

# Level- and temperature switch

## Nivotemp NT 61, NT 61D, NT 61-HT



Fluidcontrol

In hydraulics and lubrication technology the fill level of oil tanks needs to be monitored continuously. Here, modern factory automation requires compatible signals. Despite central system control, visualising the current level on the actual tanks is often desired. To minimise production costs and the space required on containers, it makes sense to use one monitor for both e.g. the fill level and oil temperature. The Nivotemp series meets virtually all requirements arising in this area of application.

### NT 61

Connecting flange as per DIN 24557 Part 2

Various plug options

Up to 4 switching outputs for liquid level or 2 switching outputs for liquid level plus Pt100 or analog output for temperature

Proven and tested highly dynamic float system

Immersion tube length up to 1.5 m (longer upon request)

suitable for up to 230 V AC/DC (varies by version)

NT 61-HT (used for HFC+HFA oils) for temperatures up to 150 °C

### NT 61D

LED display swivels 270°

Up to 4 programmable temperature switching outputs

Alternatively, continuous temperature signal plus one freely programmable switching output)

Characteristics of switching outputs configurable as frequency output (1-100 Hz)

Standard menu structure based on VDMA standard sheet 24574 ff.

Min/max memory, logbook function



## 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/dm <sup>3</sup>                                                   | 0.85 kg/dm <sup>3</sup> |
| Lengths (all versions) | 280, 370, 500 mm (Standard), variable to max. 1500 mm in 10 mm increments |                         |

| Material/Version   | MS            | VA            |
|--------------------|---------------|---------------|
| Float              | rigid PU      | 1.4571        |
| Immersion tube     | Brass         | 1.4571        |
| Flange (DIN 24557) | PA            | PA            |
| Weight at L=280 mm | approx. 200 g | approx. 300 g |
| Each 100 mm add    | approx. 30 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               |

Contact position in 10 mm increments

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

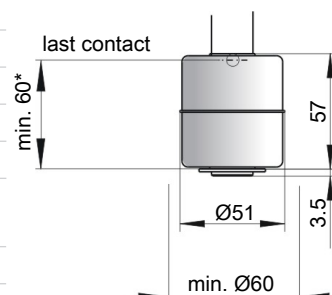
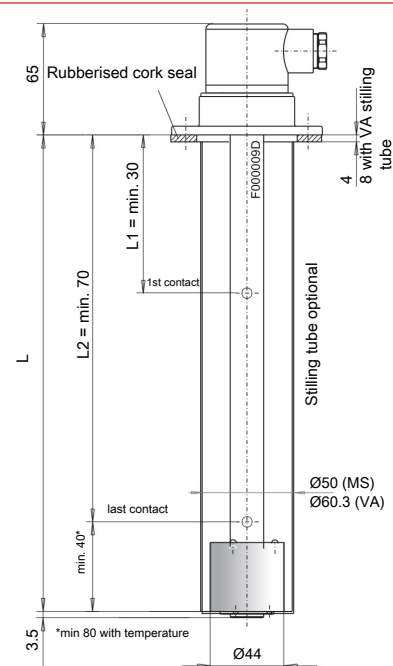
\*\*for configuration with temperature transmitter KT max. 30 V DC

| 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 |

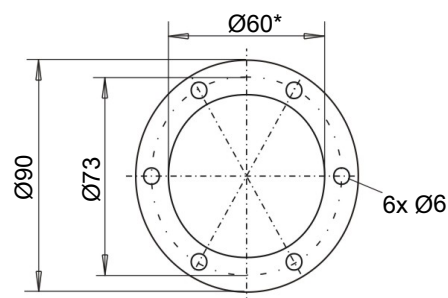
\*NO= NO contact / NC = NC contact Other temperatures and versions with 2 x TK contact available upon request

### 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 <sub>B</sub> )           | 10 - 30 V DC                                    |
| Output                                        | 4 - 20 mA                                       |
| Burden Ω max.                                 | = (U <sub>B</sub> - 7.5 V) / 0.02 A             |
| Accuracy                                      | ± 1 % from end value                            |
| Other measuring ranges available upon request |                                                 |



\* min. 80 with temperature



\*min. Ø61 for VA version with stilling tube

## Ordering instructions NT 61

### Model key

| NT 61-□□-□□-nn-□□-□□-□□-□□        |  | Options                                     |
|-----------------------------------|--|---------------------------------------------|
| Model designation                 |  | SSR Stilling tube                           |
| 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) |  |                                             |
|                                   |  | 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... <sup>3)</sup> TM50NC TM50NO = 50 °C   |
|                                   |  | TM60NC TM60NO = 60 °C                       |
|                                   |  | TM70NC TM70NO = 70 °C                       |
|                                   |  | TM80NC TM80NO = 80 °C                       |
|                                   |  | Pt100 Temperature sensor <sup>1)</sup>      |
|                                   |  | KT Temperature transmitter <sup>1) 2)</sup> |

