Fluidcontrol

IO-Link

Level- and temperature switch

Nivotemp NT 61, NT 61-HT, NT 63, NT 63-LTD/Nivovent NV 71, NV 73

Installation and Operation Instructions

Original instructions

BE100019
02/2019

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Read this instruction carefully prior to installation and/or use. Pay attention particularly to all advises and safety instructions to prevent injuries. Bühler Technologies can not be held responsible for misusing the product or unreliable function due to unauthorised modifications.

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Contents

1 Introduction

1.1 Intended Use

Level switches are used to monitor the liquid level and temperature in fluid systems.
Level switches must not be used in highly flammable or corrosive liquids.

The medium must not contain particles, particularly metallic particles, to prevent deposits on the float or between the float and switching tube. If necessary, filter the medium.

Please note the technical data in the appendix for the specific intended use, existing material combinations, as well as temperature limits.

WARNING

All device models are solely intended for industrial applications. They are **not safety components**. The devices must not be used if failure or malfunction thereof jeopardises the safety and health of persons.
Use in explosive areas is **prohibited**.

1.2 Functionality

1.2.1 Liquid level monitoring

The measuring tube is located inside the tank. The level switches are located inside the measuring tube. These are activated by a magnet inside the level switch float.

On models NT 63 and NV 73 the liquid level is continuously measured via reed-contact. The data is output via 4-20 mA analogue signal. The NT 63-LTD has an IO-Link standard interface for output.

On models NT 61 and NV 71 the contacts are mounted to a perforated rail spaced as specified in the purchase order, but can be moved if necessary.

1.2.2 Temperature monitor

The temperature is monitored via thermal element mounted to the end of the rail. Choose from temperature contacts with fixed increments, a resistance thermometer (Pt100) or a temperature transmitter.

In the case of continuous temperature measurement (model key "KT" / temperature transmitter) an analogue signal between 4 and 20 mA is output. The NT 63-LTD only has an IO-Link standard interface for output.

When equipped with resistance thermometer (model key "Pt100") the temperature is output using the change in resistance (0 °C = 100 Ω) of the Pt100.

Please note the technical data in the appendix.

1.3 Design types

The level switch is equipped with different switching and analogue outputs based on the configuration. The outputs are freely programmable.

The Nivovent type can be equipped with the following options:

VS	Optical contamination indicator for the vent filter: analogue negative pressure display, display range 0.35 bar (5.1 PSI).
BFA*	Filling adapter incl. ribbed flange with screen insert: This option enables adding small amounts of oil through the vent filter housing. The selected version is built into the respective housing for this purpose.
SSR*	Stilling tube with centring disc and filling adapter: Just as with the BFA, this contains both the stilling tube option as well as the filler. The stilling tube is made from the same material as the selected immersion tube (MS/VA).
MT	for installation into the multiterminal: Here the basic version is built into the multiterminal (MT).
MTS	for installation into the multiterminal including stilling tube: In addition to the basic version, a stilling tube with centring disc is built into the multiterminal.
FCT	Fluidcontrolterminal: Here the fluid control terminal (FCT) is mounted directly onto the basic version.

* not in conjunction with FCT and MT/MTS option

The SSR option is available for the Nivotemp type.

Please refer to the type plate for your equipment configuration. In addition to the job number, this also contains the item number and type designation.

1.4 Model key NT61

NT 61-□□-□□-nn-nn-□□-□□-□□-□□

Model designation

Version
MS Brass
VA float and immersion tube

Plug connector
M3
S6
M12
2M12
C6F

Length in mm (max. 1500)
280 Standard lengths
370
500
nn variable, please specify value

Level measurement
1-4 Number of contacts

Level contact
K Model K10 (NC/NO)
W Model W11 (change-over contact)

Options
SSR Stilling tube

2nd temperature contacts (TM... only)

	NC contact	*NO contact*	
TM...	TM50NC	TM50NO	= 50 °C
	TM60NC	TM60NO	= 60 °C
	TM70NC	TM70NO	= 70 °C
	TM80NC	TM80NO	= 80 °C

1st temperature signal

	NC contact	*NO contact*	
TK...	TK50NC	TK50NO	= 50 °C
	TK60NC	TK60NO	= 60 °C
	TK70NC	TK70NO	= 70 °C
	TK80NC	TK80NO	= 80 °C
TM...[3]	TM50NC	TM50NO	= 50 °C
	TM60NC	TM60NO	= 60 °C
	TM70NC	TM70NO	= 70 °C
	TM80NC	TM80NO	= 80 °C

Pt100 Temperature sensor[1]
KT Temperature transmitter[1] [2]

[1] Cannot be combined with temperature contact
[2] With KT only 10 - 30 V DC
[3] For version with 2 temperature contacts

1.5 Model key NT61-HT

NT 61-□□-□□-nn-nn-□□-□□-□□-□□

Model designation

Version
- HT Stainless steel

Plug connector
- M3
- S6
- M12
- 2M12
- C6F

Length in mm (max. 1500)
- 280 Standard lengths
- 370
- 500
- nnn variable, please specify value

Level measurement
- 1-4 Number of contacts [1]

Level contact
- K Model K10 (NC/NO)
- K-HT Model K10HT [2] (NC/NO)
- W Model W11 (change-over contact)
- W-HT Model W11HT [2] (change-over contact)

Options
- SSR Stilling tube

2nd temperature contacts (TM... only)

	NC contact	*NO contact*	
TM...	TM50NC	TM50NO	= 50 °C
	TM60NC	TM60NO	= 60 °C
	TM70NC	TM70NO	= 70 °C
	TM80NC	TM80NO	= 80 °C

1st temperature signal

	NC contact	*NO contact*	
TK...	TK50NC	TK50NO	= 50 °C
	TK60NC	TK60NO	= 60 °C
	TK70NC	TK70NO	= 70 °C
	TK80NC	TK80NO	= 80 °C
TM...[5]	TM50NC	TM50NO	= 50 °C
	TM60NC	TM60NO	= 60 °C
	TM70NC	TM70NO	= 70 °C
	TM80NC	TM80NO	= 80 °C

- Pt100 Temperature sensor [3]
- KT Temperature transmitter [3] [4]

1) Please specify position and switching function per model key
Example: L1 = nnn mm NC
2) Not adjustable
3) Cannot be combined with temperature contact
4) With KT only 10 - 30 V DC
5) For version with two temperature contacts

1.6 Model key NT63

NT 63-□□-□□-□□-□□-□□

Model designation

Measuring mode
- K Level and temperature measurement
- KN only level measurement
- LTD Level and temperature measurement (IO-Link)

Version
- MS Brass
- VA float and VA immersion tube

Plug connection
- M3 (only K/KN)
- M12

Optional
- SSR Stilling tube

Length (max. 1420 mm)
- 280
- 370
- 500
- 670
- 820
- 970
- 1120
- 1270
- 1420

1.7 Model key NV71

NV 71-HY-□□-□□-nn-nn-□□-□□-□□-□□-□□

Type designation, HY filter

Version
- MS Brass
- VA [1] float / VA immersion tube

Plug connector
- M3
- S6
- M12
- 2M12

Length in mm (max. 1500)
- 280 Standard lengths
- 370
- 500
- nnn variable, please specify value

Level measurement
- 1-4 Number of contacts [2]

Level contacts
- K Model K10 (NC/NO)
- W Model W11 (change-over contact)

Options

VS	Contamination indicator
BFA [3]	Filling adapter
SSR [3]	Stilling tube incl. filling adapter
MT	for multiterminal
MTS	for multiterminal with stilling tube option
FCT	for Fluidcontrolterminal

2nd temperature contact (TM... only)

	NC contact	*NO contact*	
TM...	TM50NC	TM50NO	= 50 °C
	TM60NC	TM60NO	= 60 °C
	TM70NC	TM70NO	= 70 °C
	TM80NC	TM80NO	= 80 °C

1st temperature signal

	NC contact	*NO contact*	
TK...	TK50NC	TK50NO	= 50 °C
	TK60NC	TK60NO	= 60 °C
	TK70NC	TK70NO	= 70 °C
	TK80NC	TK80NO	= 80 °C
TM [6] ...	TM50NC	TM50NO	= 50 °C
	TM60NC	TM60NO	= 60 °C
	TM70NC	TM70NO	= 70 °C
	TM80NC	TM80NO	= 80 °C
Pt100	Temperature sensor [4]		
KT	Temperature transmitter [4] [5]		

1) Not in conjunction with option FCT
2) Please specify position and switching function per model key, Example: L1 = nnn mm NC
3) not in conjunction with FCT, MT or MTS option
4) Cannot be combined with temperature contact
5) With KT only 10 - 30 V DC
6) For version with two temperature contacts

1.8 Model key NV73

NV 73-HY-□□-□□-□□-□□-□□-□□

Type designation, HY filter

Measuring mode
- K Level and temperature measurement
- KN Level measurement only

Version
- MS Brass
- VA [1] float and VA immersion tube

Plug connection
- M3
- M12

Options

VS	Contamination indicator
BFA [2]	Filling adapter
SSR [2]	Stilling tube with filling adapter
FCT	Fluidcontrolterminal
MT	for multiterminal
MTS	for multitermminal incl. stilling tube

Length (max. 1420 mm)
- 280
- 370
- 500
- 670
- 820
- 970
- 1120
- 1270
- 1420

1) Not in conjunction with FCT option
2) Not in conjunction with FCT, MT or MTS option

1.9 Scope of Delivery

- Level switch
- Product documentation
- Connection/mounting accessories (optional)

2 Safety instructions

2.1 Important advice

Operation of the device is only valid if:

- the product is used under the conditions described in the installation- and operation instruction, the intended application according to the type plate and the intended use. In case of unauthorized modifications done by the user Bühler Technologies GmbH can not be held responsible for any damage,
- when complying with the specifications and markings on the nameplates.
- the performance limits given in the datasheets and in the installation- and operation instruction are obeyed,
- monitoring devices and safety devices are installed properly,
- service and repair is carried out by Bühler Technologies GmbH,
- only original spare parts are used.

