.1 and 12.2
Weight:	2.1 kg (plastic housing) 6.3 kg (stainless-steel housing)
Storage temperature range:	-40°C to +70°C
Operating temperature range:	0°C to +40°C (plastic housing) -40°C to +60°C (stainless-steel housing)
Max. height[3]:	≤ 2000 m above sea level
Max. relative humidity[3]:	95 %
Buzzer volume	> 70 dB(A) at a distance of 1 m
Housing protection class:	IP 30 (plastic housing) IP 66 (stainless steel housing)

3.2 Electrical Data

Power supply optional:	100 … 240 V AC 24 V DC
Power input:	10 W (without heating) 28 W (incl. heating at 20°C)
Terminals 5, 6 (external signal):	max. 24 V DC; max. 300 mA
Terminals 11…13 (voltage-free): Terminals 17…19 (voltage-free):	DC ≤ 25 W or AC ≤ 50 VA DC ≤ 25 W or AC ≤ 50 VA
Fuse protection[4]:	max. 10 A
Overvoltage category:	2
Degree of soiling:	PD2

3.3 Data for applications that fall under the PED (pressure equipment directive)

Note: The leak detector, installation kits, and manifolds are pressure accessories without a safety function.

Volume of the leak detector	0,02 liter
Volume of manifold 2…8	0,02 liter … 0,08 liter
Max. operating pressure	see chap. 3.4, column p_{PA}

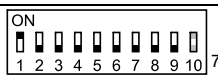
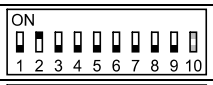
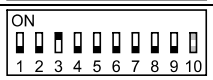
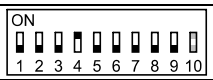
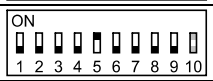
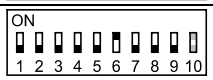
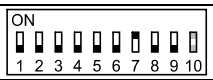
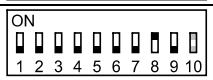
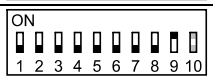
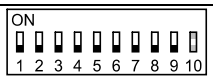
[3] Height and humidity refer to the safe operation of the device

[4] Acts as a separating point for the device and should be attached as close as possible.

3.4 Switching Values

If possible, leak detectors that are operated with operating mode I should be operated without overpressure valves.

Pressure levels 1 to 9

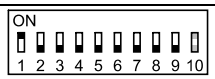
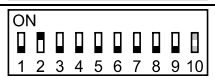
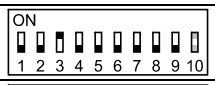
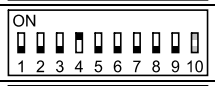
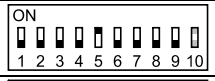
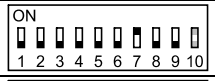
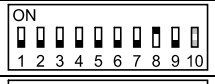
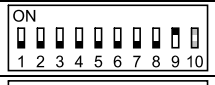
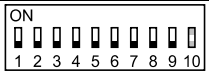
Type DLR-G	p_B [bar]	p_{AE} [bar]	p_{PA} [bar]	Position of the DIP switch	$P_{ÜDV1}$ [5] [bar]	$p_{ÜDV2}$ [6] [bar]	$p_{PRÜF}$ [bar]	p_{DM} [bar]
1	Unpres-surized	> 1	< 2	 [7]	2.8 ± 0.15	6.5 ± 0.2	> 3.4	2.5
2	< 1	> 2	< 3		3.8 ± 0.2	7.5 ± 0.2	> 4.5	3.5
3	< 2	> 3	< 4		4.8 ± 0.2	8.5 ± 0.2	> 5.6	4.5
4	< 3	> 4	< 5		5.8 ± 0.2	9.5 ± 0.2	> 6.7	5.5
5	< 4	> 5	< 6		6.8 ± 0.2	10.5 ± 0.2	> 7.8	6.5
6	< 5	> 6	< 7		7.8 ± 0.2	11.5 ± 0.2	> 8.9	7.5
7	< 6	> 7	< 8		8.8 ± 0.2	12.5 ± 0.2	> 10	8.5
8	< 7	> 8	< 9		9.8 ± 0.2	13.5 ± 0.2	> 11.1	9.5
9	< 8	> 9	< 10		10.8 ± 0.2	14.5 ± 0.2	> 12.2	10.5
–	Special switching values agreed to by SGB and custom-ers				Special switching values agreed to by SGB and customers			

[5] The overpressure valve ÜDV1 can be omitted if it can be assured that the pressure in the interstitial space will not exceed the test pressure (e.g., through warming) and that the set pressure on the pressure reducer is lower than the test pressure of the interstitial space.
If overpressure valves ÜDV1 from higher pressure levels are used, sufficient pressure resistance of the interstitial space must be guaranteed.

[6] As of 11/2021, the overpressure valve ÜDV2 is no longer installed. The cross-section of the connection for the pressure reducer has been reduced so that a pressure relief valve is sufficient.

[7] Switches 1 to 9 are designed to select the pressure level; switch 10 is designed to select the operating mode.

Pressure levels 10 to 18

10	< 9	> 10	< 12		13.5 ± 0.3	17 ± 0.3	> 15.4	13
11	< 10	> 11	< 13		14.5 ± 0.3	18 ± 0.3	> 16.5	14
12	< 11	> 12	< 14		15.5 ± 0.3	19 ± 0.3	> 17.6	15
13	< 12	> 13	< 15		16.5 ± 0.3	20 ± 0.3	> 18.7	16
14	< 13	> 14	< 16		17.5 ± 0.3	21 ± 0.3	> 19.8	17
15	< 14	> 15	< 17		18.5 ± 0.3	22 ± 0.3	> 20.9	18
16	< 15	> 16	< 18		19.5 ± 0.3	23 ± 0.3	> 22	19
17	< 16	> 17	< 19		20.5 ± 0.3	24 ± 0.3	> 23.1	20
18	< 17	> 18	< 20		21.5 ± 0.3	25 ± 0.3	> 24.2	21
–	Special switching values agreed to by SGB and customers				Special switching values agreed to by SGB and customers			

The following abbreviations are used in the table:

p_B Maximum operating pressure in the inner pipe (feed pressure + dynamic pressure + pressure due to geodetic height differences)

p_{AE} Switching value "Alarm ON"; the alarm will be triggered at this pressure level at the latest

p_{PA} Switching value "Refilling OFF" (= operating pressure)

$p_{ÜDV1}$ Operating pressure to activate overpressure valve 1 (interstitial space)

$p_{ÜDV2}$ Operating pressure to activate overpressure valve 2 (supply)

$p_{PRÜF}$ Minimum test pressure of the interstitial space

p_{DM} Set pressure on the pressure reducer

Further switching values:

p_{AA} Switching value "Alarm OFF"; the alarm will be deactivated if this value is exceeded
[p_{AA} = p_{AE} + ~250 mbar (pressure levels 1 to 9) and/or p_{AA} = p_{AE} + ~500 mbar (pressure levels 10 to18)]

p_{PE} Switching value "Refilling ON" [p_{PE} = p_{PA} - ~250 mbar (pressure levels 1 to 9) and/or p_{PE} = p_{PA} - ~500 mbar (pressure levels 10 to 18)]

3.5 Field of Application

3.5.1 Interstitial space requirements

- Proof of pressure resistance of the interstitial space (see section 3.4, column "$p_{PRÜF}$" minimum test pressure of the interstitial space)
- Proof of suitability of the interstitial space (for Germany: proof of usability from construction authority).
- Sufficient passage in the interstitial space for the leak detection medium (air/nitrogen)
- Tightness of the interstitial space according to this documentation.
- The number of interstitial spaces to be monitored depends on the total interstitial space volume. According to EN 13160, 10 m^3 may not be exceeded. To be able to test the tightness of the interstitial space, it is recommended not to exceed 4 m^3.
  The pipeline length (per duct) to be monitored should not exceed 2500 m and must correspond with the specifications for the pipe permit.

3.5.2 Pipes

- Double-walled pipes made of metal or plastic, in factory or on-site construction.
  For Germany: Additional requirements may result from the respective permits.
- Operating mode C for double-walled pipes installed above or underground.
- Operating mode I only for applications without temperature variations of more than ± 10°C (e.g., double-walled pipes installed underground or indoors – no hot media).

3.5.3 Fittings

- Double-walled fittings made of metal or plastic in factory or on-site construction.
  For Germany: with proof of usability from construction authority, unless it is part of the pipe permit.
- Operating mode C for double-walled pipes installed above or underground.
- Operating mode I only for applications without temperature variations of more than ± 10°C (e.g., double-walled pipes installed underground or indoors – no hot media).

3.5.4 Conveyed product

- Liquids hazardous to water, even with a flash point of ≤ 60°C (for Germany ≤ 55°C acc. to TRGS 509 and TRGS 751). Restrictions result, according to 3.5.5, from the material to be conveyed and the leak detection medium used.
- The conveyed product may not react with the leak detection medium.

3.5.5 Interaction between interstitial space, leak detection medium and operating mode

The following statements apply only to applications to transport liquids with flash points ≤ 60°C (for Germany ≤ 55°C acc. to TRGS 509 and 751). They are based on a risk evaluation according to the directive 94/9/EEC (explosion directive). The risk evaluation was performed based on the table in section 3.4 (informative) for EN 13160.

If the evaluation of the device categories has different results due to operational regulations or for any other reasons, the use of the leak detector must be checked separately.