<sup>1)</sup> Cannot be combined with temperature contact

<sup>2)</sup> With KT only 10 - 30 V DC

<sup>3)</sup> For version with 2 temperature contacts

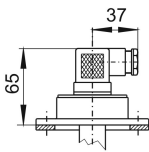
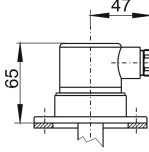
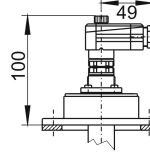
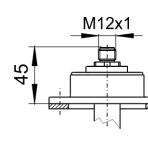
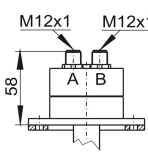
### Ordering example

You require: Level switch MS version, plug connector S6, length L= 550 mm, 2 level contacts (NO/NC) and temperature contact 80 °C as NC contact, 1st contact 100 mm NC, 2nd contact 470 mm NO

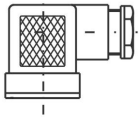
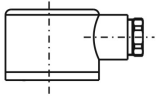
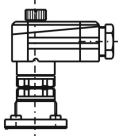
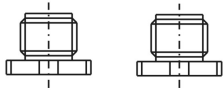
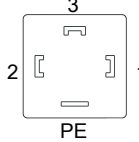
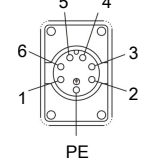
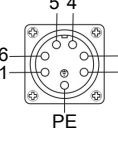
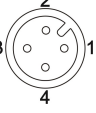
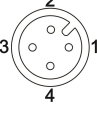
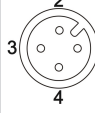
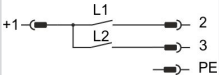
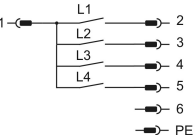
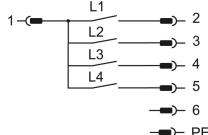
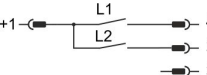
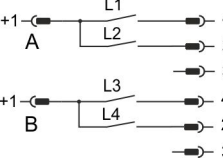
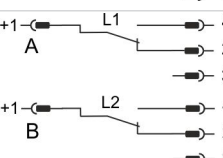
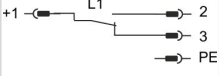
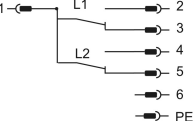
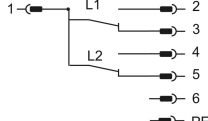
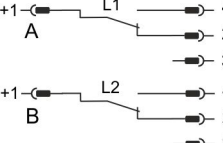
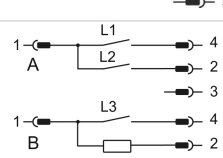
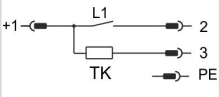
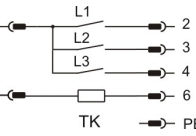
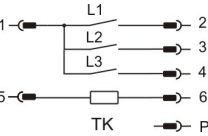
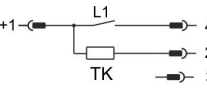
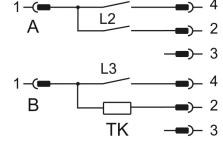
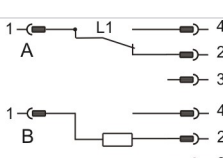
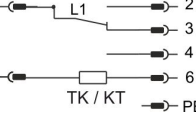
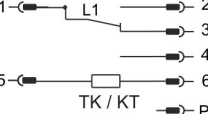
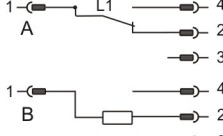
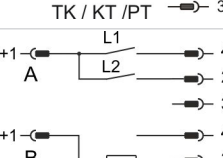
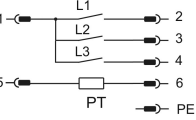
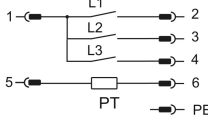
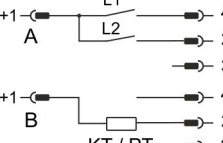
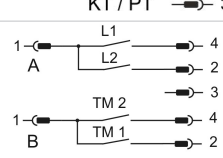
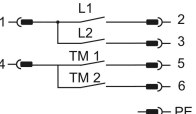
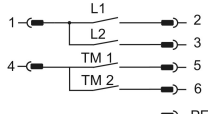
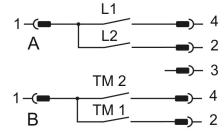
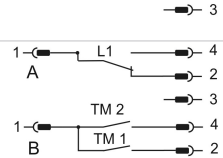
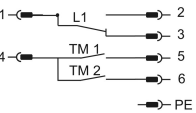
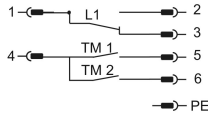
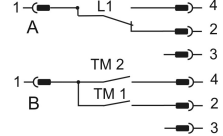
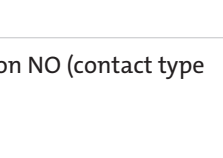
Order NT 61-MS-S6-550-2-K-T80NC, L1=100 NC L2=470 NO