This manual is part of the equipment. The manufacturer keeps the right to modify specifications without advanced notice. Keep this manual for later use.

Signal words for warnings

DANGER	Signal word for an imminent danger with high risk, resulting in severe injuries or death if not avoided.
WARNING	Signal word for a hazardous situation with medium risk, possibly resulting in severe injuries or death if not avoided.
CAUTION	Signal word for a hazardous situation with low risk, resulting in damaged to the device or the property or minor or medium injuries if not avoided.
NOTICE	Signal word for important information to the product.

Warning signs

These instructions use the following warning signs:

	Warns of a general hazard		Unplug from mains
	Voltage warning		Wear respiratory equipment
	Warns not to inhale toxic gasses		Wear a safety mask
	Warns of corrosive liquids		Wear gloves
	General information		

2.2 General hazard warnings

The equipment must be installed by a professional familiar with the safety requirements and risks.

Be sure to observe the safety regulations and generally applicable rules of technology relevant for the installation site. Prevent malfunctions and avoid personal injuries and property damage.

The operator of the system must ensure:

- Safety notices and operating instructions are available and observed,
- The respective national accident prevention regulations are observed,
- The permissible data and operational conditions are maintained,
- Safety guards are used and mandatory maintenance is performed,
- Legal regulations are observed during disposal.

Maintenance, Repair

Please note during maintenance and repairs:

- Repairs to the unit must be performed by Bühler authorised personnel.
- Only perform conversion-, maintenance or installation work described in these operating and installation instructions.
- Always use genuine spare parts.

Always observe the applicable safety and operating regulations in the respective country of use when performing any type of maintenance.

The method for cleaning the devices must be adapted to the IP protection class of the devices. Do not use cleaners which could damage the device materials.

DANGER **Toxic, acidic gases/liquids**

Protect yourself from toxic, corrosive gasses/liquids when performing any type of work. Wear appropriate protective equipment.

3 Transport and storage

Only transport the product inside the original packaging or a suitable alternative.

The equipment must be protected from moisture and heat when not in use. It must be stored in a covered, dry, dust-free room at room temperature.

4 Setup and connection

DANGER **Electric voltage**

Risk of electric shock

a) De-energise the system.

b) The equipment may only be installed, maintained and put into operation by instructed, competent personnel.

c) Always observe the applicable safety regulations for the operating site.

DANGER **Toxic, acidic gases/liquids**

Protect yourself from toxic, corrosive gasses/liquids when performing any type of work. Wear appropriate protective equipment.

4.1 Installation

Please note before installing the level switch!

After transport and delivery of the level switch, the switching status of the bistable contacts may be different than required for proper operation.

Therefore slide the float for the level switch along the level switch tube from below immediately before installation.

This ensures all built-in bistable contacts have a clearly defined switching status (NC or NO).

For direct installation to the tank, insert the switching tube into the designated bore (per DIN 24557, Part 2) with rubberised cork seal on the tank. It secures to the flange using the included screws and seals. Please be sure the float can move freely and to leave enough space between the tank wall and add-ons.

After removing the float, where applicable, be sure the magnet inside the float is above the fluid level. This can easily be verified with a piece of iron to determine the magnet position inside the float.

DANGER **Electric voltage**

Risk of electric shock
When connecting devices, please note the maximum voltages and currents currents (see technical data) and use the correct wire cross-sections and circuit breakers.
When selecting the connection lines, also note the maximum operating temperatures of the devices.
Installation in special areas of application:
If the device will be installed outdoors or in wet areas, the maximum operating voltage is max. 16 V DC effective or 35 V DC.

4.2 Information on the correct operation of reed contacts in Bühler level switches

Based on their construction, reed contacts are very long lasting and reliable components. Yet the following should be considered when using them:

Life of reed switches

The life of reed switches can be up to 10^9 cycles. This is reduces by high stress and / or incorrect or the absence of protective circuits when switching inductive, capacitive or lamp loads.

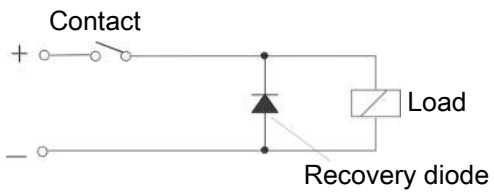
It's therefore important to ensure NEVER to exceed one or several of the maximum approved limits, even temporarily, and to install a contact protective circuit for loads which are not purely ohmic. Using test lamps when installing the devices is also prohibited, as these can temporarily allow too much current to flow, which can damage the reed contacts. In this case non-volatile testing equipment should always be used.

Contact protective circuits for reed switches

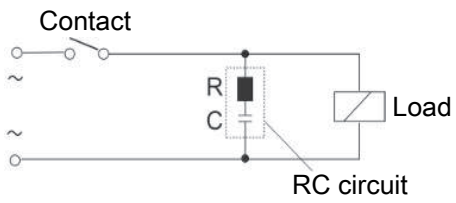
For direct current voltage a recovery diode per figure A must be connected parallel to the contact.

For alternating current voltage an RC circuit per Figure B and Table 1 must be connected parallel to the contact.

A



B



Load in VA	10		25		50	
Voltage at contact V	R/Ohm	C/µF	R/Ohm	C/µF	R/Ohm	C/µF
24	22	0.022	1	0.1	1	0.47
60	120	0.0047	22	0.022	1	0.1
110	470	0.001	120	0.0047	22	0.022
230	470	0.001	470	0.001	120	0.0047

Please note the max. voltage/load ratings of the respective level contacts!

Voltages and currents

All Bühler level contacts with reed switch can switch minimal Switching voltages of 10 µV and minimal switching currents of 1 µA.

The maximum values specified for the respective contact types apply.

Level contact with reed switches can therefore be used for SPS applications as well as for high loads (within the maximum limits) without hesitation.

Contact material

All reed switches in Bühler level contacts use rhodium as the contact material for the actual contact areas.

Magnetic fields

Avoid external magnetic fields, including from electric motors. These can interfere with the function of the reed switches.

Mechanical loads

Do not expose the level switch to strong blows or bending.

4.3 Adjusting level contacts (NT61, NV71 only)

The level measurement contacts are mounted on a perforated rail inside the protective tube. These are arranged per order specifications but can be moved if necessary.

Depending on the model, the perforated rail will also have electronic assemblies. These are positioned so they do not limit the setting range of the level contacts. Please be sure not to damage the assemblies during installation or removal. Models with the designation K, KN or LTD supply a continuous 4-20 mA signal. These devices do not require configuration.

For devices with 230 V mains voltage:

DANGER **Electrical voltage**

Electrocution hazard.

a) Disconnect the device from power supply.

b) Make sure that the equipment cannot be reconnected to mains unintentionally.

c) The device must be opened by trained staff only.

d) Regard correct mains voltage.

- Disconnect the voltage supply.
- Disconnect the plug.
- **Models NT61:** Unscrew the plug base. For plug-in connectors with screw-in plug base, unscrew the top hexagon ring and pull the complete pin insert up until the bottom of the base can be unscrewed freely.
- **Models NV71:** Remove filter cover and element. Unscrew and remove the filter case. Unscrew the flange cover from the level switch.
- Carefully pull the perforated rail with contacts out the top.

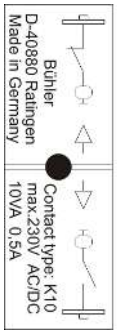
NOTICE

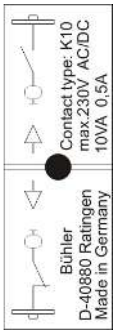
On versions with earth wire, this is run as a loop and soldered to the protective tube from the inside in the insertion direction. To prevent breaking off the earth wire it should not be pulled all the way out.

- Mark the original contact position.
- Lock the contacts in place in the desired positions. Please note the minimum spacing!

If the contacts are configured as NO contact (NO) or NC contact (NC), the contact function can be reversed by turning the contacts 180°. The housing has symbols for NC contact and NO contact as well as an arrow. The arrow, which points up when installed, indicates the current contact function. The contact logic assumes the level switch is installed in an empty tank, i.e. it is only in the operating position once filled.

Function NO contact (NO) with rising level





Function NC contact (NC) with rising level

- If the earth wire was pulled out of the protective tube, first insert this wire into the protective tube.
- Make a loop of the additional cable length and carefully slide the perforated rail in again.
- **Models NT61:** Screw on the plug base. For plugs with screw-in thread, attach the plug base clean and screw in hand tight. Leave the pin insert free so the base can turn around the cables. Now slide the cables all the way in, lock the pin insert into the guide and slide all the way in. Tighten the top hexagon ring hand tight.
- **Models NV71:** Screw on the flange cover. Screw on the filter case. Attach the filter cover and element.

NOTICE

Ensure the seals are positioned correctly. Replace defective seals immediately!

4.4 Settings

All models in the series named "63-K..." continuously capture the liquid level and the temperature via reed-contact or a Pt100.

Sensor versions “63-K... and 63-KN...” output 4 – 20 mA analogue signals (normally: 4 mA lowest point, 20 mA highest point).

These devices require no configuration.

Sensor versions “63-LTD” are available with digital interface.

Here the sensor uses the standardised technology **IO-Link**, an efficient point-to-point communication. It uses the previous, proven and tested connection technology.