Walls of storage medium	Overpressure valve for interstitial space	Operating mode	Suggested leak detection medium or use of the leak detector prohibited
Permeable: (e.g., interior wall made of plastic)	Exists	C	Inert gas
		I	Use prohibited
	Does not exist	C	Inert gas
		I	Use prohibited[8]
Not permeable: (e.g., double-walled steel pipe)	Exists	C	Inert gas/air pressure[9]
		I	Inert gas
	Does not exist	C	Inert gas/air pressure[9]
		I	Inert gas

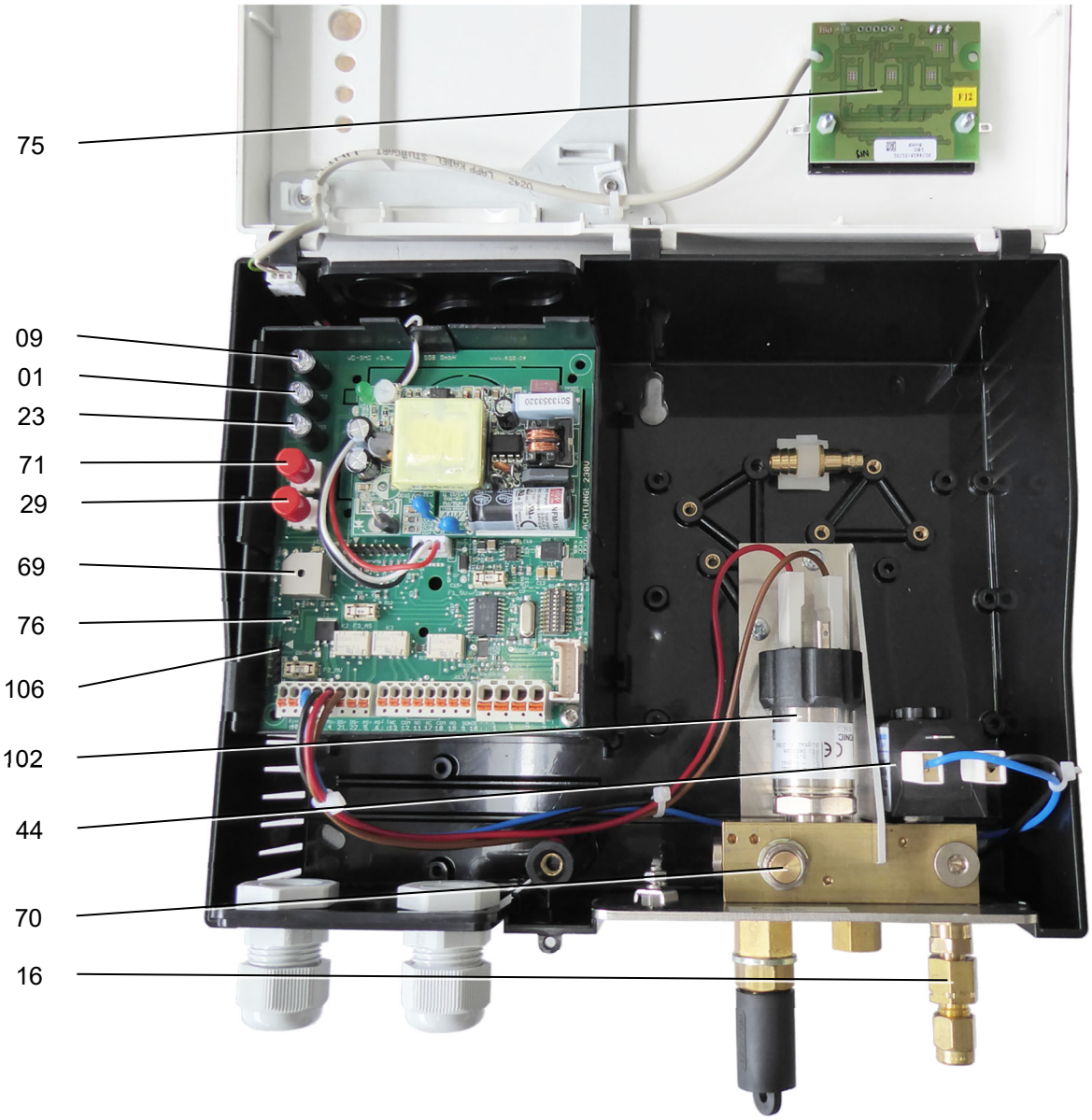
[8] The leak detector with inert gas can only be used for this application if the operator assesses the interstitial space to be a zone 2.

[9] The use of air pressure does not present any problems with interstitial spaces for pipes/fittings with a medium-transporting area that is not permanently filled with product (e.g., filling lines).
When air pressure is used for interstitial spaces of pipes/fittings with a medium-transporting area that is permanently filled with product, it must be assured that the product-transporting equipment (e.g., pumps) is suitable for zone 0 because in the event of a leak, air will be pressed into the product-transporting system.

If the pressure supply is performed using a pressure gas bottle, it is necessary to equip the pressure gas bottle with residual pressure monitoring. In case of a notification (drop below the set residual pressure) the pressure gas bottle is to be refilled or replaced with a full one.

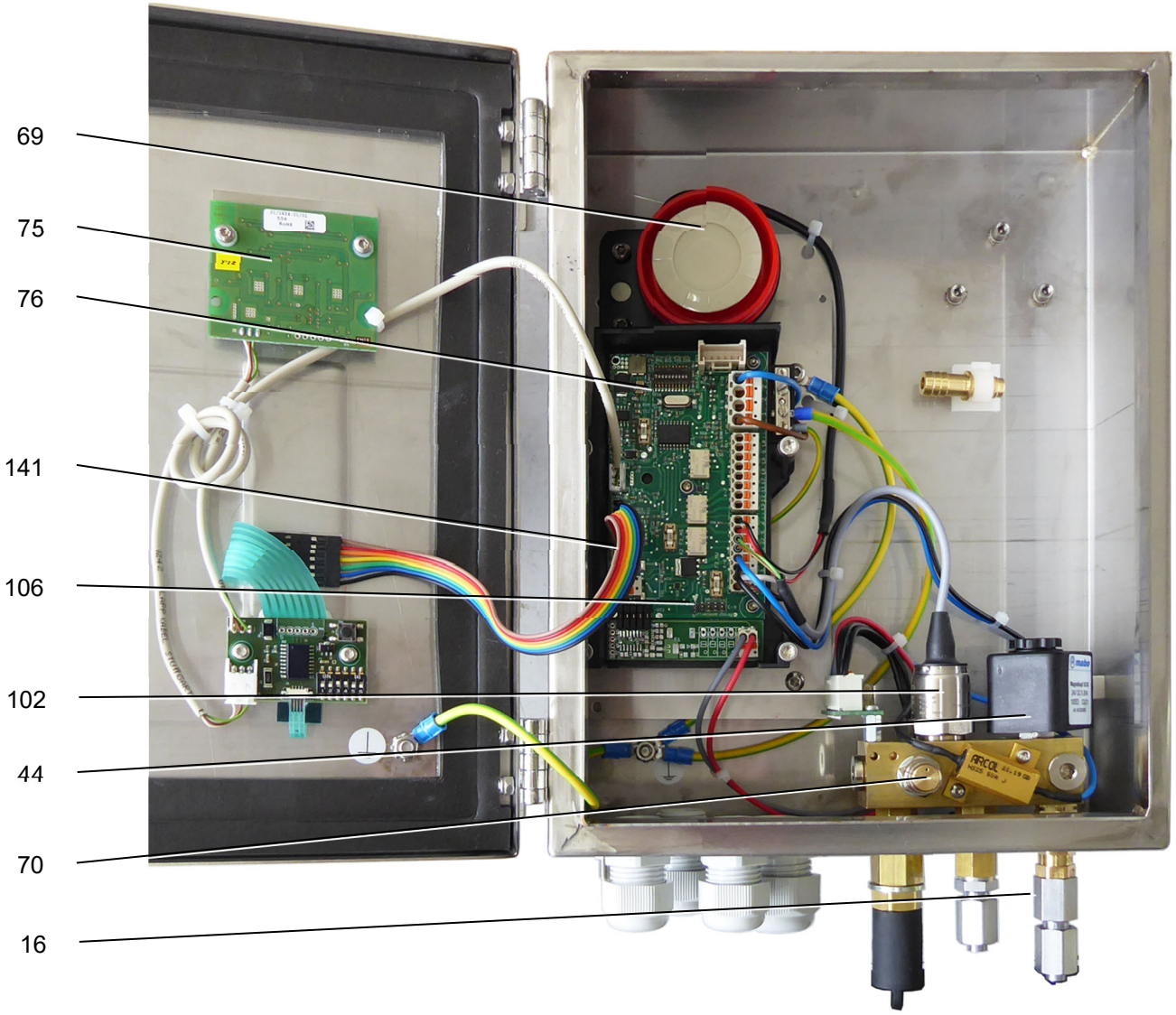
4. Design and Function

4.1 Design



Interior view of plastic housing with:

01	Signal lamp "Alarm", red
09	Signal lamp "Operation", green
16	Throttle
23	Signal lamp "Filling" or "Refilling", yellow
29	Button "Commissioning" (filling)
44	Solenoid valve
69	Buzzer
70	Overpressure valve (interstitial space)
71	"Mute" button
75	Display board
76	Main board
102	Pressure sensor
106	Contact for serial data transfer



Interior view of stainless-steel housing, weather-protected, with:

16	Throttle	76	Main board
44	Solenoid valve	102	Pressure sensor
69	Buzzer	106	Contact for serial data transfer
70	Overpressure valve (interstitial space)	141	Keypad terminal strip
75	Display board		

The pressure leak detector DLR-G monitors both walls of the double-walled system for leaks. The monitoring pressure during operation is higher than any pressure on the inner or outer wall, so that leaks will be indicated by a pressure drop.

Inert gas, air from a pressure gas bottle or from a pressure gas system can be used as leak detection media. If air is used, it must be dried to a relative humidity of less than 10%.

The current pressure is shown on the display in mbar/bar or PSI[10]:

[10] The change of the bar and PSI settings is performed at the factory. This change can also be performed on site following coordination with the manufacturer.

- Values of less than 150 mbar or less than 2.18 PSI will not be displayed.
- Values of up to 990 mbar will be displayed in mbar and without decimal.
- Values from 1 bar are displayed in bar with two decimals and from 10 bar with one decimal.
- Values in PSI are displayed with one or two decimals.

4.2 Normal Operating Condition

The normal operating condition is achieved during commissioning by building up pressure to the operating pressure through the pressure cylinder connected to the leak detector (operating mode C) or a mobile pressure cylinder (operating mode I).

