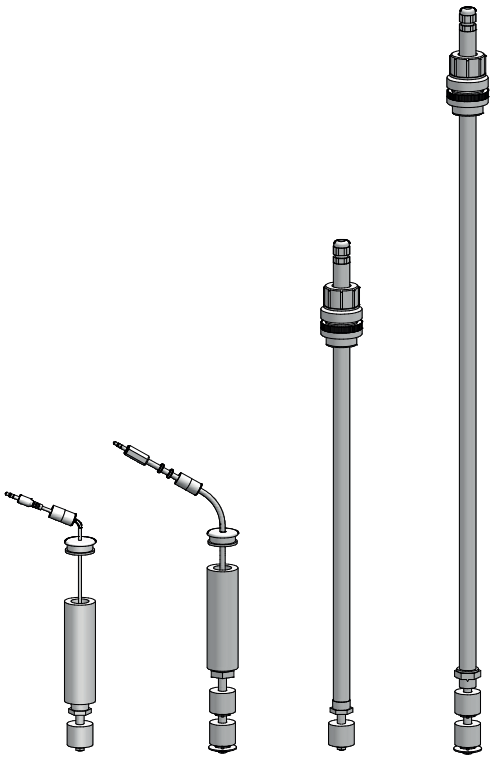
Level monitoring

Operating instructions



Read the operating manual!

The user is responsible for installation and operation related mistakes!

Original operating instructions

BA-12208-02-V01

Dosing | Liquids
Conveying | Gases
Control | Systems

Table of Contents

1 Notes for the Reader

This operating manual contains information and behaviour rules for the safe and designated operation of the product.

Observe the following principles:

- Read the entire operating manual prior to commissioning the product.
- ensure that everyone who works with or on the product has read the operating manual and follows the instructions.
- maintain the operating manual throughout the service life of the product.
- pass the operating manual on to any subsequent owner of the product.

1.1 General non-discrimination

In this operating manual, only the male gender is used where grammar allows gender allocation. The purpose of this is to make the text easy to read. Men and women are always referred to equally. We would like to ask female readers for understanding of this text simplification.

1.2 Explanation of the signal words

Different signal words in combination with warning signs are used in this operating manual. Signal words illustrate the gravity of possible injuries if the risk is ignored:

Signal word	Meaning
DANGER	Refers to imminent danger. Ignoring this sign may lead to death or the most serious injuries.
WARNING	Refers to a potentially hazardous situation. Failure to follow this instruction may lead to death or severe injuries.
CAUTION	Refers to a potentially hazardous situation. Failure to follow this instruction may lead to minor injury or damage to property.
PLEASE NOTE	Refers to a danger which, if ignored, may lead to risk to the machine and its function.

Tab. 1: Explanation of the signal words

1.3 Explanation of the warning signs

Warning signs represent the type and source of a danger:

Warning sign	Type of danger
	General danger
	Danger from corrosive substances
	Danger of damage to machine or functional influences

Tab. 2: Explanation of the warning signs

1.4 Identification of warnings

Warnings are intended to help you recognise risks and avoid negative consequences.

This is how warnings are identified:

Warning sign	**SIGNAL WORD**
Description of danger. Consequences if ignored. ⇨ The arrow signals a safety precaution to be taken to eliminate the danger.	

1.5 Identification of action instructions

This is how pre-conditions for action are identified:

✓ Pre-condition for action which must be met before taking action.

🛠 A resource such as a tool or auxiliary materials required to perform the operating instructions.

This is how instructions for action are identified:

➔ Separate step with no follow-up action.

1. First step in a series of steps.
2. Second step in a series of steps.

▸ Result of the above action.

✓ **Action completed, aim achieved.**

1.6 Intended use

Fixed and flexible level monitors are only to be used for fluid dosing media.

Fixed and flexible level monitors are only to be used if installed correctly and in accordance with the technical data and other specifications of the operating manual.

Comply with the general restrictions in terms of the viscosity thresholds, chemical resistance and density. For further information, consult the Lutz-Jesco resistance list.

	**WARNING**
Unsuitable dosing media! Never use unsuitable dosing media such as flammable or radioactive media. The materials of the level monitors are not designed for such dosing media ⇨ Wear appropriate personal protective equipment, especially for the protection of eyes and skin.	

2 General

2.1 Safety notices

	**WARNING**

Chemical burns or other burns through dosing medium!

You may come into contact with dosing equipment when working on the product.

⇨ Wear appropriate personal protective equipment, especially for the protection of eyes and skin.

⇨ Avoid skin contact with the dosing medium.

⇨ Check that all the screw connections have been tightened correctly and are leak-proof.