Compatibility with the previous technology is guaranteed. If no IO-Link master is connected, the outputs can be used as regular switching outputs (1 PNP liquid level output, 1 PNP temperature output).

This allows configuring the switching points via the IO-Link interface.

For the respective IODD configuration data, please visit https://ioddfinder.io-link.com.

5 Operation and control

NOTICE

The device must not be operated beyond its specifications.

6 Cleaning and Maintenance

This device is maintenance-free.

The method for cleaning the devices must be adapted to the IP protection class of the devices. Do not use cleaners which could damage the device materials.

For versions with filter:

The filter element must be replaced as needed, at least 1x annually. In exceptional cases a small amount of oil can be added via the filter.

During maintenance, remember:

– The equipment must be maintained by a professional familiar with the safety requirements and risks.
– Only perform maintenance work described in these operating and installation instructions.
– When performing maintenance of any type, observe the respective safety and operation regulations.

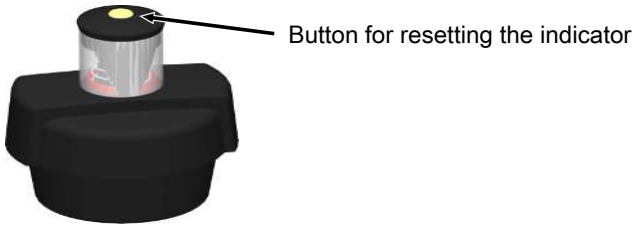
6.1 Replacing the filter element

Replace the filter element as follows:

– Temporarily shut down the system.
– The filter cover counter-clockwise to open.
– Remove the filter element and dispose according to legal regulations.
– Insert the new filter element. Be sure to use the correct filter fineness!
– Screw on the filter cover.
– For filters with optical contamination indicator: Set the display to zero.

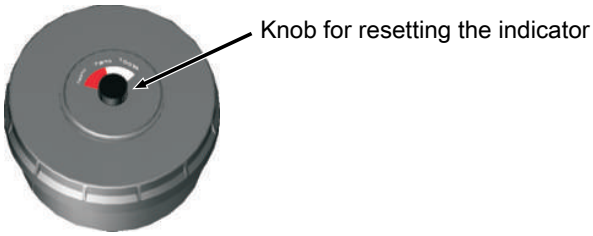
Hydac filter

When the maximum display value is reached, the red indicator piston will lock in place, indicating the filter service is required. Press the yellow Reset button to reset the display to zero.



Filtration Group filter

Filter contamination is indicated in percent (50%, 75% and 100 %). To reset the display to zero, turn the knob in the direction of the arrow until the red part of the indicator disc is turned all the way back.



6.2 Adding small amounts of oil

Nivovent type with BFA or SSR option only:

– Temporarily shut down the system.
– The filter cover counter-clockwise to open.
– Remove the filter element.
– Slowly add oil through the nodular holes.
– Reinsert the filter element and close the cover.
– Restart the system.

7 Service and repair

This chapter contains information on troubleshooting and correction should an error occur during operation.

Repairs to the unit must be performed by Bühler authorised personnel.

Please contact our Service Department with any questions:

Tel.: +49-(0)2102-498955 or your agent

If the equipment is not functioning properly after correcting any malfunctions and switching on the power, it must be inspected by the manufacturer. Please send the equipment inside suitable packaging to:

Bühler Technologies GmbH

- Reparatur/Service -

Harkortstraße 29

40880 Ratingen

Germany

Please also attach the completed and signed RMA decontamination statement to the packaging. We will otherwise be unable to process your repair order.

You will find the form in the appendix of these instructions, or simply request it by e-mail:

service@buehler-technologies.com.

7.1 Spare parts and accessories

Accessories

Item no.	Description
9144 05 0010	Connecting cable M12x1, 4-pin, 1.5 m, angular coupling and straight plug
9144 05 0046	Connecting cable M12x1, 4-pin, 3.0 m, angular coupling and straight plug
9144 05 0047	Connecting cable M12x1, 4-pin, 5.0 m, angular coupling and strands

8 Disposal

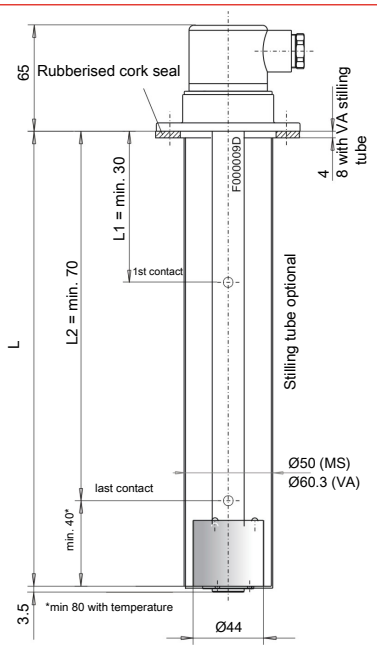
Dispose of parts so as not to endanger the health or environment. Follow the laws in the country of use for disposing of electronic components and devices during disposal.

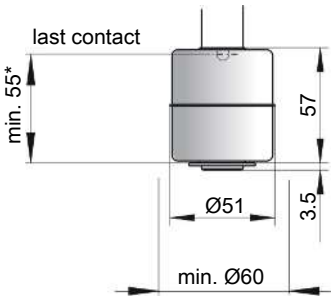
9 Appendices

9.1 Technical Data NT 61

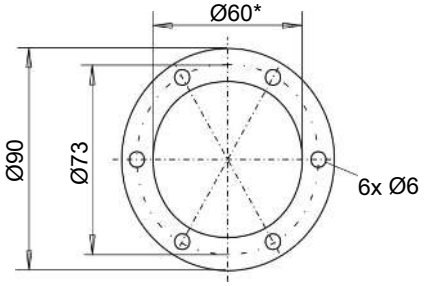
Basic Unit

Version	**MS**	**VA**
Operating pressure	max. 1 bar	max. 1 bar
Operating temperature	-20 °C to +80 °C	-20 °C to +80 °C
Float	SK 610	SK 221
Min. fluid density	0.80 kg/dm³	0.85 kg/dm³
Lengths (all versions)	280, 370, 500 mm (Standard) variable to max. 1500 mm	
Material/Version	**MS**	**VA**
Float	rigid PU	1.4571
Immersion tube	Brass	1.4571
Flange (DIN 24557)	PA	PA
Weight at L=280 mm Each 100 mm add	approx. 200 g approx. 30 g	approx. 300 g approx. 50 g
Includes: Mounting screws (quantity 6) and rubberised cork seal.		
Options		
Stilling tube (SSR)	Brass	VA
Level switching output	**K10**	**W11**
Function	NO/NC*	Change-over contact
Voltage max.	230 V AC/DC	48 V AC/DC
Switching current max.	0.5 A	0.5 A
Contact load max.	10 VA	20 VA
Min. contact spacing	40 mm	40 mm
*NO = falling NC contact / NC = falling NO contact		
Temperature contact	**TK**	**TM**
Number of temp. contacts	1	2
Voltage max.	230 V AC/DC	230 V AC/DC
Switching current max.	2.5 A	2 A
Contact load max.	100 VA	100 VA
Function	**NC***	**NC***
Switching point °C	50/60/70/80	50/60/70/80
Switching point tolerance	± 3 K	± 5 K
Hysteresis max.	10 K ± 3 K	18 K ± 5 K
Function	**NO***	**NO***
Switching point °C	50/60/70/80	50/60/70/80
Switching point tolerance	± 3 K	± 5 K
Hysteresis max.	10 K ± 3 K	26/35/40/45 K ± 5 K
*NO= NO contact / NC = NC contact Other temperatures and versions with 2 x TK contact available upon request		





* min. 80 with temperature

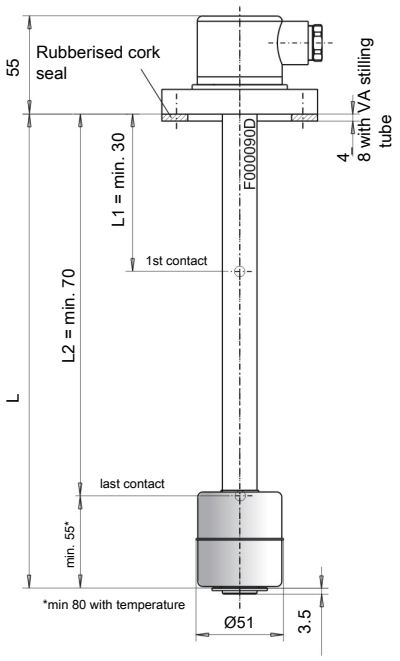


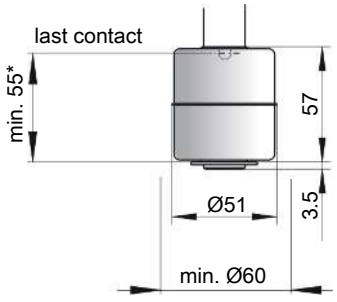
*min. Ø61 for VA version with stilling tube

Temperature signal		
Temperature sensor	**Pt 100** Class B, DIN EN 60 751 Tolerance ±0.8 °C	
Temperature transmitter	**KT**	
Temperature sensor	Pt100 Class B, DIN EN 60 751	
Measuring range	0 °C to +100 °C	
Operating voltage (U_B)	10 - 30 V DC	
Output	4 - 20 mA	
Burden Ω max.	= (U_B -7.5 V) / 0.02 A	
Accuracy	± 1 % from end value	
Other measuring ranges available upon request		