The existing pressure in the interstitial space is monitored with a pressure sensor in the leak detector. Any minor leaks lead to a pressure drop, which will be compensated in the operating mode C.

Depending on the grade of tightness of the entire unit, the overpressure moves between the switching value Refilling OFF and the switching value Refilling ON.

For operating mode I, the requirements for the tightness of the interstitial space(s) and the connection line(s) must be set very high to assure trouble-free operation for one year.

4.3 Function in Case of Leaks

If there is a leak in the inner or outer wall, gas will leak from the interstitial space. The pressure drops.

When the switching value "Refilling ON" is reached in operating mode C, refilling will be activated and the operating pressure will be built up again. If the leakage ratio is greater than the limited refilling rate, the pressure will continue to drop to alarm pressure.

An optical and audible alarm will be triggered when the alarm pressure is reached, which will open the voltage-free contacts.

An additional relay can be used for operating mode I to establish voltage-free contacts when the pressure drops below the "Refilling REQUIRED" pressure.

4.4 Overpressure Valve

If the interstitial space has sufficient pressure resistance (see section 3.4), an overpressure valve will not be supplied.

The overpressure valve 1 (on the interstitial space side) must be used to protect the interstitial space from excessively high pressures on the part of the pressure reducer.

It also protects the interstitial space from impermissibly high pressures in the interstitial space, e.g.:

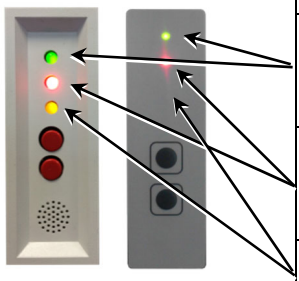
- Temperature increase due to environmental influences (e.g., due to solar radiation)

- Temperature rise due to hot filling (consult the manufacturer!).

The installer/operator must determine whether any further measures are to be taken in consideration of the interstitial space volume.

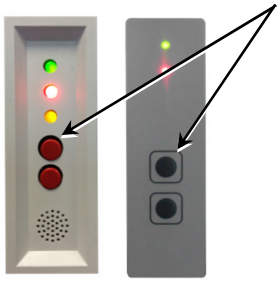
4.5 Displays and Controls

4.5.1 Display



Signal lamps	Operating Condition	Refilling activated or required	Filling activated	Alarm condition	Alarm, audible alarm acknowledged	Device malfunction
OPERATION: green	ON	ON	ON	ON	ON	ON
ALARM: red	OFF	OFF	ON[11]	ON	BLINKING	ON
REFILLING: yellow	OFF	ON	BLINKING	ON	ON	OFF

4.5.2 Function "Turn off audible alarm signal"



Shortly press the "mute" button once, audible signal turns off, the red LED blinks.

Pressing the button again will turn the audible signal on.

This function is not available during normal operating conditions and malfunctions.

4.5.3 Function "Filling"

Press and hold the "Filling" button for about 5 seconds until the yellow LED is blinking. The filling process has been activated.

When the operating pressure has been reached, the yellow signal lamp will go out and the filling process is turned off.

In case of a pressure drop due to pressure compensation processes, the filling process can be reactivated to fill the interstitial space completely.

Holding this button down for more than 10 seconds will trigger the alarm. The triggered alarm will go off shortly after letting go of the button.

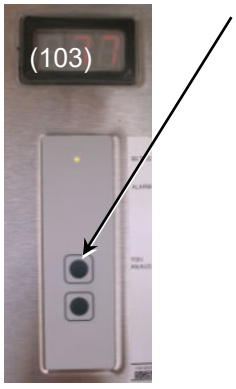
[11] The "Alarm" signal lamp can have various displays depending on the pressure in the interstitial space and whether or not the "Audible alarm signal" button has been pressed.

4.5.4 Function "Testing the optical and audible alarm signal"

Press and hold the "mute" button (about 10 seconds). The alarm will be triggered until the button is released.

This inquiry is only possible if the pressure in the system has exceeded the "Alarm OFF" pressure.

4.5.5 Function "Tightness inquiry"



Press and hold the "mute" button until the signal lamp is blinking rapidly, then release it. The display (103) will show a tightness value and the same value will be indicated by the "Alarm" signal lamp flashing.

10 seconds after displaying this value, the leak detector will return to normal operation.

This inquiry can only be performed in operating mode "C". The leak detector must have performed at least 1 automatic refilling interval in normal operating conditions (i.e., without manual activation of the filling function) to achieve a valid statement.

For evaluation of the value displayed see chapter 4.5.6.

4.5.6 Evaluation of “Tightness Inquiry”

The tightness test as part of the annual functional check is described in section 7.3.5. As long as the value shown on the display does NOT exceed the following nominal values, it can be assumed that the system is so tight that the pressure cylinder being used (200-bar filling) will last for one year:

- 50-liter pressure cylinder: Display from 0 to 7
- 10-liter pressure cylinder: Display 0 or 1

The smaller the above value, the tighter the system. The significance of these values depends on a number of factors including the setting for the supply pressure on the pressure reducer.

The above statement is therefore meant to be a guideline (nominal value) and cannot provide a final statement regarding the "actual" tightness of the system.

The following values mean:

- 50-liter pressure cylinder: Display from 8 to 10
  Pressure cylinder will probably need to be replaced within one year's time
- 10-liter pressure cylinder: Display from 2 to 10
  Pressure cylinder will probably need to be replaced within one year's time
- Display from 15 Inquiry not possible (usually set to operating mode "I")

5. Mounting the System

5.1 Basic Instructions

- Prior to commencing work, the documentation must be read and understood. In case of ambiguities, please refer to the manufacturer.
- The safety instructions in this documentation must be adhered to.
- Bur and clean it prior to the connection of cut pipes.
- Only qualified service companies may be used for installation.
- Comply with relevant regulations for prevention of accidents.
- Lead-throughs for pneumatic and electric connection lines, through which the explosion atmosphere can carry over, must be sealed gas-tight.
- Comply with explosion regulations (if required), e.g., BetrSichV (and/or directive 1999/92/EC and the laws of the respective member states resulting therefrom) and/or others.
- Compliance with the relevant traffic regulations is required when transporting pressure gas bottles to and from the construction site.
- The pressure gas bottle must be protected from falling over at the construction site.
- If nitrogen is used, sufficient ventilation must be provided if commissioning/operation is performed in enclosed spaces. Attach information sign.
- Provide a test valve at the end facing away from the leak detector at the end of the pipe(s)/fitting(s).
- Before entering inspection chambers, the oxygen content must be tested and the inspection chamber flushed if necessary.
- If metallic connection lines are used, it must be ensured that the power supply grounding is on the same potential as the pipe to be monitored.
- Notes on personal protective equipment are provided in chapter 2.4. and 2.4.1.

5.2 Leak Detector

(1) Generally mounted on walls with plugs and screws.
In case of plastic housing: To allow the ventilation slots to work properly, make sure there is a side clearance of at least 2 cm from other objects and walls.

(2) In a dry room, or outdoors in a suitable housing.

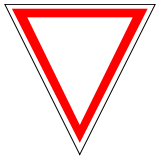
(3) If mounted in a protective box: additional external signal or alarm forwarding via voltage-free contacts to a switchboard or similar device.

(4) **NOT in potentially explosive areas.**

(5) Prior to closing the housing lid, make sure that the function of the overpressure valve is not impeded.

(6) Dimensions of housings and drilling patterns are illustrated in Appendix 12.1 and 12.2, respectively.

5.3 Selecting the Pressure Gas Bottle and the Pressure Reducer



(1) A pressure cylinder containing either 10 liters or 50 liters can be used up to an interstitial space volume of 5 m^3.

(2) For more than 5 m^3, a pressure cylinder containing 50 liters must be used.

(3) The pressure reducer must have an integrated overpressure valve.

(4) The range of settings for the pressure reducer to be used must be selected in correspondence with the application or the pressure to be set. (See section 3.4).

(5) The system pressure range of the pressure reducer must match the bottle. In this case, 200 bar maximum.

5.4 Setting up the Pressure Gas Bottle and Mounting the Pressure Reducer

(1) Set up and secure pressure gas bottle, e.g., using a bracket and safety chain intended for this purpose.

(2) Close safety chain.

(3) Remove protective cover and mount pressure reducer to bottle.

(4) Close shut-off valve on the pressure reducer.

5.5 Pneumatic Connection Lines, Requirements

- Pressure resistance of the metal (generally Cu) or plastic pipes must at least correspond with the test pressure in the interstitial space. Also applies to fittings and screwed connections. Note temperature range, especially when using plastic.
- Inside clearance
  at least 4 mm with inert gas as leak detection medium
  at least 6 mm with air as leak detection medium
- 50 m should not be significantly exceeded, but if this happens: Install pipe with greater inside clearance using transition pieces.
- The full cross section must be maintained. Do not push in or bend[12].
- Install metal or plastic pipes underground or plastic pipes aboveground outdoors in protective pipes.
- Seal the protective pipe gas-tight and protect from moisture.
- Avoid build-up of electrostatic charges (e.g., during pulling of lines).
- Make sure that the correct screw connections and matching threads are used.

[12] If necessary, install commercial fittings for plastic pipes (specified bending radii).

5.6 Completing Pneumatic Connections

5.6.1 Between pressure reducer and leak detector

(1) Select suitable pipe to connect the pressure reducer to the leak detector. Recommendation: Use the Flex tube (SGB item no.: 260 721)

(2) Connect the pipe to the pressure reducer (the image shows connection via the Flex tube mentioned above).

(3) Connect the pipe to the leak detector.

5.6.2 Mounting the connection to the interstitial space or test valves

(1) Generally according to the pipe/interstitial space manufacturer's specifications.

(2) If Schrader valves are used, please proceed as follows:
- Unscrew protective cap
- Retighten lock nut
- Unscrew valve insert and stick next to the connection with adhesive tape
- Screw connection to the interstitial space or test valve and fasten finger-tight
- If necessary, further tighten with suitable pliers.

5.6.3 Between leak detector and interstitial space

(1) Select and install suitable pipe.

(2) During installation of the tube/pipe, ensure again that the tubes are protected against damage when the manhole chamber is entered.

