Nivovent NV 74

easyjust

BÜHLER TECHNOLOGIES

Level and temperature switch with display NV 74D

- Highly visible LED display indicates the switching outputs
- High performance air breather with replaceable filter element
- Optional air breather clogging indicator
- Two wireless, variable level switches
- Up to 4 programmable temperature switching outputs
- Continuous temperature signal, (adjustable current or voltage) plus one programmable output
- Switching output adjustable as window or hysteresis
- Two switching outputs adjustable as frequency output (1 to 100 Hz)
- Menu structure based on VDMA guidelines
- Min/Max memory, logbook function

Level and temperature switch NV 74

- Wireless, variable level switches
- Flange according to DIN 24557 Part 2
- High performance air breather with replaceable filter element
- Optional air breather clogging indicator
- Multiple connector options
- Up to 4 level contacts or 2 switching outputs for level plus bi-metal, RTD or analog output for temperature
- Reliable dynamic float system
- 24 V standard, 230 V on request

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Technical data NV 74

Basic unit

max. operating pressure	1 bar	
operating temperature	-20 °C to +80 °C	
min. density of fluid	0,80 kg/dm³ float SK 601	
	0,85 kg/dm³ float SK 221	
standard length (in mm)	280, 370, 500 (standard)	
weight	**MS**	**VA***
at L=280 mm	ca. 800 g	ca. 900 g
additional per 100 mm	ca. 30 g	ca. 50 g

Air breather filter	**HY** Type Hydac BF 7
grade of filter	3 µm
Accessories	filling protective cover (not applicable for filling adapter)

Material /Design	**MS**	**VA***
float	hard PU SK 601	1.4571 SK 221
immersion tube	brass	1.4571
flange / filter housing	PA	PA

Level contacts	**K**	**W**
max. quantity	4	2
function	NO / NC	change over
max. voltage	30 V	30 V
max. current	0,5 A	0,5 A
max. contact load	10 VA	20 VA
min. distance of contact	40 mm	40 mm

NO=<normally open / NC=normally closed, all figures at empty reservoir

Temperature contact	**TK**
max. voltage	30 V
max. current	2,5 A
max. contact load	100 VA

Function	**NC**	**NO**
switching point °C	50/60/70/80	50/60/70/80
switching point tolerance	± 3 K	± 3 K
max. hysteresis	10 K ± 3 K	10 K ± 3 K

NC = normally open / NO = normally closed (all figures at **increasing temperature**)

Temperature sensor RTD	Pt100 class B, DIN EN 60 751
tolerance	±0,8 °C

Temperature transmitter	**KT**
sensor element RTD	Pt100 class B, DIN EN 60 751
measurement range	0 °C to +100 °C
operating voltage (U_B)	10-30 V DC
output	4 - 20 mA
load Ω max.	= (U_B -7,5 V) / 0,02 A
other measurement ranges on request	

Options/ Accessories (see details on page 6)

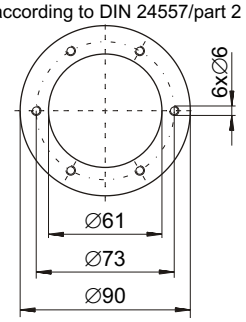
VS visual clogging indicator for the breather
BFA** filling adapter incl. ribbed flange with sieve insert:
SSR** stilling tube with support ring and filling adapter
MT for Multiterminal
MTS for Multiterminal including stilling tube
FCT Fluidcontrolterminal

* not available in combination with the option **FCT**
** not available in combination with the option **FCT**, **MT and MTS**