⇨ Never look into open ends of plugged hoses and valves.

2.2 Personal protective equipment

Based on the degree of risk posed by the dosing medium and the type of work you are carrying out, you must use corresponding protective equipment. Read the Accident Prevention Regulations and the Safety Data Sheets to the dosing media find out what protective equipment you need.

You will require the minimum of the following personal protective equipment:

Personal protective equipment required	
	Eye protection
	Protective clothing
	Protective gloves

Tab. 3: Personal protective equipment required

Wear the following personal protective equipment when performing the following tasks:

- Installation
- Operation

2.3 Personnel tasks

The table below indicates which personnel qualifications are required for the respective tasks. Only people with appropriate qualifications are allowed to perform these tasks!

Signal word	Meaning
Specialist staff	■ Commissioning ■ Shut-down ■ Fault resolution ■ Maintenance ■ Disposal
Trained electricians	■ Installing the electrics ■ Rectifying electrical faults
Trained persons	■ Operation ■ Storage ■ Transportation

Tab. 4: Personnel qualification

2.4 Hazards due to non-compliance with the safety instructions

Failure to follow the safety instructions can endanger not only persons but also the environment and the product.

The specific consequences can be:

- Failure of major device and corresponding system functions
- Failure of required maintenance and repair methods
- Risk to persons when working on the product

2.5 Working in a safety-conscious manner

Besides the safety instructions specified in this operating manual, further safety rules may apply. Always observe all safety-related regulations and guidelines applicable at the product's location of use. Note in particular the following items:

- Safety regulations on handling electricity and live components
- safety regulations on handling hazardous substances,
- Accident prevention regulations
- Safety and operating provisions
- Environmental protection provisions
- Other applicable directives and laws

2.6 Personnel qualification

Any personnel who work on the product must have appropriate special knowledge and skills.

Anybody who works on the product must meet the conditions below:

- Attendance at all the training courses offered by the owner
- Sufficient qualification for the respective activity
- Personal suitability for the respective activity
- Training into the handling of the device
- Knowledge of safety equipment and the way this equipment functions
- Knowledge of this operating manual, particularly of safety instructions

and sections relevant for the activity
- Knowledge of fundamental regulations regarding health and safety and accident prevention

All persons must generally have the following minimum qualification:

- Training as specialists to carry out work on the product unsupervised
- Sufficient training that they can work on the product under the supervision and guidance of a trained specialist

These operating instructions differentiate between these user groups:

2.6.1 Specialist staff

Thanks to their professional training, knowledge, experience and knowledge of the relevant specifications, specialist staff are able to perform the job allocated to them and recognise and/or eliminate any possible dangers by themselves.

2.6.2 Trained electricians

Due to their professional training, knowledge and experience as well as knowledge of specific standards and provisions, trained electricians are able to do the electrical work assigned to them and to recognise and avoid any potential dangers by themselves.

They are specially trained for their specific working environment and are familiar with relevant standards and provisions.

They must comply with the legally binding regulations on accident prevention.

2.6.3 Trained persons

Trained persons have received training from the operator about the tasks they are to perform and about the dangers stemming from improper behaviour.

Trained persons have attended all trainings offered by the operator.

3 Product description

3.1 The function of the product

Level controls are available as flexible and fixed versions with an adjustable length. They are used for empty notification and for protection against dry running A reed switch (switched by a magnet in a float) serves as a level sensor. The deactivation point for the NB and ND versions lies approx. 34 mm over the lowest stop point. This provides the operator with sufficient time to obtain further dosing media before the tank has been emptied to such an extent that the pump is switched off to prevent it from running dry. Level controls are available in acid and base-resistant plastics.

4 Dimensions

All dimensions in mm

4.1 Flexible level controls

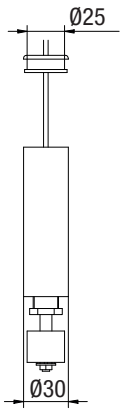


Fig. 1: Type NB

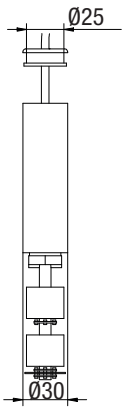


Fig. 2: Type NB-2

4.2 Rigid level controls

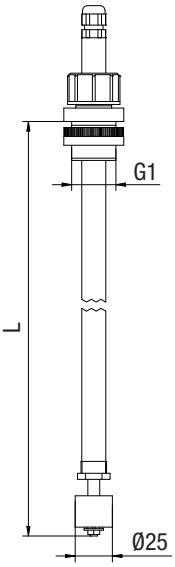


Fig. 3: Type ND

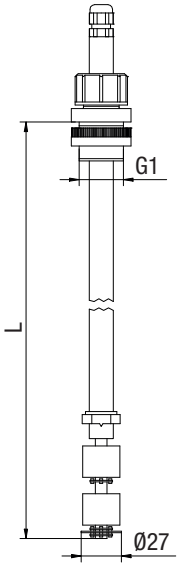


Fig. 4: Type ND-2

The installation lengths L can be taken from Tab. 7 “Technical data rigid level controls” on page 8.