(3) Complete the relevant connection (according to the illustrations in the following images)

5.6.3.1 Flanged screw connections (for flanged pipes)

(1) Lubricate O-rings

(2) Insert spacer ring loosely into the screw socket

(3) Slide union nut and pressure ring over the pipe

(4) Hand-tighten union nut

(5) Tighten union nut until need for increased force is clearly noticeable

(6) Final assembly: Tighten by another ¼ turn.

5.6.3.2 Clamping ring screw connection for metal and plastic pipes

(1) Insert support sleeve (only plastic pipes) into end of the pipe

(2) Insert pipe (with support sleeve) all the way to the stop

(3) Tighten the screw connection by hand until resistance becomes noticeable, then tighten a further 1 ¾ turns with a wrench

(4) Loosen nut

(5) Tighten the nut by hand up to a noticeable stop

(6) Final assembly of the screw connection by tightening a ¼ turn

5.6.3.3 Quick screw connections for PA tubing

(1) Cut PA tube to length at a right angle

(2) Unfasten union nut and slide over the end of the pipe

(3) Slide pipe onto nipple up to the beginning of the thread

(4) Hand-tighten union nut

(5) Wrench-tighten union nut until need for increased force is noticeable (approx. 1 to 2 turns)

5.7 Electrical Cables

Supply line: at least 1.0 mm², e. g., NYM 3 x 1.5 mm², and max. 2.5 mm²

Power connection:
- 2.5 mm² without ferrule
- 1.5 mm² with ferrule and plastic collar

Voltage-free contacts and external signal:
- 1.5 mm² without ferrule
- 0.75 mm² with ferrule and plastic collar

5.8 Electrical Wiring Diagram

(1) Power supply: according to label imprint.

(2) Fixed wiring, i.e., no plug or switch connections.

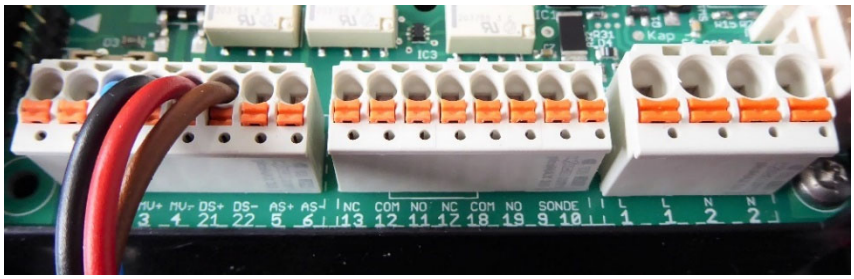
(3) Close unused cable glands properly and professionally.

(4) When laying the cables, make sure that the overpressure valve is not blocked by the cable.

(5) Devices with plastic housing may only be connected with a fixed cable.

(6) Regulations of power supply companies must be adhered to[13].

(7) Terminal layout (see also section 5.9.3):



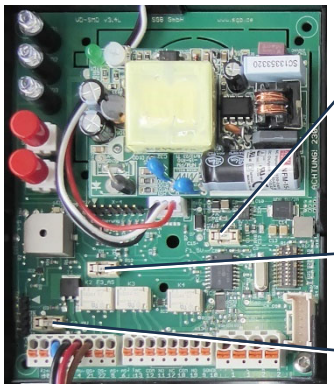
1/2	Power connection (90…260 V AC) **CAUTION:** both terminals exist in duplicate!
3/4	Occupied (with internal solenoid valve)
5/6	External signal (24 V in case of alarm, can be turned off by activating the "Audible alarm signal" button)

[13] For Germany: also, VDE regulations

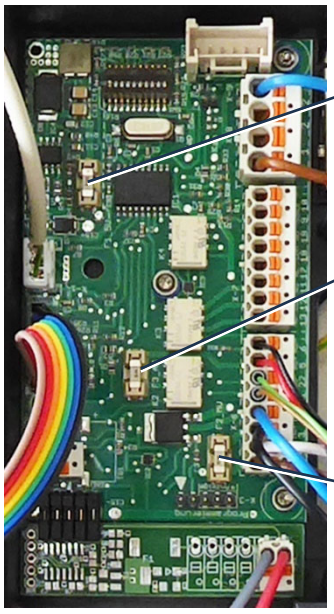
11/12	Voltage-free contacts (opened in case of alarm or loss of power)
12/13	As above, but contacts closed
17/18/19	Voltage-free contacts at “Refilling on”: 17/18 opened 18/19 closed; Voltage-free contacts at “Refilling off” or in current-less condition: 17/18 closed 18/19 opened
	Note: In operating mode C, 17/18 can be used for “Refilling required” signal
21/22	Occupied (with internal sensor)
40/41	24 V DC as permanent power supply to power other assemblies or, for a device with a supply voltage of 24 V DC, the power supply is connected here