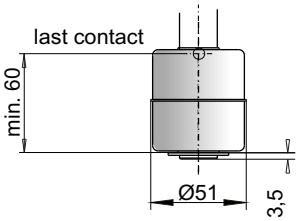
OPTIONAL

Flange picture

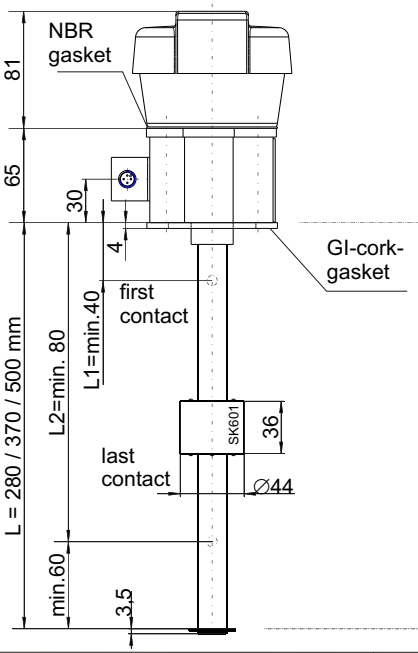
according to DIN 24557/part 2



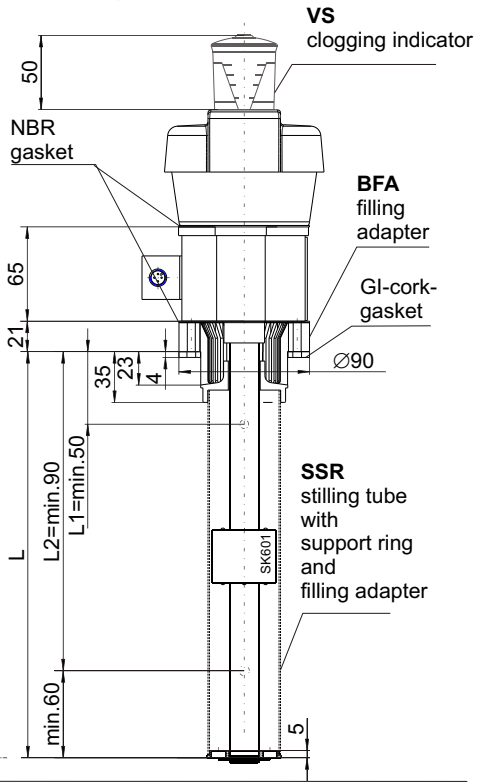
NV 74-VA

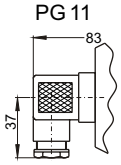
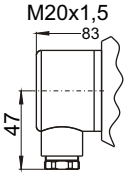
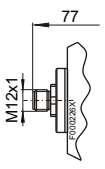
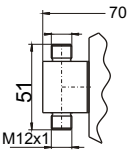


Basic version



Design with options



Connector	**M3** (DIN EN 175301-803)	**S6** (DIN EN 175201-804)	**M12** (base)	**2x M12** (base)***
	3 pol. + PE	6 pol. + PE	4 pol.	4 pol./4 pol.
max. voltage	30 V AC/DC	30 V AC/DC	30 V DC	30 V DC
protection class	IP 65	IP 65	IP67**	IP67**
cable connection	PG 11	M20x1,5	M12x1	M12x1
				
max. quantity of contacts				
level/ temp.-contact	1 x K10 / 1 x TK	3 x K10 / 1 x TK	1 x K10 / 1 x TK	3 x K 10 / 1 x TK
	- / -	1 x W11 / 1 x TK	- / -	1 x W11 / 1 x TK
level only	2 x K10	4 x K10	2 x K10	4 x K10
or	1 x W11	2 x W11	1 x W11	2 x W11

** with casted connector head *** Connectors electrically isolated / on request other connectors

Product code for NV 74

NV 74-HY- ☐☐☐☐☐☐☐☐

Series
Nivotemp **NV 74-HY**

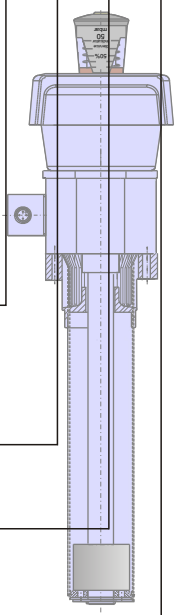
Design
MS brass
VA* float and immersion tube stainless steel