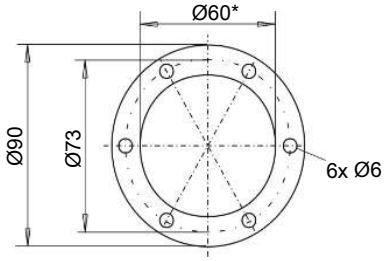
9.2 Technical Data NT 61-HT

Basic Unit				
Operating pressure	max. 1 bar			
Operating temperature	-20 °C to +80 °C			
Float	SK 221			
Min. fluid density	0.85 kg/dm³			
Lengths (all versions)	280, 370, 500 mm (Standard) variable to max. 1500 mm			
Material/Version				
Float	1.4571			
Immersion tube	1.4571			
Flange (DIN 24557)	1.4571			
Weight at L=280 mm Each 100 mm add	approx. 950 g approx. 50 g			
Includes: Mounting screws (quantity 6) and rubberised cork seal.				
Options				
Stilling tube (SSR)	Same material as immersion tube			
Level switching contact				
	K10	**W11**	**K10HT****	**W11HT****
Function	NO/NC*	Change-over contact	NO/NC*	Change-over contact
Voltage max.	230 V AC/DC	48 V AC/DC	230 V AC/DC	48 V AC/DC
Switching current max.	0.5 A	0.5 A	0.5 A	0.5 A
Contact load max.	10 VA	20 VA	10 VA	20 VA
Min. contact spacing	40 mm	40 mm	40 mm	40 mm
Operating temperature	105 °C	105 °C	150 °C	150 °C
*NO= falling NC contact / NC = falling NO contact **HT= not adjustable				
Optional temperature switching outputs				
Temperature contact	**TK**	**TM**		
Number of temp. contacts	1	2		
Voltage max.	230 V AC/DC	230 V AC/DC		
Switching current max.	2.5 A	2 A		
Contact load max.	100 VA	100 VA		
Function	**NC***	**NC***		
Switching point °C	50/60/70/80	50/60/70/80		
Switching point tolerance	± 3 K	± 5 K		
Hysteresis max.	10 K ± 3 K	18 K ± 5 K		
Function	**NO***	**NO***		
Switching point °C	50/60/70/80	50/60/70/80		
Switching point tolerance	± 3 K	± 5 K		
Hysteresis max.	10 K ± 3 K	26/35/40/45 K ± 5 K		
*NO = NO contact / NC = NC contact Data for rising temperature. Other temperatures and version with 2 x TK contact available upon request.				





* min. 80 with temperature



*min. Ø61 for VA version with stilling tube

Optional temperature signal	
Temperature sensor	**Pt 100** Class B, DIN EN 60 751 Tolerance ±0.8 °C
Temperature transmitter	**KT**
Temperature sensor	Pt100 Class B, DIN EN 60 751
Measuring range	0 °C to +100 °C
Operating voltage (U_B)	10 - 30 V DC
Output	4 - 20 mA
Burden Ω max.	= (U_B -7.5 V) / 0.02 A
Accuracy	± 1 % from end value
Other measuring ranges available upon request	

9.3 Technical Data NT 63

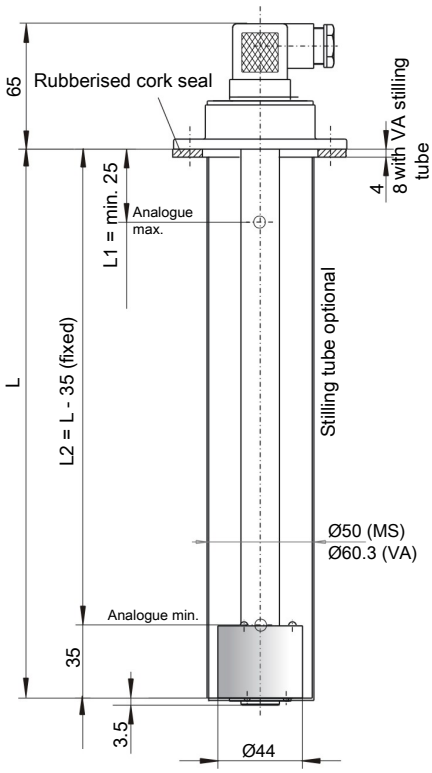
Basic unit

K = continuous liquid and temperature measurement
KN = continuous level measurement
LTD = level and temperature measurement (IO-Link)

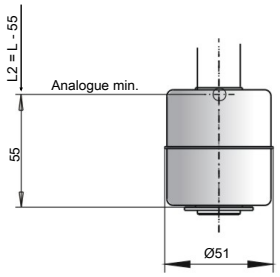
Version	MS	VA
Operating pressure:	max. 1 bar	max. 1 bar
Medium temperature:	-20 °C to +80 °C	-20 °C to +80 °C
Float:	SK604	SK221
Min. fluid density:	0.80 kg/dm³	0.85 kg/dm³
Lengths (all versions):	280, 370, 500, 670, 820, 970, 1120, 1270 and 1420 mm (other lengths available upon request)	
Material/Version		
Float:	PU	1.4571
Immersion tube:	Brass	1.4571
Flange DIN 24557 Part 2:	PA	PA
Weight at L=280 mm: Each 100 mm add:	approx. 200 g approx. 30 g	approx. 300 g approx. 50 g
Includes: Mounting screws (quantity 6) and rubberised cork seal.		
Options		
Stilling tube (SSR):	Brass	VA
Input values	**Level**	**Temperature**
Measuring principle:	Reed-contact	Pt100 Cl. B, DIN EN 60751
Resolution:	5 mm	
Tolerance:		± 0.8 °C
Analogue version		
Ambient temperature:	-20 °C to 80 °C	
Operating voltage (U_B):	10 – 30 V DC	10 – 30 V DC
Analysis display electronics accuracy:	± 1 % from end value	± 1 % from end value
Output:	4-20 mA	4-20 mA (0-100 °C*) *Other ranges upon request
Max. burden Ω:	=(U_B -7.5 V) / 0.02 A	=(U_B -7.5 V) / 0.02 A
Digital version		
Ambient temperature:	-20 °C to 70 °C	
Operating voltage (U_B):	18 – 30 V DC	18 – 30 V DC
Analysis display electronics accuracy:	± 1 % from end value	± 1 % from end value
IO-Link version:	Revision 1.1	
Baudrate:	COM3 (230.4 k)	
SIO Mode:	Yes	
min. time period:	10 ms	

Dimensions

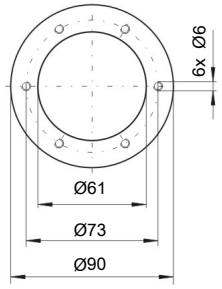
Basic model



SK 221 Float



Flange drawing



9.4 Technical Data NV 71

Basic unit

Version	MS	VA
Operating pressure	max. 1 bar	max. 1 bar
Operating temperature	-20 °C to +80 °C	-20 °C to +80 °C
Float	SK 610	SK 221
Min. fluid density	0.80 kg/dm³	0.85 kg/dm³
Lengths (all versions)	280, 370, 500 mm (standard) variable to max. 1500 mm	

Material/Version		
Float	rigid PU	1.4571
Immersion tube	Brass	1.4571
Flange (DIN 24557)	PA	PA
Weight at L=280 mm Each 100 mm add	approx. 790 g approx. 30 g	approx. 870 g approx. 50 g

Options		
Stilling tube (SSR)	Brass	VA

Vent filter	All versions HY type Hydac BF 7
Filter fineness	3 µm
Additional equipment	Filler cap – n/a with filling adapter

Level switching output	K10	W11
Function	NO / NC*	Change-over contact
Voltage max.	230 V DC	48 V DC
Switching current max.	0.5 A	0.5 A
Contact load max.	10 VA	20 VA
Min. contact spacing	40 mm	40 mm

*NO = falling NC contact / NC = falling NO contact

Optional temperature switching outputs	TK		TM	
Number of temp. contacts	1		2	
Voltage max.	230 V DC		230 V DC	
Switching current max.	2.5 A		2 A	
Contact load max.	100 VA		100 VA	
Function	NO*	NC*	NO	NC
Switching point °C	50/60/70/80	50/60/70/80	50/60/70/80	50/60/70/80
Switching point - tolerance	± 3 K	± 3 K	± 5 K	± 5 K
Hysteresis max.	10 K ± 3 K	10 K ± 3 K	26/35/40/45 K ± 5 K	18 K ± 5 K

*NO = NO contact / NC = NC contact
Data for rising temperature. Other temperatures and versions with 2 x TK contact available upon request

Temperature sensor	
Temperature sensor	Pt 100 Class B, DIN EN 60 751 Tolerance ±0.8 °C
Temperature transmitter	**KT**
Temperature sensor	Pt100 Class B, DIN EN 60 751
Measuring range	0 °C to +100 °C
Operating voltage (U_B)	10 - 30 V DC
Output	4 - 20 mA
Burden Ω max.	= (U_B -7.5 V) / 0.02 A
Accuracy	± 1 % from end value

Other measuring ranges available upon request

9.5 Technical Data NV 73

Basic unit

K = continuous level and temperature measurement
KN = continuous level measurement

Version	MS	VA*
Operating pressure	max. 1 bar	max. 1 bar
Operating temperature	-20 °C to +80 °C	-20 °C to +80 °C
Float	SK604	SK221
Min. fluid density	0.80 kg/dm³	0.85 kg/dm³
Lengths (all versions)	280, 370, 500, 670, 820, 970, 1120, 1270 and 1420 mm (other lengths available upon request)	

Material/Version		
Float	PU	1.4571
Immersion tube	Brass	1.4571
Flange / filter housing	PA	PA
Weight at L=280 mm Each 100 mm add	approx. 800 g approx. 30 g	approx. 900 g approx. 50 g

Includes:
Mounting screws (quantity 6) and GI-cork seal.