5.8.1 Location of fuses and their values

5.8.1.1 Plastic housing

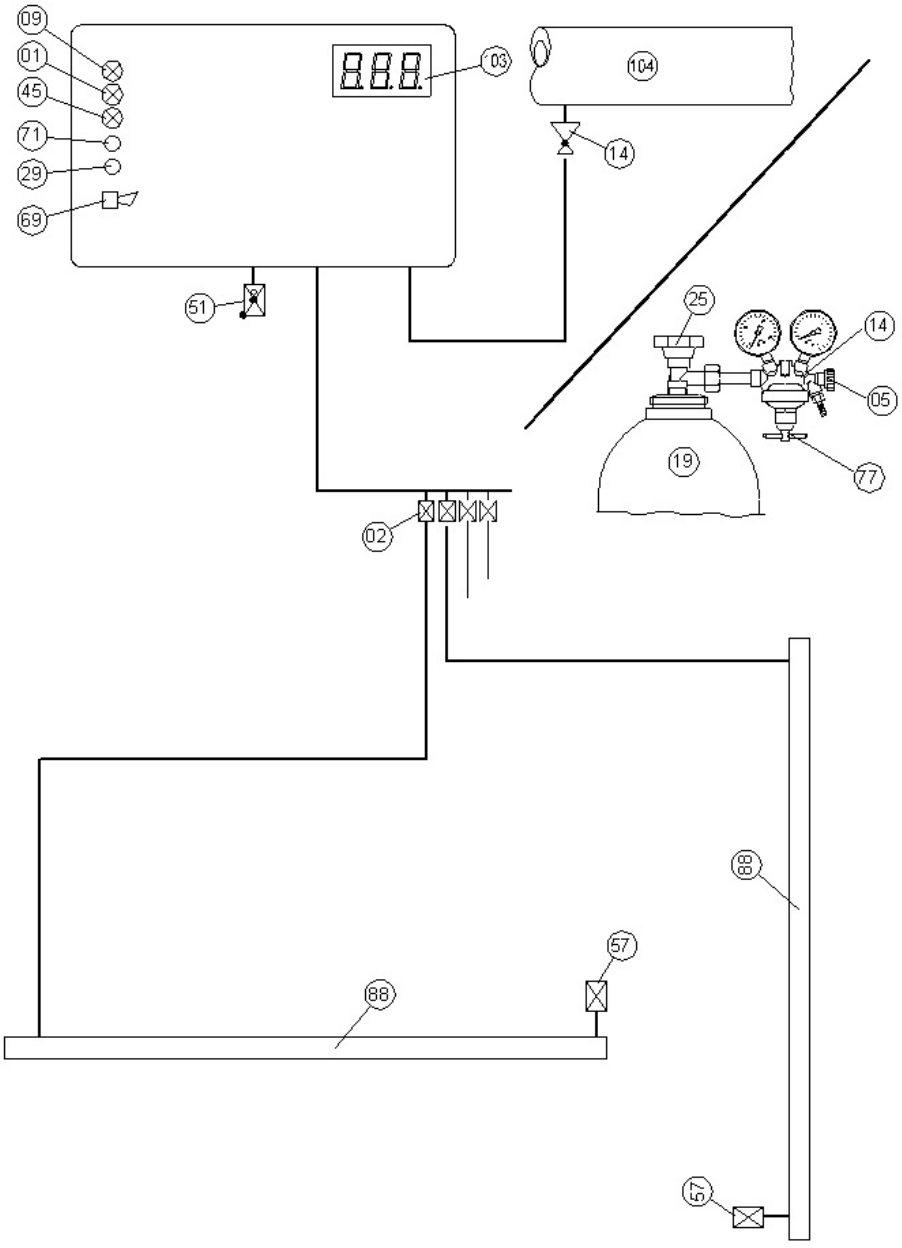


5.8.1.2 Stainless steel housing



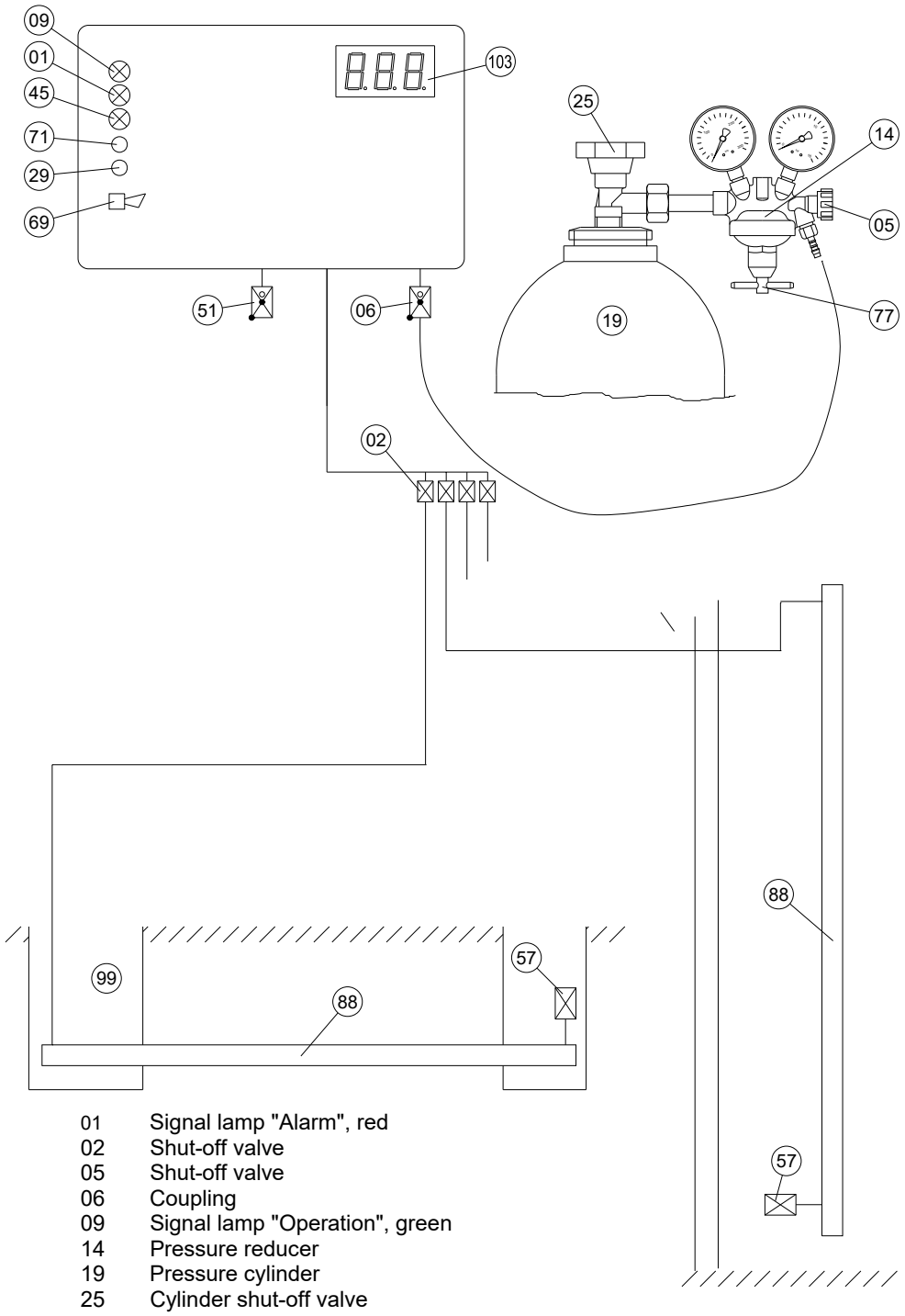
5.9 Installation Examples

5.9.1 Leak detector DLR-G .., operating mode "C", supplied by a local nitrogen system



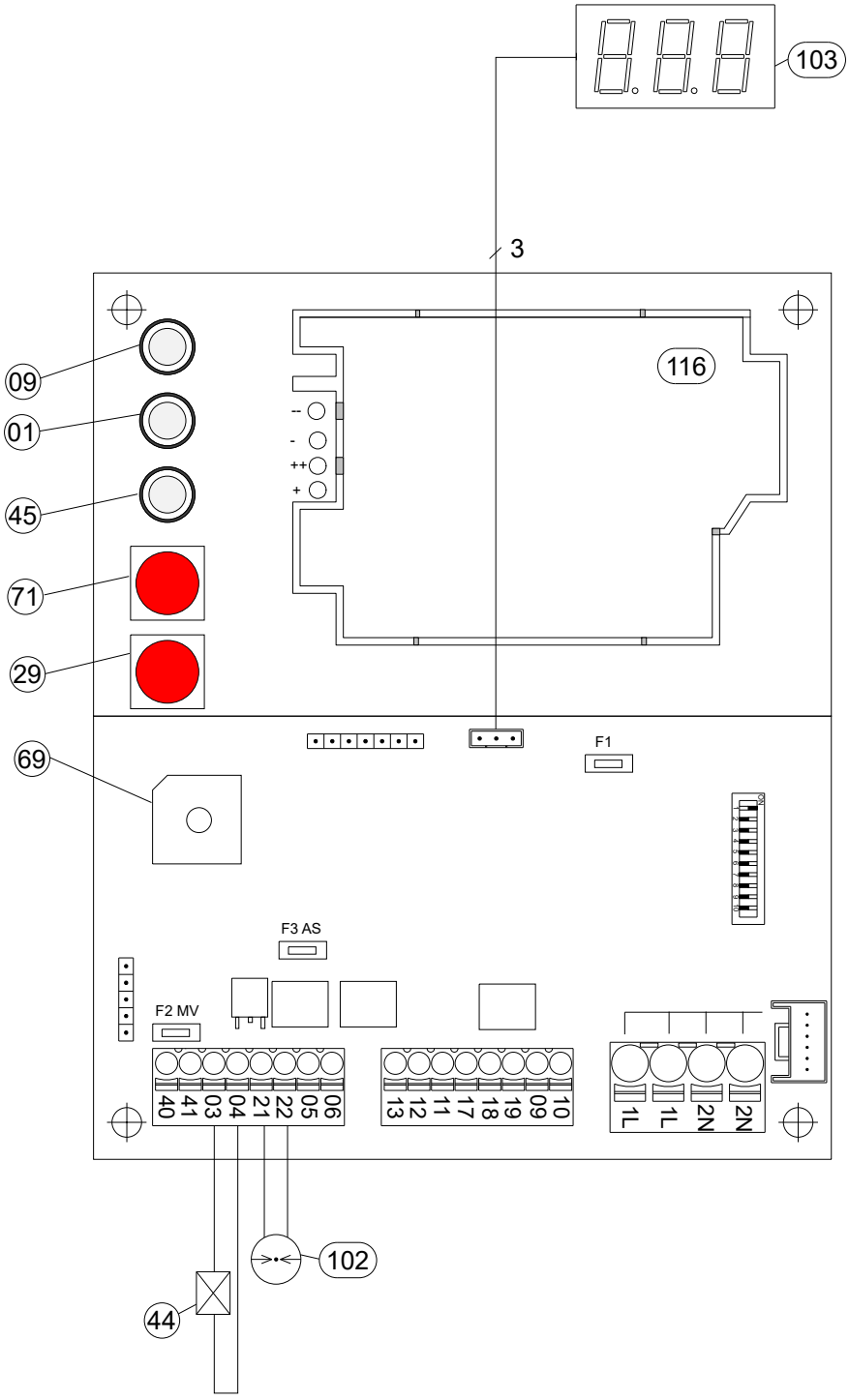
01	Signal lamp "Alarm", red
02	Shut-off valve
09	Signal lamp "Operation", green
14	Pressure reducer
29	Button "Filling"
45	Signal lamp "Refilling", yellow
51	Test coupling
57	Test valve
69	Buzzer
71	"Mute" button
88	Double-walled pipe
103	Display
104	On-site compressed air system (e.g., air/nitrogen)

5.9.2 Leak detector DLR-G .., operating mode "I", supplied by a nitrogen pressure gas bottle



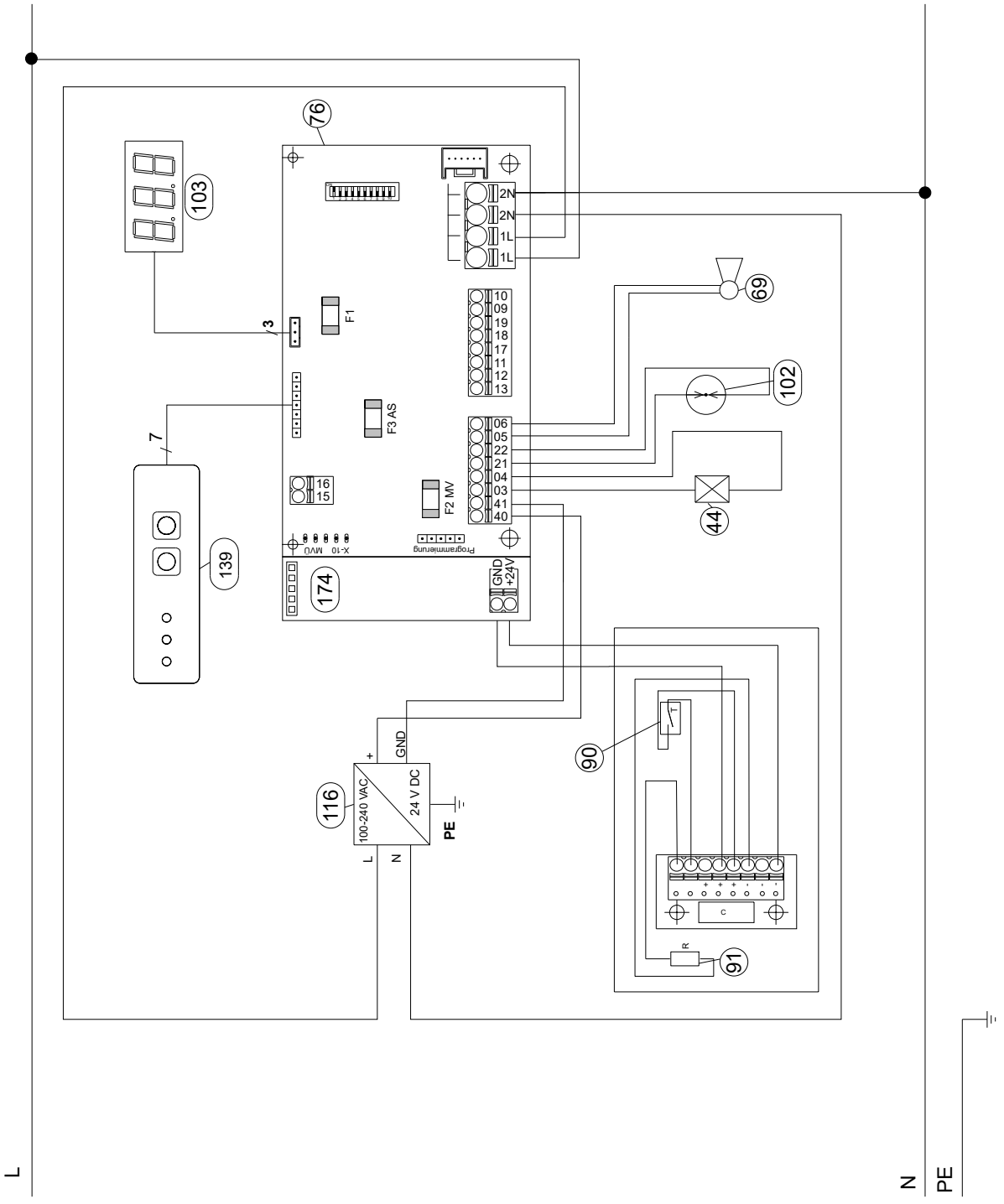
01 Signal lamp "Alarm", red
02 Shut-off valve
05 Shut-off valve
06 Coupling
09 Signal lamp "Operation", green
14 Pressure reducer
19 Pressure cylinder
25 Cylinder shut-off valve
29 Button "Filling"
45 Signal lamp "Refilling", yellow
51 Test coupling
57 Test valve
69 Buzzer
71 "Mute" button
77 Pressure regulator
88 Double-walled pipe
99 Inspection chamber
103 Display