Connector
M3
S6
M12
2M12

Length (mm)
280
370
500

Quantity of level contacts
1-4

Level contact
K = NC / NO
W = change over



Accessories
VS = clogging indicator

Optionen
BFA** = filling adapter
SSR** = stilling tube with filling adapter
MT = for Multiterminal
MTS = for Multiterminal incl. stilling tube
FCT = Fluidcontrolterminal

Temperature
Pt 100 = Temperature sensor (RTD)
KT = Temperature transmitter

TK = Temperature contact
T50NO = 50°C NO
T60NO = 60°C NO
T70NO = 70°C NO
T80NO = 80°C NO

T50NC = 50°C NC
T60NC = 60°C NC
T70NC = 70°C NC
T80NC = 80°C NC

OPTIONAL

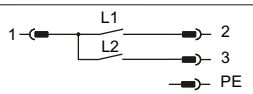
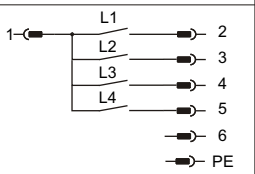
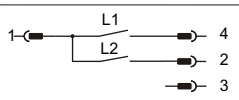
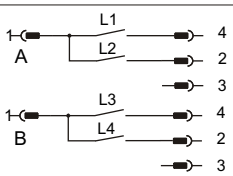
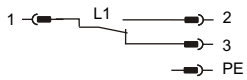
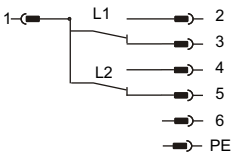
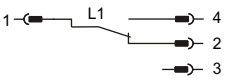
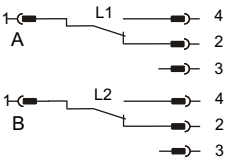
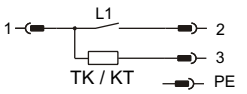
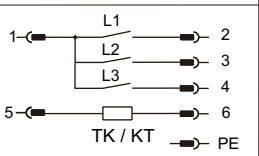
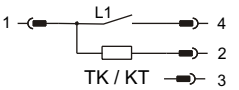
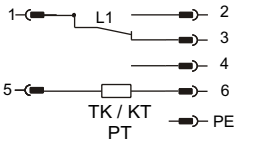
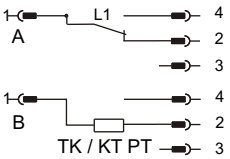
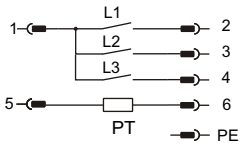
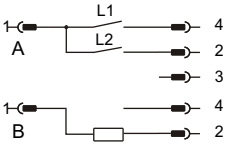
* not available in combination with option FCT
** not available in combination with the option **FCT**, **MT and MTS**

Accessories

Part-No. 4-pole	Description
9144 05 0010	Connecting cable M12x1, 1,5 m, elbow connector (female) and straight connector (male)
9144 05 0046	Connecting cable M12x1, 3,0 m, elbow connector (female) and straight connector (male)
9144 05 0047	Connecting cable M12x1, 5,0 m, elbow connector (female) and wire

Example for order
You need: Level switch with breather, clogging indicator, length L= 500 mm, 2 level contacts, temperature contact TK, 80°C as NC, 1st contact 100 mm NC, 2nd contact 420 mm NO
You order: NV 74-HY-MS-S6 500-2-K-TK80NC-VS 100 NC, 420 NO

Standard pin assignment NV 74

Connector	M3	S6	M12 (Sockel)	2 x M12 (Sockel)
only level contact(s) Type K				
only level contact(s) Type W				
level contact(s) Type K and temperature				
level contact(s) Type W and temperature				
level contact(s) Type K and PT100				

TK = Thermo contact KT = Temperature transmitter PT = Temperature sensor Pt 100 (RTD) other assignments on request

Technical data NV 74D

Basic unit

max. operating pressure	1 bar
operating temperature	-20 °C to +80 °C
min. density of fluid	0,80 kg/dm³ float SK 601
	0,85 kg/dm³ float SK 221
standard length (mm)	280, 370, 500

weight	**MS**	**VA***
at L=280 mm approx.	850 g	950 g
add. per 100 mm approx.	30 g	50 g