5 Technical data

Indication and unit			
Max. ambient temperature		°C	5 – 40 (with PP or PVDF parts 5 – 45)
Max. temperature of the medium	PVC	°C	35
	PVDF	°C	60
	PP	°C	60
Max contact load rating			50 V DC/AC; 0,5 A; 10 VA

Tab. 5: Technical data

5.1 Flexible level controls

Type / **Indication and unit**		**NB**	**NB-2**
Number of switching points		1	2
Material		PVC	PVC / PVDF / PP
Cable length	mm	2500	2500

Tab. 6: Technical data flexible level controls

5.2 Rigid level controls

Type / **Indication and unit**		**ND**	**ND-2**
Number of switching points		1	2
Material		PVC	PVC / PVDF / PP
Cable length	mm	2500	2500
Installation version		adjustable	
Max. installation length L	mm	100, 200, 500, 540, 710, 800, 950, 1100, 1160, 1400	200, 500, 540, 710, 800, 950, 1100, 1160, 1400

Tab. 7: Technical data rigid level controls

6 Installation

This section provides an overview of the installation of the level controls. It explains the electrical installation and provides examples to outline the container-side installation and the float switch.

6.1 Electrical installation

With a level control, the voltage is supplied via the level input of a dosing pump.

Type	Pin assignment		
	Contact 1 = Main alarm	Contact 2 = Pre-alarm	Contact 3 = Ground
NB	red	-	black, white
NB-2	white	green	brown
ND	white	-	brown
ND-2	white	green	brown

Tab. 8: Cable assignment of level controls

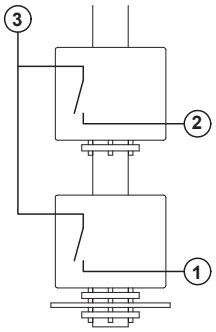


Fig. 5: Cable assignment of level controls

Item	Description
1	Main alarm
2	Pre-alarm
3	Ground

Tab. 9: Position numbers

6.2 Installing in the container

Flexible level controls are supplied with a rubber grommet and rigid controls with a clamping bush to allow convenient installation on a container. Flexible level controls can be shortened to the required size, rigid level controls can be set to the required length using a screw cap or clamping bushing.

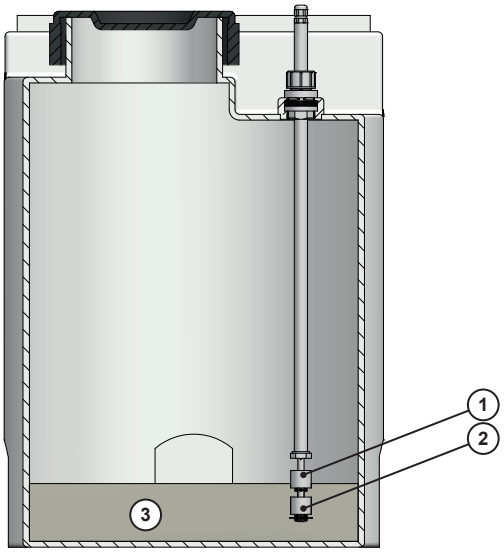


Fig. 6: Container with level control ND-2

Item	Description
1	Pre-alarm
2	Main alarm
3	Medium dosed

Tab. 10: Position numbers

6.3 Heigh-adjustment type ND and ND-2

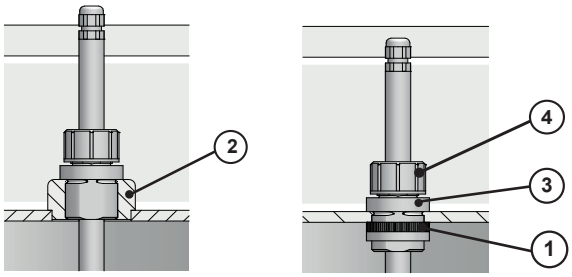


Fig. 7: Heigh-adjustment type ND and ND-2

Item	Description
1	Threaded ring
2	Threaded sleeve
3	Clamping bushing
4	Union nut

Tab. 11: Position numbers

Perform the following working steps:

Container with threaded sleeve:

1. Remove the threaded ring (1).

2. Screw the level control into the threaded sleeve (2) of the container.

Container with a simple drill-hole:

1. Insert the level control through the aperture in the container.
2. Screw the threaded ring (1) onto the clamping bushing (3) from the inside.