5.9.3 Block diagram plastic housing



01	Signal lamp "Alarm", red	71	“Mute” button
09	Signal lamp "Operation", green	102	Pressure sensor
29	Button "Filling"	103	Display
44	Solenoid valve	116	Power supply unit 24 V DC
45	Signal lamp "Refilling", yellow	141	Keypad terminal strip
69	Buzzer		

5.9.4 Block diagram stainless steel housing



01 Signal lamp "Alarm", red
09 Signal lamp "Operation", green
29 Button "Filling"
44 Solenoid valve I
45 Signal lamp "Refilling", yellow
69 Buzzer
71 „Mute“ button
102 Pressure sensor
103 Display
116 Power supply unit 24 V DC
141 Keypad terminal strip

6. Commissioning

(1) Only perform commissioning once the steps in section 5 "Mounting" have been fulfilled.

(2) Flush the interstitial space with inert gas if walls of storage medium are not impermeable.[14]

(3) If a leak detector is commissioned on a pipe (fitting) that is already in operation, special protective measures must be taken (e.g., testing that the leak detector and/or the interstitial space is free of gas). Additional measures may be necessary depending on the local conditions and must be assessed by qualified personnel.

6.1 Commissioning the Pressure Gas Bottle

(1) Turn pressure regulator all the way back.

(2) Open cylinder shut-off valve. (If necessary, test tightness between pressure reducer and bottle)

(3) Set pressure on the pressure reducer using the pressure regulator on the pressure reducer according to section 3.4 (adjust during pressure build-up, if necessary).

(4) After completion of the functional check with operating mode "I" or to change the bottle:
- Close shut-off valve on the pressure reducer.
- Close cylinder shut-off valve.
- Remove pressure reducer from the bottle (Caution: Gas will escape until the pressure reducer has no pressure).
- Install protective cover on bottle.

(5) For bottle change, continue with:
- Secured set-up, then remove protective cover.
- Install pressure reducer. (if necessary, test tightness between pressure reducer and bottle)
- Open cylinder shut-off valve.
- Open shut-off valve on the pressure reducer, readjust pressure using the pressure regulator, if necessary.

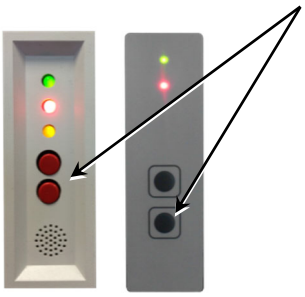
6.2 Commissioning the Leak Detector

(1) Tightness of the interstitial space prior to commissioning is assumed

(2) Switch on line voltage

(3) Ascertain lighting of "Operation" and "Alarm" signal lamps and sounding of the audible alarm. If necessary, turn off audible alarm signal.
With operating mode "C", the power supply activates automatic refilling.

[14] For Germany: Additional DIBT requirements must be considered for such double-walled pipes.



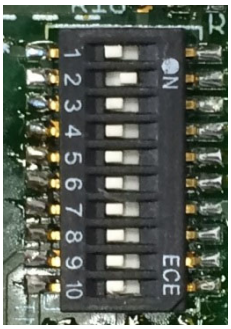
(4) Pressure build-up/filling the interstitial space:
Press and hold the "Filling" button for about 5 seconds until the yellow signal lamp is blinking. The solenoid valve will open to quickly fill the interstitial space. When the operating pressure has been reached, the filling process is turned off and the yellow signal lamp will go out.
With very large interstitial spaces it may be necessary to switch bottles (see section 5.3 in conjunction with sections 5.4 and 6.1)
Note: If no pressure build-up is achieved with the pressure gas bottle connected, the leak must be located and corrected (check the settings for the pressure reducer as well, if necessary). CAUTION: Display on the leak detector (display) begins with a pressure from 150 mbar.

(5) It may be necessary to press the "Filling" button repeatedly to achieve complete filling of the interstitial space.

(6) Check all connections for leaks with a foaming agent.

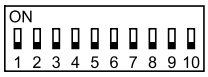
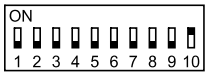
(7) Perform a functional check according to section 7.3.

6.3 Changing the Operating Mode



(1) Switch positions 1-9 are designed to select the pressure level, switch position 10 is designed to select the operating mode.

(2) The operating mode "I" or "C" can be set or changed at the construction site by changing the position of switch number 10 on the switchboard.

Switch position 10, regardless of the pressure level	Operating mode "C"	
	Operating mode "I"	

(3) Switch positions for the pressure levels (switches 1 to 9) are shown for each pressure level in section 3.4.

(4) If the switch positions 1-9 are changed at the construction site, it must be assured that the set pressure level does not exceed the set pressure for the overpressure valve.

7. Functional Check and Maintenance

7.1 General

(1) If the leak detection system has been properly installed and is free of leaks, trouble-free operation can be assumed.

(2) With operating mode "I", even very small leaks will trigger the alarm.

(3) In the event of an alarm, determine the cause and fix it quickly.

(4) The leak detector must be disconnected from power for any repairs to be performed on the leak detector.

(5) A loss of power is indicated by the "Operation" signal lamp going off. Alarm signals are triggered via the voltage-free relay contacts (if used for alarm transmission) if contacts 11 and 12 were used. After the power loss, the green signal lamp lights up again and the voltage-free contacts no longer generate an alarm (unless the power loss has caused the pressure to drop below the alarm pressure).

(6) Use a dry cloth to clean the leak detector with a plastic housing.

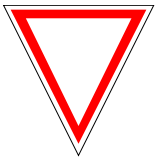
7.2 Maintenance

- Maintenance work and functional checks must be performed by trained personnel only[15].
- Once a year to ensure functional and operational safety.
- Test scope according to section 7.3.
- Compliance with the conditions according to sections 5 and 6 must also be tested.
- Comply with explosion regulations (if required), e.g., BetrSichV (and/or directive 1999/92/EC and the laws of the respective member states resulting therefrom) and/or others.

7.3 Functional Check

The functional and operational safety tests must be performed:

- after each commissioning
- in accordance with the time intervals listed in section 7.2[16]
- each time a malfunction has been corrected



CAUTION: During the functional check nitrogen is usually released. If this must be done in a chamber or similar, it is mandatory to permanently check the oxygen content.

[15] For Germany: Technical service according to water law with expertise in leak detection systems
For Europe: Authorization by the manufacturer

[16] For Germany: In addition, national laws apply (e.g., AwSV)

7.3.1 Test scope

(1) Coordinate the work to be performed with those responsible for operation on site, if necessary.

(2) Observe the safety instructions for working with the product to be conveyed.

(3) Check the test valve at the end of the interstitial space pointing away from the leak detector for tightness and contamination, and clean it, if necessary

(4) Checking the free passage of air in the interstitial space (7.3.2)

(5) Testing the switching values (7.3.3)

(6) Tightness test following commissioning or correction of malfunctions (7.3.4)

(7) Tightness test as part of the annual functional check (7.3.5)

(8) Creating the operating condition (7.3.6)

(9) A qualified person must complete a test report, confirming functional and operational safety.

7.3.2 Checking the free passage of air in the interstitial space

Checking the free passage of air ensures that an interstitial space is connected to the leak detector and that the interstitial space has sufficient passage to cause an air leak to trigger an alarm.

If several interstitial spaces are connected in parallel, each one of them must be checked for passage.

(1) Insert measuring gauge into the test coupling. The current pressure in the interstitial space will be displayed.

(2) Open the test valve for the first connected interstitial space.

(3) Check whether the measuring gauge registers a pressure drop.

(4) Close the test valve.

(5) Repeat process from paragraph (2) to (4) for each additional test valve of the interstitial space(s) connected to this leak detector. With operating mode "C", if automatic refilling is activated during this process, perform the filling process and then continue the test.

(6) With operating mode "I", the pressure drop due to the test must be compensated as follows:

a) Connect pressure cylinder according to section 5.3 (5.4 and 6.1)

b) Activate "Filling".

c) Pressure build-up to operating pressure. Check the pressure on the pressure reducer during the filling process (test pressure may not be exceeded) and adjust, if necessary.

d) Once the filling process has been completed, close the shut-off valve on the pressure reducer and disconnect the measuring gauge and the pressure cylinder.

7.3.3 Testing the switching values

(1) If several interstitial spaces are connected via a manifold system, close all shut-off valves on the manifold except for the shut-off valve for the interstitial space to be tested.

(2) Insert a manometer into the test coupling.

(3) Open the test valve at the end of the interstitial space included in the test pointing away from the leak detector.

(4) Check the switching values for "Automatic refilling" or "Refilling required" (the yellow signal lamp lights up) and for "Alarm ON". Record the values.

(5) Close the test valve.

(6) Operating mode "C": During the pressure build-up (automatic filling), check the switching values for "Alarm OFF" and "Refilling OFF" (activate "Filling" if necessary). Record the values.

Operating mode "I": Connect pressure cylinder according to section 5.3 (5.4 and 6.1). Activate "Filling". During the pressure build-up, check the switching values for "Alarm OFF" and "Refilling (here: Filling) OFF". Record the values. Remove the pressure cylinder.

(7) The test is considered passed if the values specified in section 3.4 have been satisfied.