Air breather filter	**HY** Typ Hydac BF 7
grade of filtration	3 µm
Accessories	filling protective cover (not applicable for filling adapter)

Material / Design	**MS**	**VA***
display housing	PA	PA
float	hard PU SK 601	1.4571 SK 221
immersion tube	brass	1.4571
flange / filter housing	PA	PA
SSR (option)	brass	stainless steel

Level contacts	**K**
max. quantity	2
function	NO / NC
max. voltage	30 V
max. current	0,5 A
max. contact load	10 VA
min. distance of contact	40 mm

NO= normally open / NC = normally closed, all figures at empty reservoir

Display

temperature display range	-20 °C to +120 °C (4 °F to 248 °F)
alarm range setting	0 °C to 100 °C (32 °F to 178 °F)
accuracy	1%
resolution	0,5 °C (1 °F)
protection class	IP65
display	4 digit 7 segment LED
operation	3 button keypad

current consumption at power up	approx. 100 mA for 100 ms
operating current consumption	approx. 50 mA
supply voltage (U_B)	10 - 30 V DC (nominal voltage 24 V DC)
ambient temperature	-20 °C to +70 °C
temperature sensor	RTD class B; DIN EN 60751

Following temperature outputs are available:

	-2T
connector (base)	2 x M12 - 4 pol
max. contact load	1A
PNP transistor output, max. current PNP output short-circuit proof	2 x free programmable 0,5 A per output

	-1T-KT
connector (base)	2 x M12 - 4 pol
max. contact load	1 A
PNP transistor output, max. current PNP output short-circuit proof	1 x free programmable 0,5 A per output
analogue output	1 x 4 - 20 mA, 2-10 V, 0-10 V or 0-5 V
max. load analogue output	500 Ω

	-4T
connector (base)	1 x M12 - 4 pol. 1 x M12 - 8 pol.
max. contact load	1 A
PNP transistor output, max. current PNP output short-circuit proof	4 x free programmable max. 0,5 A per output

Options/ Accessories (see details on page 6)

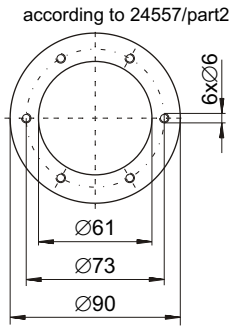
VS visual clogging indicator for the air breather
BFA** filling adapter incl. ribbed flange with **filter** insert:
SSR** stilling tube with support ring and filling adapter
MT for Multiterminal
MTS for Multiterminal including stilling tube
FCT Fluidcontrolterminal

OPTION

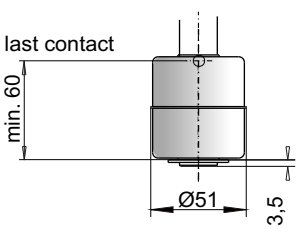
* not available in combination with option **FCT**
* not available in combination with option **FCT** and **MT/MTS**