*Not available in conjunction with FCT option

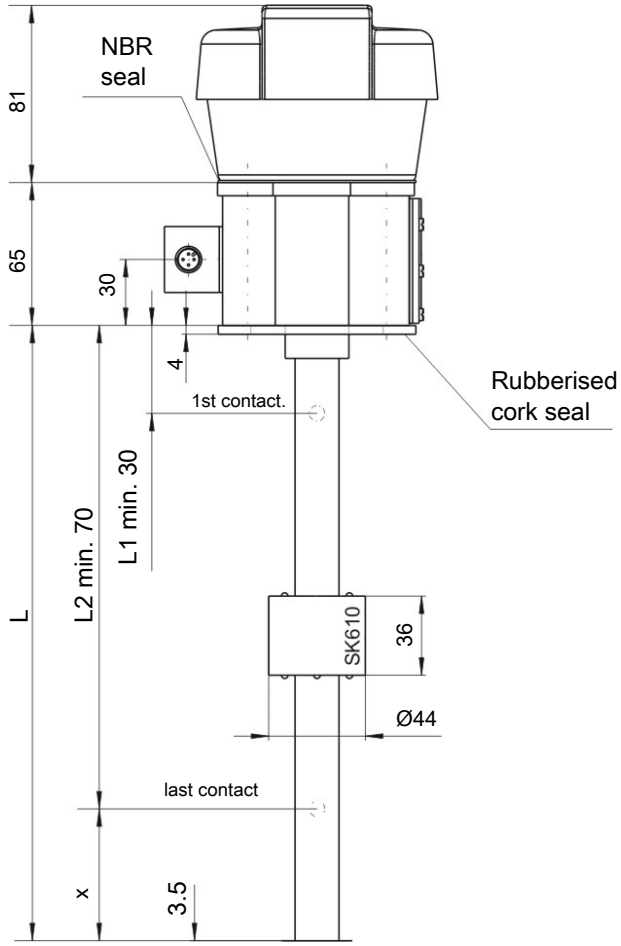
Options		
Stilling tube (SSR)	Brass	VA

Vent filter	All versions HY type Hydac BF 7
Filter fineness	3 µm
Additional equipment	Filler cap – n/a with filling adapter

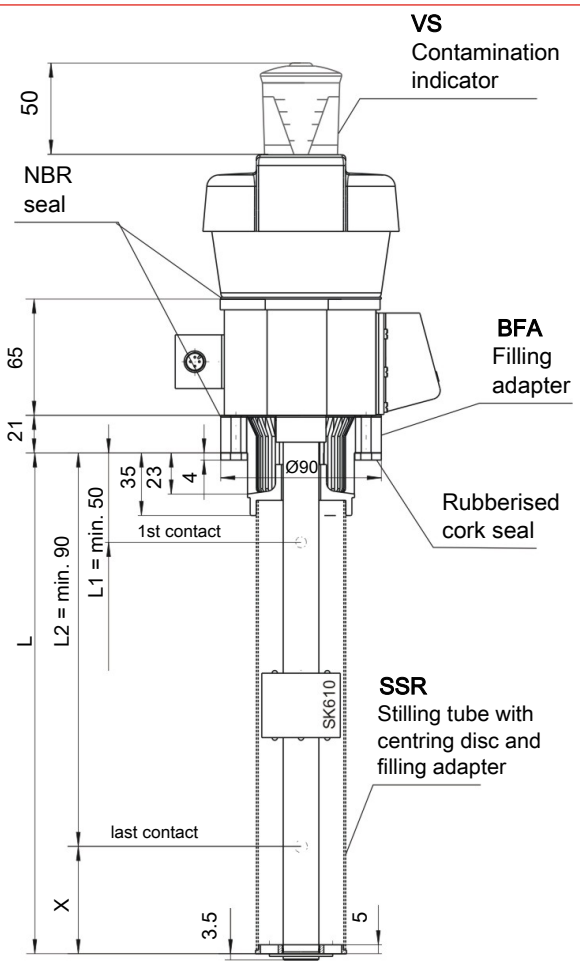
Input values	Level	Temperature
Principle of measurement	Reed-contact	Pt100 Cl. B, DIN EN 60751
Resolution	5 mm	
Tolerance		± 0.8 °C
Operating voltage (U_B)	10 – 30 V DC	10 – 30 V DC
Analysis display electronics accuracy	± 1 % from end value	± 1 % from end value
Output	4-20 mA	4-20 mA (0-100 °C*) *Other ranges available upon request
Burden Ω max.	=(U_B -7.5 V) / 0.02 A	=(U_B -7.5 V) / 0.02 A

9.6 Dimensions NV 71

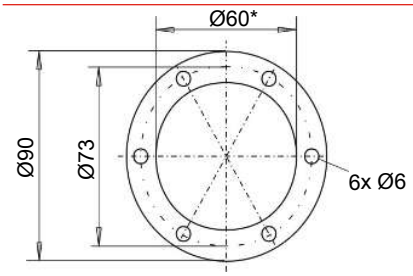
Basic version



With options

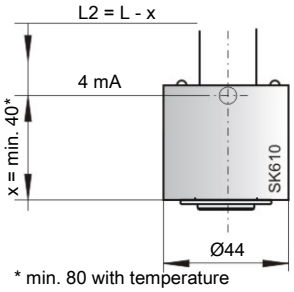


Flange drawing



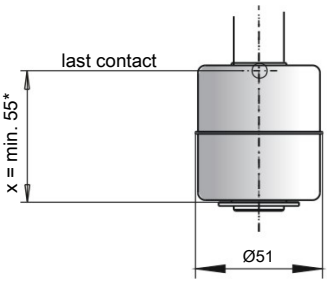
*min. Ø61 for VA version with stilling tube