(8) Disconnect the measuring gauge.

(9) Open all shut-off valves in the connection line(s).

7.3.4 Tightness test following commissioning or correction of malfunctions[17]

(1) Insert measuring gauge into the test coupling. The measuring gauge will display the current pressure.

(2) The tightness test is approved for one year of trouble-free operation if the following conditions have been met:

Operating mode "C":
The test time per 100 liters of interstitial space volume is 8 minutes. A pressure drop of 1 mbar is permitted within this specified test time. If a pressure drop of 1 mbar cannot be measured, multiplication of the pressure drop will result in the same multiplication of the test time.

Example:
Interstitial space volume: 1500 liters;
Test time (with measurable pressure drop of 1 mbar):
1500 / 100 x 8 = 120 minutes
Test time (with measurable pressure drop of 10 mbar):
120 x 10 = 1200 minutes (≈ 20 hours)

[17] This section assumes that the operating pressure has been built up in the interstitial space and the pressure has been compensated.

Operating mode "I":
Determine the difference between the measured values for "Refilling (Filling) OFF" and "Alarm ON" and convert into mbar (x 1000). Divide the calculated value by 8760. This results in a maximum tolerated pressure drop (per hour) to prevent triggering an alarm before one year has passed.
If the determined value cannot be measured, multiplication of the pressure drop will result in the same multiplication of the test time.

Example: Difference between the above-named switching values: 1.75 bar (value measured on site); 1.75 x 1000 = 1750;
1750 / 8760 = 0.2 mbar / h (permitted pressure drop)
The measuring gauge available on site "only" shows a value of 5 mbar. This means the readability is 25 times (5 / 0.2). This extends the test time to 25 hours.

(3) Disconnect the measuring gauge after the tightness test has been completed.

7.3.5 Tightness test as part of the annual functional check

(1) Perform a tightness inquiry (see section 4.5.5).
(2) Evaluate the displayed value (visible on the display for 10 seconds) according to chapter 4.5.6.

7.3.6 Creating the operating condition

(1) Seal the housing and the test valve(s) at the end of the interstitial space pointing away from the leak detector.
(2) If shut-off valves have been installed in the connection lines, they must be sealed in an opened position (if connected to an interstitial space).
(3) Make sure that for operating mode "C", the pressure gas bottle is filled sufficiently.

8. Alarm (Malfunction)

8.1 Alarm

When monitoring pressure lines, use the potential-free contacts of the leak detector to switch off the feed pumps.
(1) The red signal lamp lights up (yellow also lights up), the audible signal sounds.
(2) Turn the audible signal off.

8.2 Malfunction

(1) In case of a malfunction, only the red signal lamp will light up (yellow is off), and at the same time the audible signal cannot be acknowledged.

8.3 How to Behave

(1) Inform the installation company immediately and state the display from the preceding paragraph.

(2) Determine the cause for the alarm, fix it, and then perform a functional check for the leak detection system according to sec. 7.3.

9. Spare Parts

See also our online shop at shop.sgb.de

Switchboards (for plastic housing):

331670 Switchboard VD SMD L with LED and transformer 630 mA
(please indicate pressure level)

331725 Display board for electronic leak indicator, VL, VLR, DL, DLG, DLR-G, DLR-P

Manifolds:

412710 Manifold DLR-G with sensor 10 bar without overpressure switch, 24 V DC, integrated solenoid valve
(please indicate screw connection)

412720 Manifold DLR-G with sensor 20 bar without overpressure switch, 24 V DC, integrated solenoid valve
(please indicate screw connection)

Pressure sensors:

344510 Sensor 10 bar for DLR-G

344520 Sensor 20 bar for DLR-G

Overpressure valves:

On request

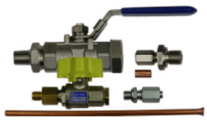
Housings:

220220 Housing lower part, "ABS" RAL 7033 (dark gray)

10. Accessories

For accessories, please refer to our online shop shop.sgb.de, e.g.,

- Installation kits



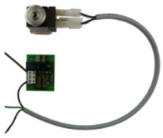
- Electrical isolators

- Manifolds

- Pressure reducers

- Flex tube to connect pressure reducer and leak detector

- Weather protection cover for pressure reducer



- Pressure limiter

- P version, weather-protected stainless-steel housing

11. Disassembly and Disposal

11.1 Disassembly

Prior to and during works, make sure the unit is free of gas and the breathing air contains sufficient oxygen levels.

Seal any openings gas-tight through which an explosion atmosphere can carry over.

Avoid using spark-producing tools (saws, parting grinders, etc.) for disassembly whenever possible. Should this be unavoidable, however, comply with EN 1127 or the area must be free of explosive atmosphere.

Avoid the build-up of electrostatic charges (e.g., through friction).

11.2 Disposal

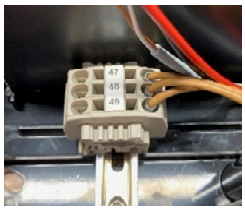
Properly dispose of contaminated components (possibly through outgassing).

Properly dispose of electronic components.

12. Appendix

12.1 Leak detector with pressure increase alarm DA

12.1.1 General



(1) The use of this version must be clarified with the expert in advance.

(2) Devices with a pressure increase alarm generally do not have an overpressure valve.

(3) In the event the pressure increase value is exceeded, an optical and acoustic alarm is triggered. The value at which the pressure increase alarm is triggered is about double the value for pump (or refill) OFF. Deviating values are indicated in mbar after the DA.

(4) The alarm can be forwarded via additional volt-free contacts.

(5) The pressure increase alarm is programmed in the firmware by the manufacturer and cannot be changed later at the construction site.

12.1.2 Overview of display elements

Indicator light status	Description	Measure	Indicator light status after acknowledgement
Operation (green): ON Alarm (red): OFF Alarm 2 (yellow): OFF	Normal operating condition		
WARNING AND ALARM MESSAGES			
Operation (green): ON Alarm (red): FLASHES TWICE FLASH SIMULTANEOUSLY Alarm 2 (yellow): FLASHES TWICE	Overpressure alarm System is under overpressure; system pressure is significantly higher than operating pressure	Acoustic alarm Can be switched off by pressing the “Mute” button	Operation (green): ON Alarm (red): FLASHES TWICE ALTERNATING FLASHING Alarm 2 (yellow): FLASHES TWICE

12.1.3 Functional check “pressure increase alarm DA”

(1) This functional check must be carried out additionally to the functional check in chapter 7.

(2) The digital manometer (version M) is required for this check.

(3) If a manifold with shut-off valves is connected, close all shut-off valves.

(4) Connect (engage) hand test pump at the test connection.

(5) Build up the pressure by pumping and monitor on the manometer in the cover.

(6) The pressure increase alarm is triggered when the set pressure of the DA is reached. The potential-free contact switches.
47/48 opens
47/49 closes

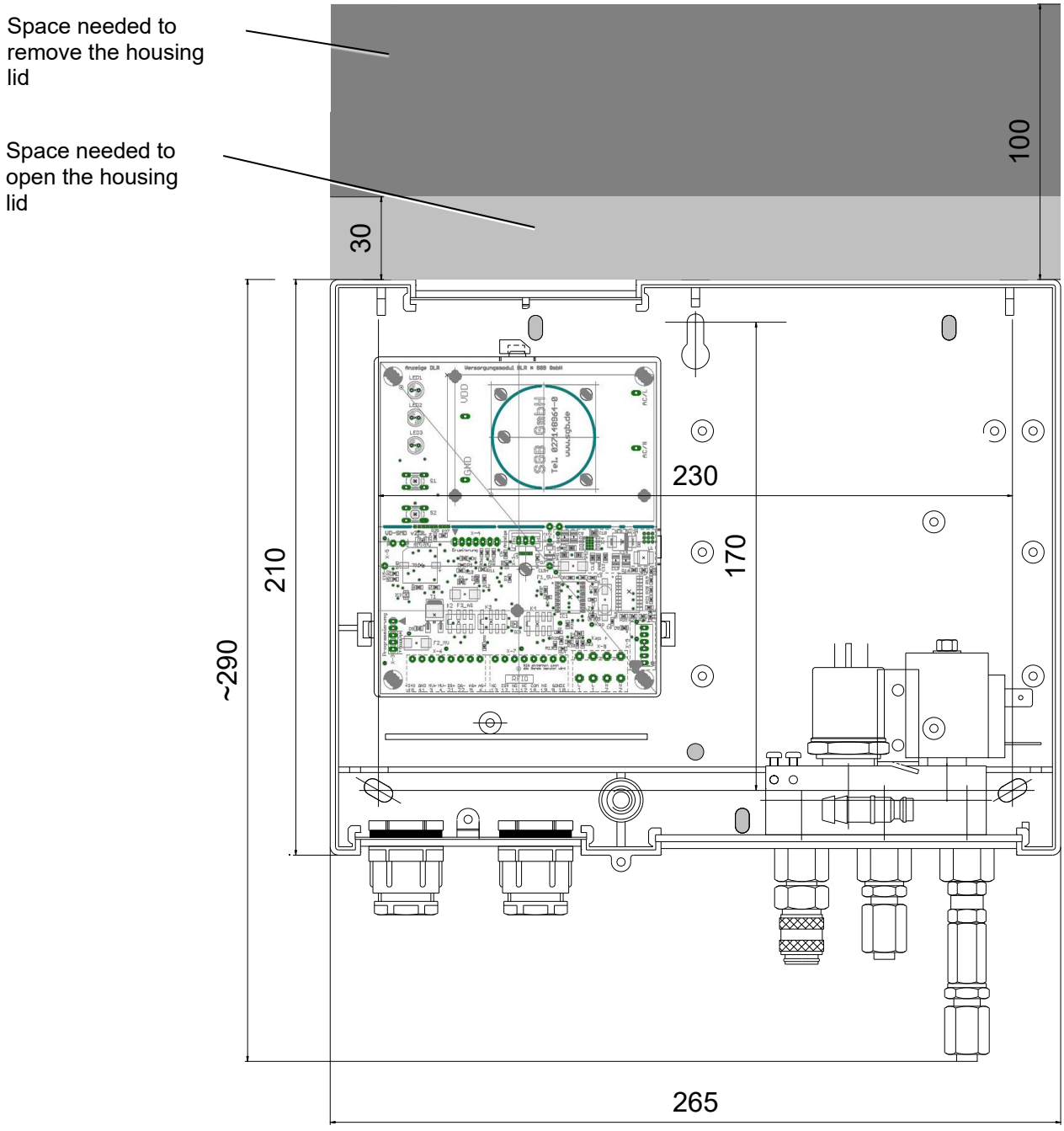
(7) Slowly vent the hand test pump, the overpressure decreases. When reaching a pressure of approx. 10-50 mbar below the set pressure of the DA, the pressure increase alarm is deleted again.