Flange picture

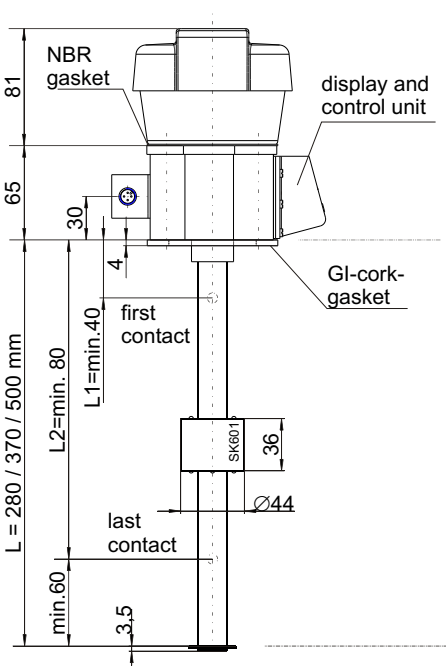
according to 24557/part2



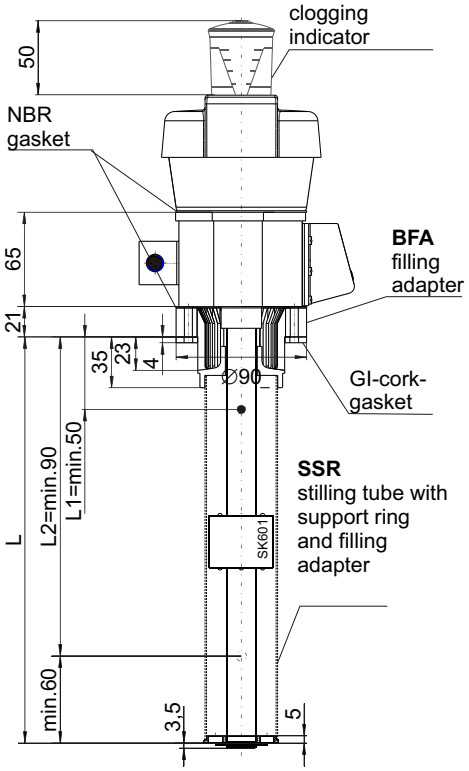
NV 74-VA



Basic version



Design with options **VS** clogging indicator



Product code for NV 74D

NV 74D-HY- ☐☐☐☐☐☐☐☐☐☐☐

Series
Nivovent **NV 74D-HY**

Design
MS brass
VA* float and immersion tube VA

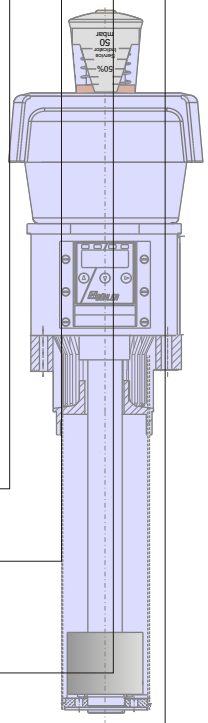
Connector
2M12
S6

Length (mm, max. 1500)
280
370
500

Quantity level contacts
1K or **2K**
K = opener / closer

Position L1=...mm
1st level contact

Switch function 1. contact
NO = normally open
NC = normally closed



Accessories
VS = clogging indicator

Options
BFA** = filling adapter
SSR** = stilling tube with filling adapter
MT = for Multiterminal
MTS = for Multiterminal incl. stilling tube
FCT = fluidcontrolterminal

-2T
LED temperature display
2 x temperature output

-4T
LED temperature display
4 x temperature output

-1T-KT
LED temperature display
1 x temperature output
1 x analogue output 4-20 mA

Switch function 2 . contact
NO = normally open
NC = normally closed

Position L2=...mm
2nd level contact

OPTIONAL

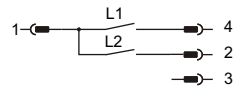
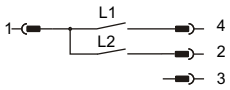
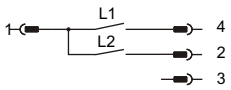
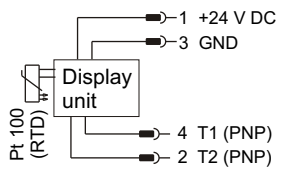
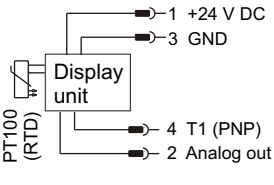
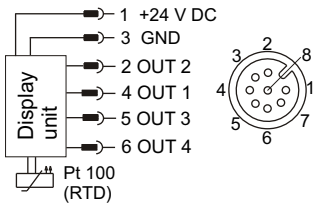
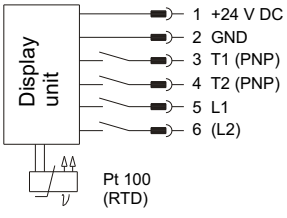
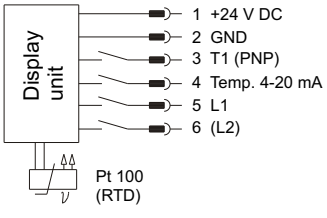
* not available in combination with option FCT
** not available in combination with the option **FCT**, **MT and MTS**