SK 610 float for NV 71--MS



* min. 80 with temperature

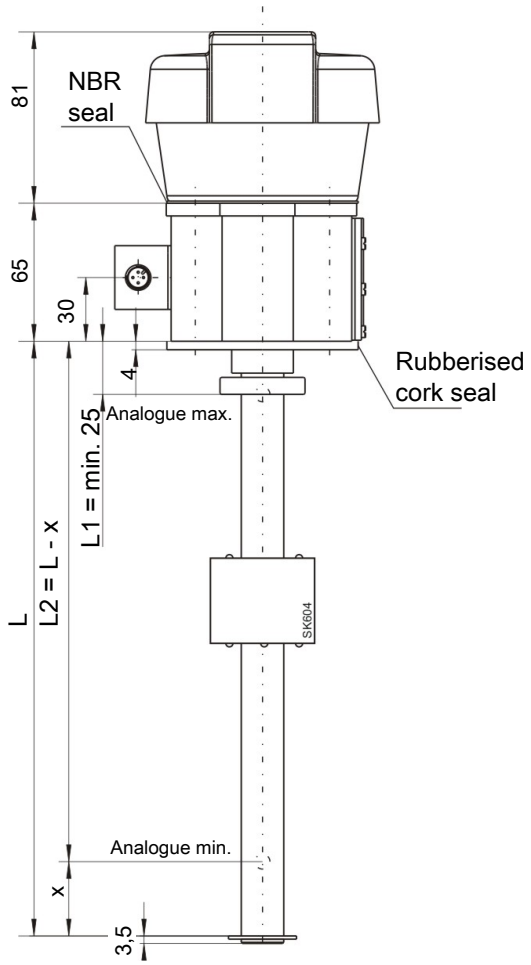
SK 221 float for NV 71-VA



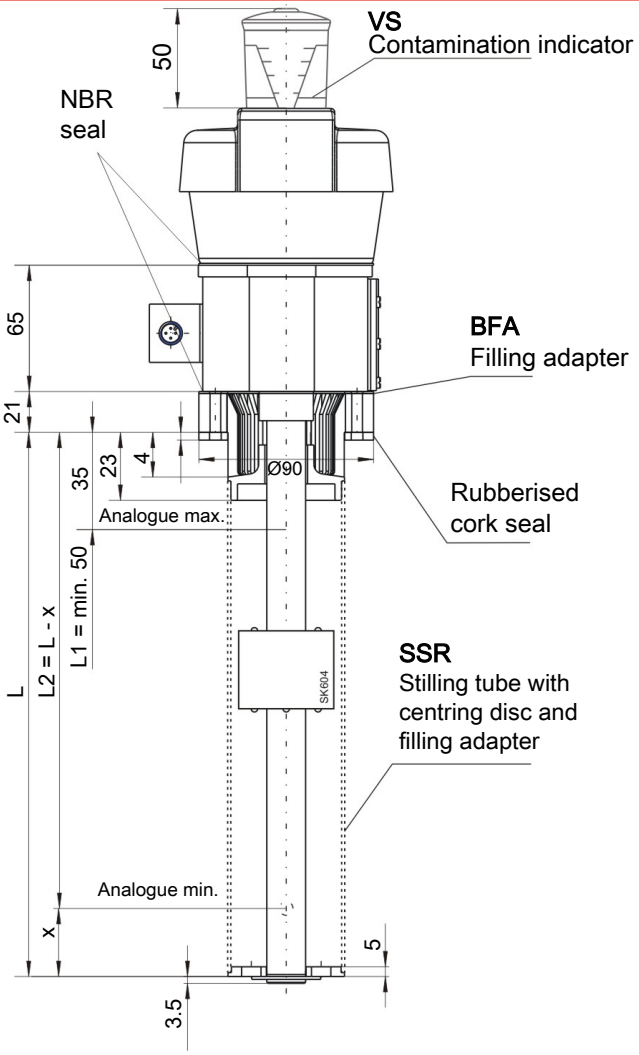
* min. 80 with temperature

9.7 Dimensions NV 73

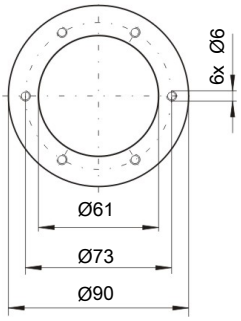
Basic version



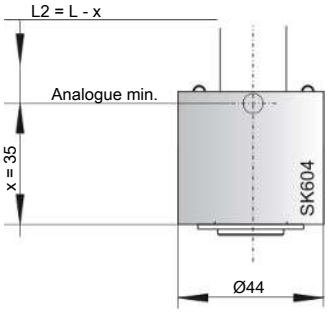
With options



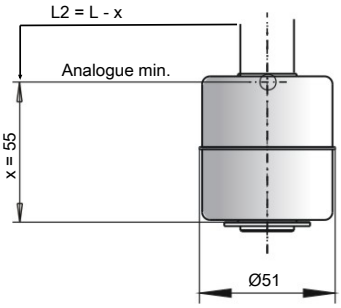
Flange drawing



SK 604 float for NV 73-MS

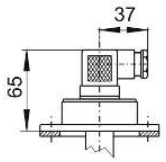
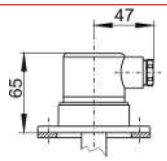
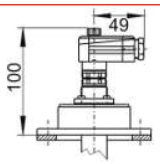
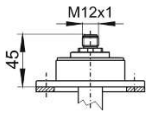
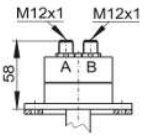


SK 221 float for NV 73-VA

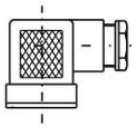
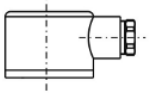
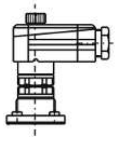
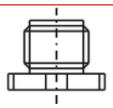
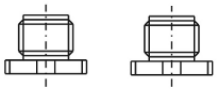
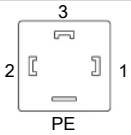
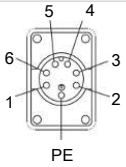
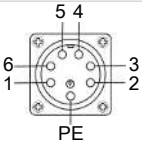
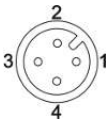
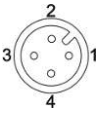
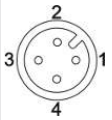
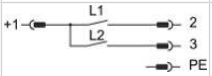
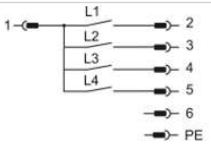
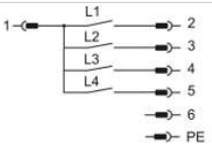
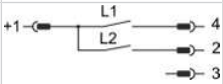
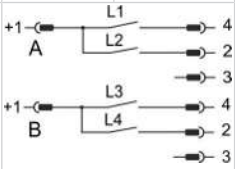
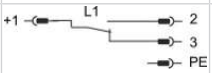
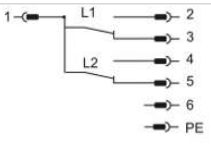
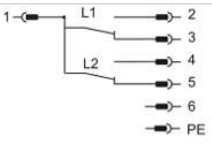
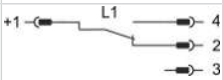
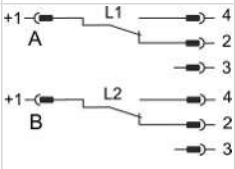
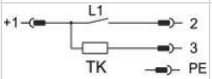
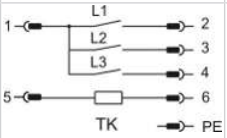
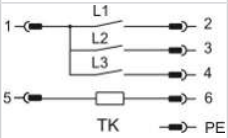
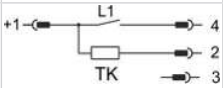
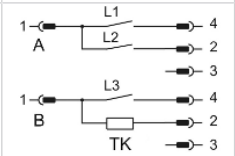
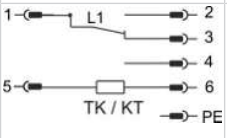
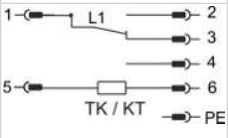
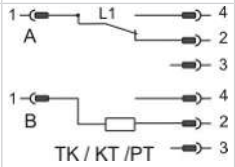
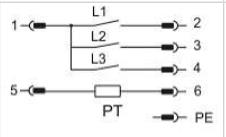
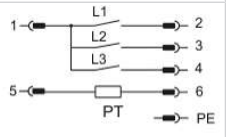
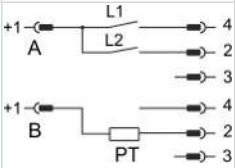
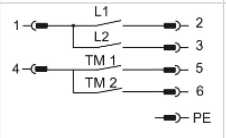
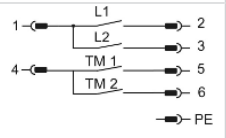
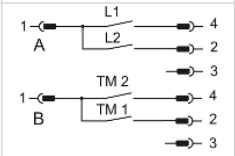
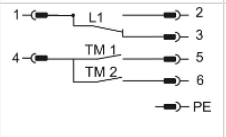
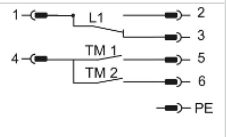
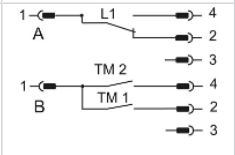


9.8 Standard pin assignment NT 61, NT 61-HT

Plug connection

	M3	S6	C6F	M12	2xM12
Dimensions					
Number of pins	3-pin + PE	6-pin + PE	6-pin + PE	4-pin	4-pin / 4-pin
DIN EN	175301-803	175201-804	175301-804	61076-2-101	61076-2-101
Voltage max.	230 V AC / DC*	230 V AC / DC*	230 V AC / DC*	30 V DC	30 V DC
Degree of protection	IP65	IP65	IP65	IP67**	IP67**
Cable fitting	PG 11	M20 x 1.5	PG 11		
Max. number of contacts					
Level/temp. contacts	1 x K10 / 1 x TK - / - - / -	3 x K10 / 1 x TK 2 x K10 / 2 x TM 1 x W11 / 1 x TK 1 x W11 / 2 x TM	3 x K10 / 1 x TK 2 x K10 / 2 x TM 1 x W11 / 1 x TK 1 x W11 / 2 x TM	1 x K10 / 1 x TK - / - - / -	3 x K10 / 1 x TK 2 x K10 / 2 x TM 1 x W11 / 1 x TK 1 x W11 / 2 x TM
Level contacts only	2 x K10 1 x W11	4 x K10 2 x W11	4 x K10 2 x W11	2 x K10 1 x W11	4 x K10 2 x W11

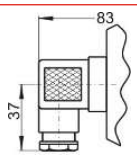
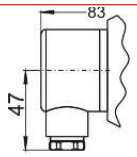
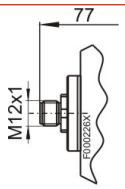
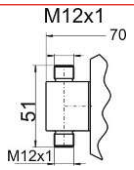
*Max. 48 V AC/ V DC with change-over contact. ** With moulded cable box. Other plug connections available upon request

	M3	S6	C6F	M12 (base)	2 x M12 (base)
					
Connection schematic					Plug A  Plug B 
K10 Level contact(s)					
W11 Level contact(s)					
K10 Level- and temperature contact					
W11 Level- and temperature contact(s)					
K10 / Pt100 Level- and temperature contact(s)					
K10 Level and 2 x temperature contact(s)					
W11 Level and 2 x temperature contact(s)					

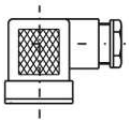
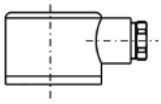
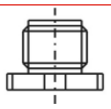
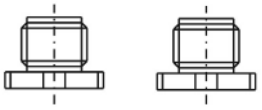
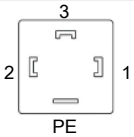
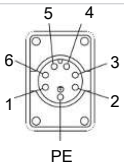
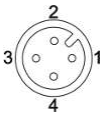
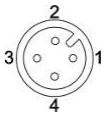
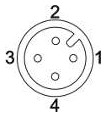
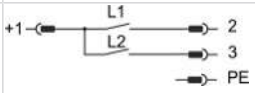
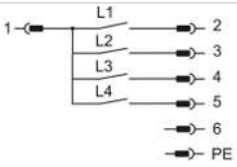
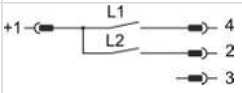
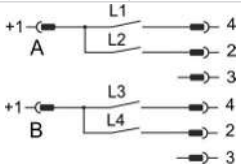
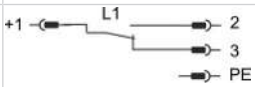
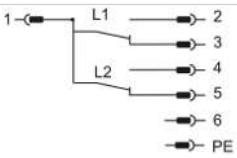
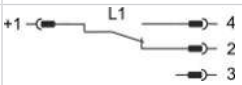
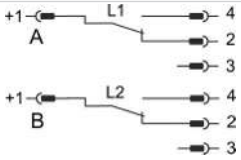
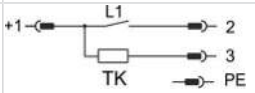
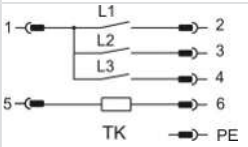
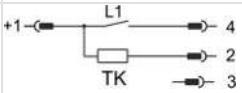
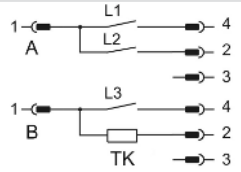
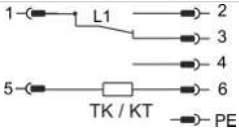
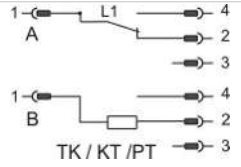
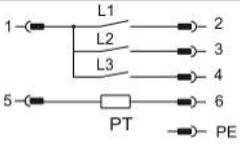
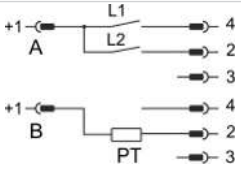
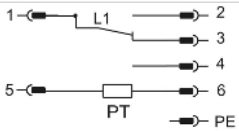
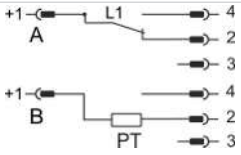
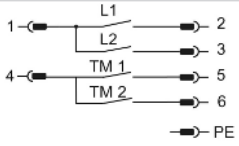
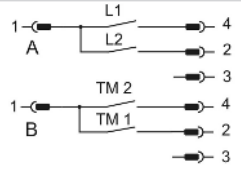
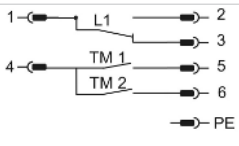
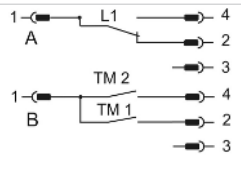
The standard assignment specified here refers to the max. number of contacts possible and contact function NO (contact type K10).