(8) If the DA corresponds to the agreed values, the test is passed.

(9) Disengage the hand test pump and open the valves closed under no. (3).

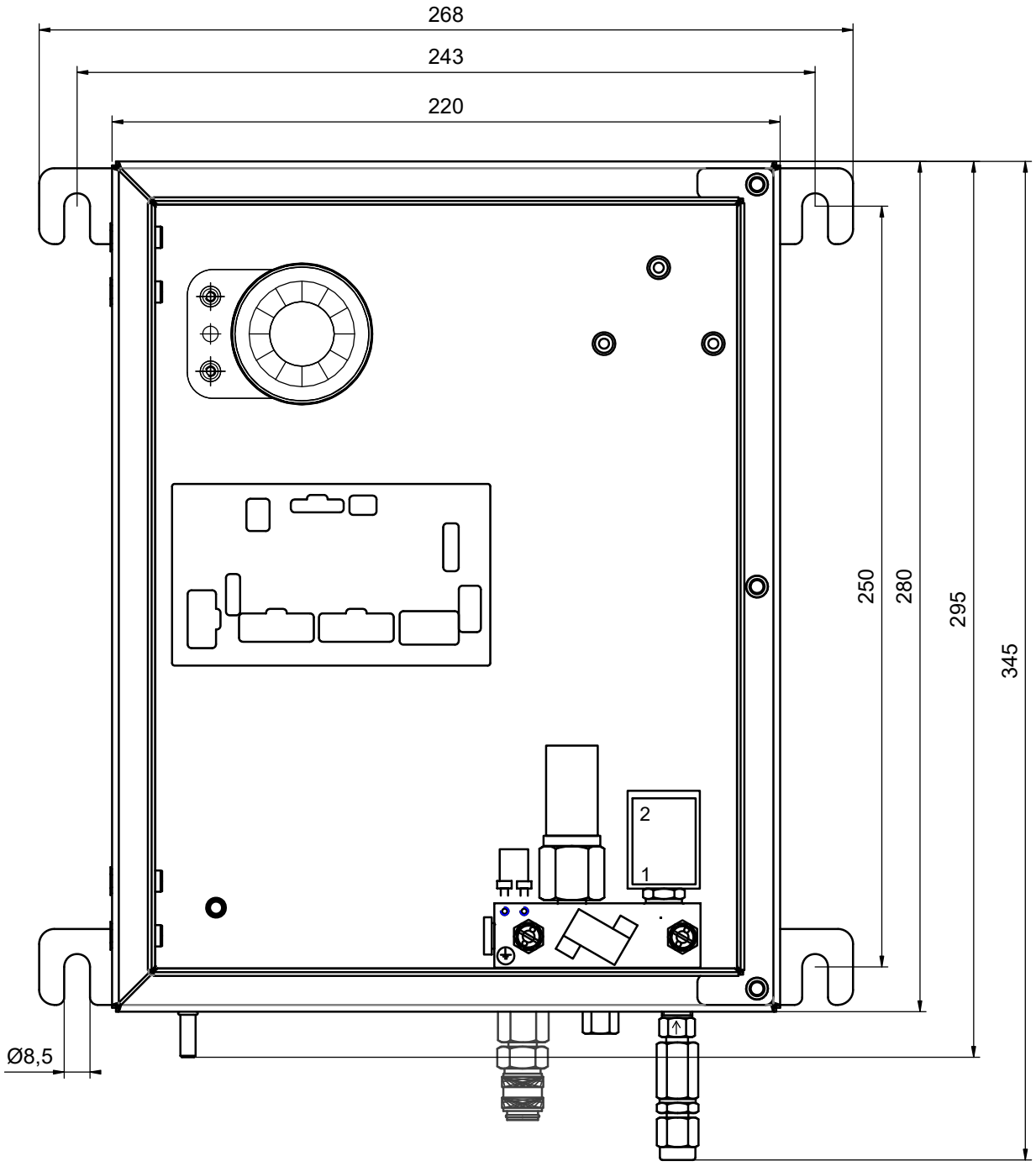
(10) Notes in the test report (remarks) about this inspection (including determined switching values).

12.2 Dimensions and Drilling Pattern, Plastic Housing



D = 110

12.3 Dimensions and Drilling Pattern, Stainless Steel Housing for Installation Outdoors



D = 120

12.4 Declaration of Conformity

We,

SGB GmbH

Hofstr. 10

57076 Siegen, Germany,

hereby declare in sole responsibility that the leak detectors

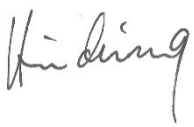
DLR-G

Comply with the essential requirements of the EU directives/regulations/UK statutory requirements listed below.

In case the device is modified or used in a way that has not been agreed with us, this declaration shall lose its validity.

Number/short title	Satisfied regulations
2014/30/EU EMC Directive SI 2016 No. 1091	EN 61000-6-3:2017 / A1:2011 EN 61000-6-2:2006 EN 61000-3-2:2014 EN 61000-3-3:2013
2014/35/EU Low Voltage Directive SI 1989 No. 728	EN 60335-1:2012 / A11:2014 / A13:2017 / A1:2019 / A2:2019 / A14:2019 / A15:2020 EN 61010-1:2010 / A1:2019 EN 60730-1:2011
2014/34/EU Equipment for Explosive Atmospheres SI 2016 No. 1105	The pneumatic components of the leak detector may be connected to spaces (interstitial spaces of containers/pipes/fittings) that require category 3 devices, and under special conditions also to spaces that require category 1 devices. The following documents have been consulted: EN 1127-1:2019 The ignition hazard assessment did not result in any additional hazards.

Conformity is declared by:



ppa. Martin Hücking
(Technical Director)

As of: 02/2023

12.5 Declaration of Performance

Number: **008 EU-BauPVO [EU CPR] 10-2015**

1. Unique identification code of the product type:

   Pressure leak detector model DLR-G ..

2. Intended use:

   Class I pressure leak detector for monitoring double-walled pipes

3. Manufacturer:

   SGB GmbH, Hofstraße 10, 57076 Siegen, Germany
   Phone: +49 271 48964-0, E-mail: sgb@sgb.de

4. Authorized representative:

   n/a

5. System for assessment and verification of consistency of performance:

   System 3

6. In case of a declaration of performance for a construction product which is covered by a harmonized standard:

   Harmonized standard: EN 13160-1-2:2003
   Notified body: TÜV Nord Systems GmbH & Co.KG, CC Tankanlagen, Große Bahnstraße 31, 22525 Hamburg, Germany
   Identification number of the notified testing laboratory: 0045

7. Declared performance:

Essential characteristics	Performance	Harmonized standard
Pressure switch points	Passed	EN 13160-2: 2003
Reliability	10,000 cycles	
Pressure test	Passed	
Volume flow rate test in the alarm switch point	Passed	
Function and tightness of the leak detection system	Passed	
Temperature resistance depending on housing type	0°C .. +40°C -40°C .. +60°C	

8. Signed for and on behalf of the manufacturer by:

   Dipl.-Ing. M. Hücking, Technical Director

   Siegen, 02/2023

12.6 Declaration of Compliance of the Manufacturer

SGB
MVV TB
Anhang C 2.15.15
TÜV-NORD

Compliance of the leak detector with the Specimen Administrative Provision of the Technical Building Regulations is hereby declared.

Dipl.-Ing. M. Hücking, Technical Director

Siegen, 02/2023

12.7 Certification TÜV Nord

Note:
By TÜV not certified translation of the German original version

TÜV NORD Systems

TÜV NORD Systems GmbH & Co. KG
PÜZ – Center for containers, pipes and equipment for plants with materials hazardous to water

Identification no.: 0045

Große Bahnstraße 31 · 22525 Hamburg
Phone: 040 8557-0
Fax: 040 8557-2295
hamburg@tuev-nord.de
www.tuev-nord.de

Certification

Subject of the test:	**Pressure Leak Detector Type DLR-G xx/yy; DLR-GS xx/yy**
Client:	SGB GmbH Hofstraße 10 D-57076 Siegen
Manufacturer:	SGB GmbH
Test type:	Initial testing of a pressure leak detector type DLR-G xx/yy and DLR-GS xx/yy with indicating unit according to DIN EN 13160-1:2003/EN 13160-1:2010 and DIN EN 13160-2:2003 and BRL (Construction Products List) A, Part 1, Annex 15.23 as a class I leak monitoring system
Test period:	02/2015 until 09/2015
Test location:	PÜZ Prüflabor TÜV NORD Systems GmbH & Co. KG
Test results:	**The pressure leak detectors type DLR-G xx/yy and DLR-GS xx/yy comply with the class I leak monitoring system according to DIN EN 13160-1:2003/EN 13160-1:2010 and fulfill the requirements according to DIN EN 13160-2:2003 and/or BRL A, Part 1, Annex 15.43 and Annex 15.23 when a mobile or stationary pressure cylinder (air or nitrogen) is used. In relation to the field of application and installation, the specifications according to the technical description "Documentation 604 100" as of 02/2015 for DLR-G xx/yy and the technical description "Documentation 604 300" as of 11/2015 for DLR-GS xx/yy apply**

For details on testing, please refer to test report PÜZ 8112235824 dated 3 September 2015.

Hamburg, 11 March 2016 Head of the Testing Laboratory

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As of 01/2013
STPÜZ-QMM-321-032-02

Legal notice

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