Adapt the level control to the height of the container:

1. Loosen the union nut (4).
   ▶ You can now move the level control.
2. Retighten the union nut once the desired position has been reached.

✓ **Heigh-adjustment carried out.**

6.4 Float switches

When the float moves upwards, the reed switch closes. This means that the contact is closed when the container is full and the float is floating high; it is open when the container is empty and the float is floating low.

7 Commissioning

WARNING

Chemical burns or other burns through dosing medium!

You may come into contact with dosing equipment when working on the product.

⇨ Wear appropriate personal protective equipment, especially for the protection of eyes and skin.

⇨ Avoid skin contact with the dosing medium.

⇨ Check that all the screw connections have been tightened correctly and are leak-proof.

⇨ Never look into open ends of plugged hoses and valves.

WARNING

Hazardous material!

Never use unsuitable dosing media such as flammable or radioactive media. The materials of the level controls are not designed for such dosing media; use of the media can result in egress which can cause serious injury and damage to the machine.

⇨ Wear appropriate personal protective equipment, especially for the protection of eyes and skin.

The following conditions must be established to permit commissioning:

✓ The level control has been installed electrically.

✓ The level control has been in the packaging.

Perform the following working steps:

1. Tighten all the screw connections hand-tight.

✓ **The level controlled has been commissioned.**

8 Transport, storage and disposal

The level controls are delivered in cardboard packaging and should always be transported in it:

- The packaging material is re-usable.
- The level controls must be stored cleaned.
- The ambient conditions are to be observed.

9 Accessories

The following accessories are available for the level controls:

- Clamping bushing
- Adapter for extending the standard connecting cable
- Adapter (required for pump types LD/LK/LP if using older level controls with a 3.5 mm jack plug)

10 Maintenance

Products by Lutz-Jesco are manufactured to the highest quality standards and have a long service life. However, some parts are subject to operational wear. This means that regular visual inspections are necessary to ensure a long operating life. Regular maintenance will protect the device from operation interruptions.

10.1 Maintenance intervals

This table gives you an overview of maintenance work and the intervals at which you must carry it out.

Interval	Maintenance
Monthly	■ Visual check

Tab. 12: Maintenance intervals

10.2 Maintenance work

Check all seals as required and replace if necessary. We recommend cleaning the screen and floats as required.

11 Declaration of no objection

Declaration of no objection

Please fill out a separate form for each appliance!

We forward the following device for repairs:

Device and device type: ..... Part-no.: .....

Order No.: ..... Date of delivery: .....

Reason for repair: .....

.....

.....

Dosing medium

Description: ..... Irritating: ☐ Yes ☐ No

Properties: ..... Corrosive: ☐ Yes ☐ No

We hereby certify, that the product has been cleaned thoroughly inside and outside before returning, that it is free from hazardous material (i.e. chemical, biological, toxic, flammable, and radioactive material) and that the lubricant has been drained.

If the manufacturer finds it necessary to carry out further cleaning work, we accept the charge will be made to us.

We assure that the aforementioned information is correct and complete and that the unit is dispatched according to the legal requirements.

Company / address: ..... Phone: .....

..... Fax: .....

..... Email: .....

Customer No.: ..... Contact person: .....

Date, Signature: .....

12 Warranty claim

Warranty claim

Please copy and send it back with the unit!

If the device breaks down within the period of warranty, please return it in a cleaned condition with the complete warranty claim.

Sender

Company: ..... Phone: ..... Date: .....

Address: .....

Contact person: .....

Manufacturer order no.: ..... Date of delivery: .....

Device type: ..... Serial number: .....

Nominal capacity / nominal pressure: .....

Description of fault: .....

.....

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Service conditions of the device

Point of use / system designation: .....

.....

.....

Accessories used (suction line etc.): .....

.....

.....

.....

.....

Commissioning (date): .....

Duty period (approx. operating hours): .....

Please describe the specific installation and enclose a simple drawing or picture of the chemical feed system, showing materials of construction, diameters, lengths and heights of suction and discharge lines.

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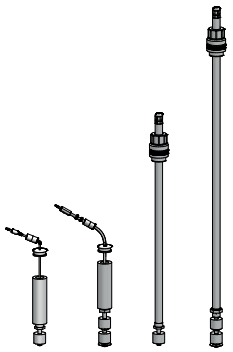

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