Accessories

Part-No. 4-pole	Part-No. 8-pole	Description
9144 05 0010	9144 05 0048	Connecting cable M12x1, 1,5 m, elbow connector (female) and straight connector (male)
9144 05 0046	9144 05 0049	Connecting cable M12x1, 3,0 m, elbow connector (female) and straight connector (male)
9144 05 0047	9144 05 0033	Connecting cable M12x1, 5,0 m, elbow connector (female) and wire

Example for order
You need: Level switch and breather, clogging indicator, length L= 500 mm, 2 level contacts, temperature contact TK 80°C as NC, 1st contact 100 mm NC, 2nd contact 420 mm NO
You order: NV 74-HY-MS-S6 500-2K -TK80NC-VS-100-NC-420 NO

Standard pin assingment NV 74D

Connector 2xM12	**Type NV 74D-2T** Level contact(s) 2 x Temperature output	**Type NV 74D-1T-KT** Level contact(s) 1 x Temperature output 1 x Analogue output	**Type NV 74D-4T** Level contact(s) 4 x Temperature output
Connector A Level			
Connector B Temperature			
Connector S6			

Details about options and accessories:

VS visual clogging indicator for the air breather: analog underpressure indicator, display range 0.35 bar.

BFA* filling adapter incl. ribbed flange with sieve insert: this option allows that small oil quantities can be filled via the air breather housing. Therefore the corresponding housing is equipped with that version.

SSR* stilling tube with support ring and filling adapter: This includes the option stilling tube as well as the option for filling as the **BFA**. The stilling tube is made of the same material as the requested immersion tube (MS/VA).

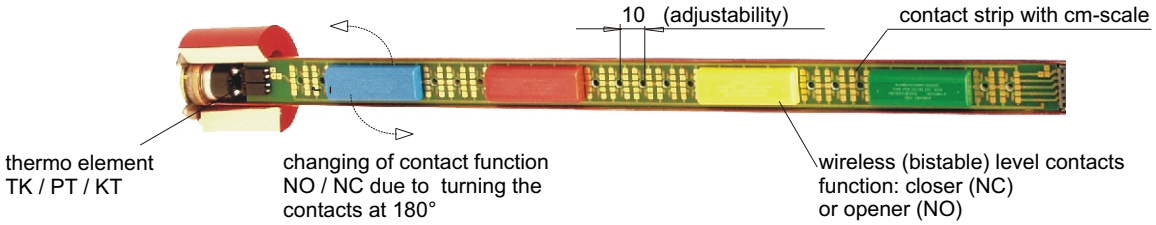
MT for integration into Multiterminal: The basic unit will be mounted to the Multiterminal. For specification we refer to data sheet DA 10 0201.

MTS for integration into Multiterminal including stilling tube: in addition to the basic unit, a stilling tube with support ring is mounted to the Multiterminal.

FCT Fluidcontrolterminal: The Fluidcontrolterminal (**FCT**) will be mounted to the basic product. For specification we refer to data sheet DA 10 0202.

* not available in combination with option **FCT** and **MT/MTS**

The EasyJust System



Using adjustable level contacts allows the application of standardized immersion tubes in oil tanks of different sizes and geometrical shapes.

The switching points are changeable to the requirement of the individual application at any time without purchasing a specific level switch.

This facilitates design and logistics for the users and OEMs.

The Easy Just System is based on a wireless structure of the contacts.
The contacts are designed of closed and color coded housings. They are positioned on a printed circuit board with gold plated contacts. The colors are used for the coding of the different contacts and assure the allocation of the connector's assignments.

The contacts' function (NO or NC) is determined by the 180° rotation on the printed circuit board.

An adjusted temperature switch (bi-metal, NO or NC), a Pt 100 (RTD) or a 4-20 mA transmitter is fixed at the lower end of the printed circuit board, depending on the chosen option for the temperature monitoring.