9.9 Standard pin assignment NV 71

Plug connection

	M3	S6	M12 (base)	2xM12 (base)
Dimensions				
Number of pins	3-pin + PE	6-pin + PE	4-pin	4-pin / 4-pin
DIN EN	175301-803	175201-804	61076-2-101	61076-2-101
Max. voltage	230 VAC / DC*	230 VAC / DC*	30 V DC	30 V DC
IP rating	IP65	IP65	IP67**	IP67**
Cable fitting	PG 11	M20 x 1.5		
Max. Number of contacts				
Level/temp. contacts	1 x K10 / 1 x TK - / - - / -	3 x K10 / 1 x TK 2 x K10 / 2 x TM 1 x W11 / 1 x TK 1 x W11 / 2 x TM	1 x K10 / 1 x TK - / - - / -	3 x K10 / 1 x TK 2 x K10 / 2 x TM 1 x W11 / 1 x TK 1 x W11 / 2 x TM
Level contacts only	2 x K10 1 x W11	4 x K10 2 x W11	2 x K10 1 x W11	4 x K10 2 x W11

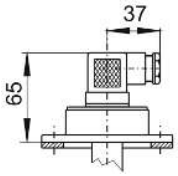
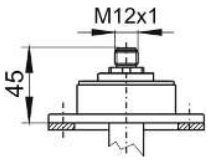
*Max. 48 VAC/ VDC for change-over contact. ** With moulded cable box. Other plug connections available upon request

	M3	S6	M12 (base)	2 x M12 (base)
				
Connection schematic				Plug A  Plug B 
K10 Level contact(s)				
W11 Level contact(s)				
K10 Level- and temperature contact				
W11 Level- and temperature contact(s)				
K10 / Pt100 Level- and temperature contact(s)				
W11 / Pt100 Level- and temperature contact(s)				
K10 Level and 2 x temperature contact(s)				
W11 Level and 2 x temperature contact(s)				

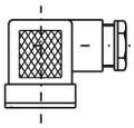
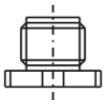
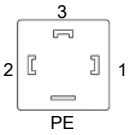
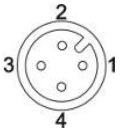
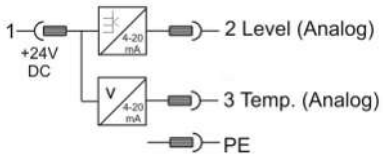
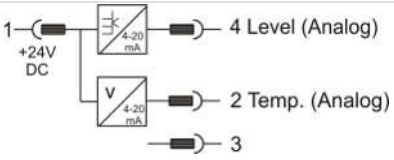
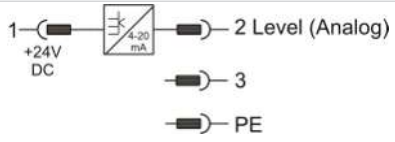
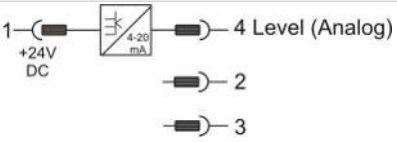
The standard assignment specified here refers to the max. number of contacts possible and contact function NO (contact type K10).

9.10 Standard pin assignment NT 63, NV 73

Plug connection

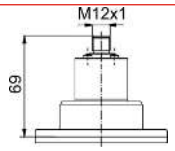
	M3	M12 (base)
Dimensions		
Number of pins	3-pin + PE	4-pin
DIN EN	175301-803	61076-2-101
Degree of protection	IP65	IP67*
Cable fitting	PG11	

*With moulded plug top

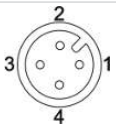
	M3	M12 (base)
		
Connection schematic		
K continuous level and temperature measurement		
KN continuous level measurement		

9.11 Standard pin assignment NT 63-LTD

Plug connection

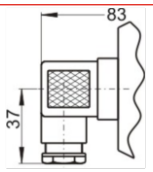
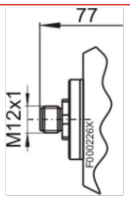
	M12
Dimensions	
Number of pins	4-pin
DIN EN	61076-2-101
IP rating	IP67*

*With moulded plug top

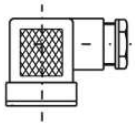
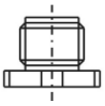
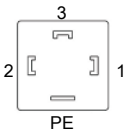
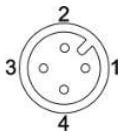
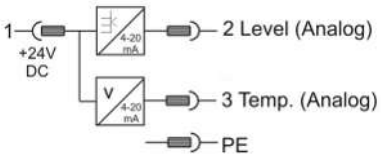
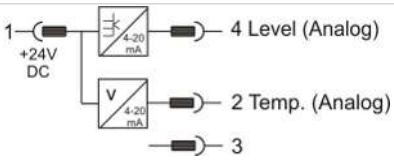
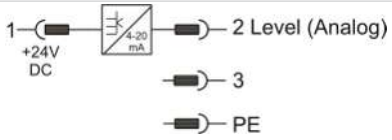
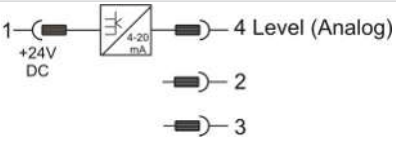
Version	**1D1S**
Plug	M12 4-pin
Connection schematic	
Pin	
1	+24VDC
2	S2 (PNP max. 200 mA)
3	GND
4	C/Q (IO-Link)

9.12 Standard pin assignment NV 73

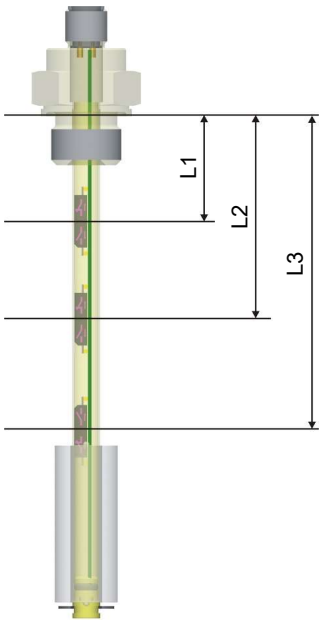
Plug connection

	M3	M12 (base)
Dimensions		
Number of pins	3-pin + PE	4-pin
DIN EN	175301-803	61076-2-101
Degree of protection	IP65	IP67*
Cable fitting	PG11	

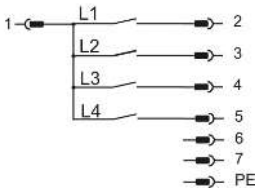
*With moulded plug top

	M3	M12 (base)
		
Connection schematic		
K continuous level and temperature measurement		
KN continuous level measurement		

9.13 Definitions



L1 = Contact no. 1
L2 = Contact no. 2
L3 = Contact no. 3
, etc.



NO = NO contact

NC = NC contact

TK = thermal contact

KT = temperature transmitter

PT = temperature sensor Pt100

Information about analogue output: The analogue output can be loaded with max. +30 V DC. Unless explicitly specified, the connection for +24 V DC is the left and the analogue output on the right in connection diagrams.

10 Attached documents

– Declarations of conformity: KX100020, KX100023, KX100033
– RMA - Decontamination Statement

EU-Konformitätserklärung
EU-declaration of conformity

Hiermit erklärt Bühler Technologies GmbH, dass die nachfolgenden Produkte den wesentlichen Anforderungen der Richtlinie

Herewith declares Bühler Technologies GmbH that the following products correspond to the essential requirements of Directive

2014/30/EU
(Elektromagnetische Verträglichkeit / *electromagnetic compatibility)*

in ihrer aktuellen Fassung entsprechen.

in its actual version.

Produkt / products: Niveauschalter und –geber / *Level switches and gauges*
Typ / type: Nivotemp 61D, 63, 64, 64D, 67XP, MD, M-XP
Nivovent 71D, 73, 74, 74D, 77XP

Die Betriebsmittel dienen zur Überwachung des Füllstandes und der Temperatur in Fluidsystemen.
The equipment is designed for monitoring level and temperature in fluid systems.

Das oben beschriebene Produkt der Erklärung erfüllt die einschlägigen Harmonisierungsrechtsvorschriften der Union:
The object of the declaration described above is in conformity with the relevant Union harmonisation legislation:

EN 61326-1:2013

Die alleinige Verantwortung für die Ausstellung dieser Konformitätserklärung trägt der Hersteller.
This declaration of conformity is issued under the sole responsibility of the manufacturer.

Dokumentationsverantwortlicher für diese Konformitätserklärung ist Herr Stefan Eschweiler mit Anschrift am Firmensitz.
The person authorised to compile the technical file is Mr. Stefan Eschweiler located at the company's address.

Ratingen, den 20.04.2016

Stefan Eschweiler
Geschäftsführer – *Managing Director*

Frank Pospiech
Geschäftsführer – *Managing Director*

Bühler Technologies GmbH, Harkortstr. 29, D-40880 Ratingen,
Tel. +49 (0) 21 02 / 49 89-0, Fax. +49 (0) 21 02 / 49 89-20
Internet: www.buehler-technologies.com

EU-Konformitätserklärung
EU-declaration of conformity

Hiermit erklärt Bühler Technologies GmbH, dass die nachfolgenden Produkte den wesentlichen Anforderungen der Richtlinie

Herewith declares Bühler Technologies GmbH that the following products correspond to the essential requirements of Directive

2014/35/EU
(Niederspannungsrichtlinie / *low voltage directive*)

in ihrer aktuellen Fassung entsprechen.

in its actual version.

Folgende Richtlinie wurde berücksichtigt:

The following directive was regarded:

2014/30/EU (EMV/EMC)

Produkt / products: Niveauschalter und -geber / *Level switches and gauges*
Typ / type: Nivotemp 61, 61-WW, M
Nivovent 71

Die Betriebsmittel dienen zur Überwachung des Füllstandes und der Temperatur in Tanks für Fluidsysteme.
The equipment is intended for monitoring the liquid level and the temperature in tanks for fluid systems.

Das oben beschriebene Produkt der Erklärung erfüllt die einschlägigen Harmonisierungsrechtsvorschriften der Union:
The object of the declaration described above is in conformity with the relevant Union harmonisation legislation:

EN 61010-1:2010 **EN 61326-1:2013**

Die alleinige Verantwortung für die Ausstellung dieser Konformitätserklärung trägt der Hersteller.
This declaration of conformity is issued under the sole responsibility of the manufacturer.

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Geschäftsführer – *Managing Director*

Frank Pospiech
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Internet: www.buehler-technologies.com

EU-Konformitätserklärung
EU-declaration of conformity

Hiermit erklärt Bühler Technologies GmbH, dass die nachfolgenden Produkte den wesentlichen Anforderungen der Richtlinie

Herewith declares Bühler Technologies GmbH that the following products correspond to the essential requirements of Directive

2014/30/EU (EMV/EMC)

in ihrer aktuellen Fassung entsprechen.

in its actual version.

Folgende Richtlinie wurde berücksichtigt:

The following directive was regarded:

2014/35/EU
(Niederspannungsrichtlinie / *low voltage directive*)

Produkt / products: Niveau- und Temperatursensoren / *Level and temperature sensors*
Typ / type: NT 63-LTD, NT M-LTD

Die Betriebsmittel dienen zur Überwachung des Füllstandes und der Temperatur in Fluidsystemen.
The equipment is intended for monitoring the liquid level and the temperature in fluid systems.

Das oben beschriebene Produkt der Erklärung erfüllt die einschlägigen Harmonisierungsrechtsvorschriften der Union:
The object of the declaration described above is in conformity with the relevant Union harmonisation legislation:

EN 61326-1:2013

Zusätzlich wurden berücksichtigt:
In addition, the following standards have been used:

EN 61010-1:2010

Die alleinige Verantwortung für die Ausstellung dieser Konformitätserklärung trägt der Hersteller.
This declaration of conformity is issued under the sole responsibility of the manufacturer.

Dokumentationsverantwortlicher für diese Konformitätserklärung ist Herr Stefan Eschweiler mit Anschrift am Firmensitz.
The person authorized to compile the technical file is Mr. Stefan Eschweiler located at the company's address.

Ratingen, den 21.01.2019

Stefan Eschweiler
Geschäftsführer – *Managing Director*

Frank Pospiech
Geschäftsführer – *Managing Director*

KX 10 0033

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RMA-Formular und Erklärung über Dekontaminierung
RMA-Form and explanation for decontamination

RMA-Nr./ RMA-No.

Die RMA-Nummer bekommen Sie von Ihrem Ansprechpartner im Vertrieb oder Service./ You may obtain the RMA number from your sales or service representative.

Zu diesem Rücksendeschein gehört eine Dekontaminierungserklärung. Die gesetzlichen Vorschriften schreiben vor, dass Sie uns diese Dekontaminierungserklärung ausgefüllt und unterschrieben zurücksenden müssen. Bitte füllen Sie auch diese im Sinne der Gesundheit unserer Mitarbeiter vollständig aus./ This return form includes a decontamination statement. The law requires you to submit this completed and signed decontamination statement to us. Please complete the entire form, also in the interest of our employee health.

Firma/ Company

Firma/ Company
Straße/ Street
PLZ, Ort/ Zip, City
Land/ Country

Ansprechpartner/ Person in charge

Name/ Name
Abt./ Dept.
Tel./ Phone
E-Mail

Gerät/ Device
Anzahl/ Quantity
Auftragsnr./ Order No.

Serien-Nr./ Serial No.
Artikel-Nr./ Item No.

Grund der Rücksendung/ Reason for return

☐ Kalibrierung/ Calibration
☐ Modifikation/ Modification
☐ Reklamation/ Claim
☐ Reparatur/ Repair
☐ andere/ other

bitte spezifizieren/ please specify

Ist das Gerät möglicherweise kontaminiert?/ Could the equipment be contaminated?

☐ Nein, da das Gerät nicht mit gesundheitsgefährdenden Stoffen betrieben wurde./ No, because the device was not operated with hazardous substances.

☐ Nein, da das Gerät ordnungsgemäß gereinigt und dekontaminiert wurde./ No, because the device has been properly cleaned and decontaminated.

☐ Ja, kontaminiert mit:/ Yes, contaminated with:

☐ explosiv/ explosive
☐ entzündlich/ flammable
☐ brandfördernd/ oxidizing
☐ komprimierte Gase/ compressed gases
☐ ätzend/ caustic
☐ giftig, Lebensgefahr/ poisonous, risk of death
☐ gesundheitsgefährdend/ harmful to health
☐ gesundheitsschädlich/ health hazard
☐ umweltgefährdend/ environmental hazard

Bitte Sicherheitsdatenblatt beilegen!/ Please enclose safety data sheet!

Das Gerät wurde gespült mit:/ The equipment was purged with:

Diese Erklärung wurde korrekt und vollständig ausgefüllt und von einer dazu befugten Person unterschrieben. Der Versand der (dekontaminierten) Geräte und Komponenten erfolgt gemäß den gesetzlichen Bestimmungen.

This declaration has been filled out correctly and completely, and signed by an authorized person. The dispatch of the (decontaminated) devices and components takes place according to the legal regulations.

Falls die Ware nicht gereinigt, also kontaminiert bei uns eintrifft, muss die Firma Bühler sich vorbehalten, diese durch einen externen Dienstleister reinigen zu lassen und Ihnen dies in Rechnung zu stellen.

Should the goods not arrive clean, but contaminated, Bühler reserves the right, to comission an external service provider to clean the goods and invoice it to your account.

Firmenstempel/ Company Sign

Datum/ Date

rechtsverbindliche Unterschrift/ Legally binding signature

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Die Analyse defekter Baugruppen ist ein wesentlicher Bestandteil der Qualitätssicherung der Firma Bühler Technologies.

Um eine aussagekräftige Analyse zu gewährleisten muss die Ware möglichst unverändert untersucht werden. Es dürfen keine Veränderungen oder weitere Beschädigungen auftreten, die Ursachen verdecken oder eine Analyse unmöglich machen.

Bei elektronischen Baugruppen kann es sich um elektrostatisch sensible Baugruppen handeln. Es ist darauf zu achten, diese Baugruppen ESD-gerecht zu behandeln. Nach Möglichkeit sollten die Baugruppen an einem ESD-gerechten Arbeitsplatz getauscht werden. Ist dies nicht möglich sollten ESD-gerechte Maßnahmen beim Austausch getroffen werden. Der Transport darf nur in ESD-gerechten Behältnissen durchgeführt werden. Die Verpackung der Baugruppen muss ESD-konform sein. Verwenden Sie nach Möglichkeit die Verpackung des Ersatzteils oder wählen Sie selber eine ESD-gerechte Verpackung.

Beachten Sie beim Einbau des Ersatzteils die gleichen Vorgaben wie oben beschrieben. Achten Sie auf die ordnungsgemäße Montage des Bauteils und aller Komponenten. Versetzen Sie vor der Inbetriebnahme die Verkabelung wieder in den ursprünglichen Zustand. Fragen Sie im Zweifel beim Hersteller nach weiteren Informationen.

Analysing defective assemblies is an essential part of quality assurance at Bühler Technologies.

To ensure conclusive analysis the goods must be inspected unaltered, if possible. Modifications or other damages which may hide the cause or render it impossible to analyse are prohibited.

Electronic assemblies may be sensitive to static electricity. Be sure to handle these assemblies in an ESD-safe manner. Where possible, the assembles should be replaced in an ESD-safe location. If unable to do so, take ESD-safe precautions when replacing these. Must be transported in ESD-safe containers. The packaging of the assemblies must be ESD-safe. If possible, use the packaging of the spare part or use ESD-safe packaging.

Observe the above specifications when installing the spare part. Ensure the part and all components are properly installed. Return the cables to the original state before putting into service. When in doubt, contact the manufacturer for additional information.

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