### Standard pin assignment NT 61

#### 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                                                                          |                                                                                     | 175301-804                                                                          | 61076-2-101                                                                           | 61076-2-101                                                                           |
| Max. voltage            | 230 VAC / DC*                                                                       | 230 VAC / DC*                                                                       | 230 VAC / DC*                                                                       | 30 VDC                                                                                | 30 VDC                                                                                |
| IP rating               | 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<br>- / -<br>- / -                                                  | 3 x K10 / 1 x TK<br>2 x K10 / 2 x TM<br>1 x W11 / 1 x TK<br>1 x W11 / 2 x TM        | 3 x K10 / 1 x TK<br>2 x K10 / 2 x TM<br>1 x W11 / 1 x TK<br>1 x W11 / 2 x TM        | 1 x K10 / 1 x TK<br>- / -<br>- / -                                                    | 3 x K10 / 1 x TK<br>2 x K10 / 2 x TM<br>1 x W11 / 1 x TK<br>1 x W11 / 2 x TM          |
| Level contacts only     | 2 x K10<br>1 x W11                                                                  | 4 x K10<br>2 x W11                                                                  | 4 x K10<br>2 x W11                                                                  | 2 x K10<br>1 x W11                                                                    | 4 x K10<br>2 x W11                                                                    |

\*Max. 48 VAC/ VDC for change-over contact. \*\*with IP67 cable box attached. Other plug connections available upon request

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

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

## Technical Data NT 61D

### 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/dm <sup>3</sup>                                                   | 0.85 kg/dm <sup>3</sup> |
| Lengths (all versions) | 280, 370, 500 mm (Standard), variable to max. 1500 mm in 10 mm increments |                         |

| Material/Version   | MS            | VA            |
|--------------------|---------------|---------------|
| Display housing    | PA            | PA            |
| Float              | rigid PU      | 1.4571        |
| Immersion tube     | Brass         | 1.4571        |
| Flange (DIN 24557) | PA            | PA            |
| Weight at L=280 mm | approx. 200 g | approx. 300 g |
| Each 100 mm add    | approx. 30 g  | approx. 50 g  |

| Level switching output               | K10     |
|--------------------------------------|---------|
| Max. number                          | 2       |
| Function                             | NO/NC*  |
| Voltage max.                         | 30 V DC |
| Switching current max.               | 0.5 A   |
| Contact load max.                    | 10 VA   |
| Min. contact spacing                 | 40 mm   |
| Contact position in 10 mm increments |         |

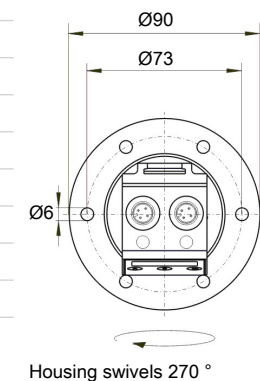
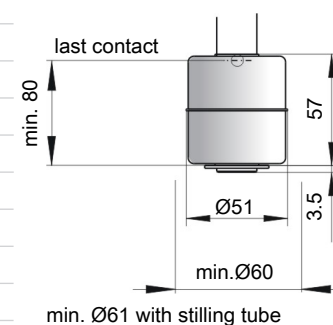
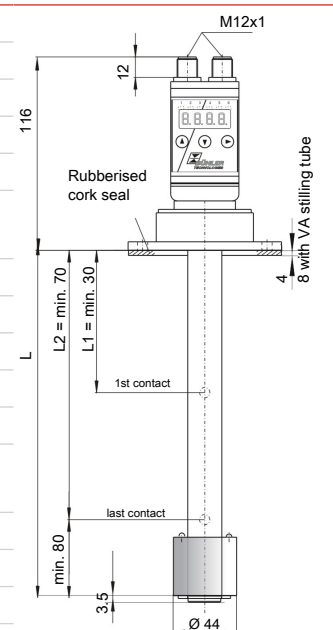
\*NO = falling NC contact / NC = falling NO contact

### Temperature display electronics

|                                  |                                                        |
|----------------------------------|--------------------------------------------------------|
| Display                          | 4 character 7 segment LED                              |
| Operation                        | Via 3 keys                                             |
| Memory                           | Min. / Max. Data memory                                |
| Starting current input           | approx. 100 mA for 100 ms                              |
| Current input during operation   | approx. 50 mA (without current- and switching outputs) |
| Supply voltage (U <sub>B</sub> ) | 10 – 30 V DC (nominal voltage 24 V DC)                 |
| Ambient temperature              | -20 °C to +70 °C                                       |
| Display units                    | Temperature °C / °F                                    |
| Display range                    | -20 °C to +120 °C                                      |
| Alarm setting range              | 0 °C to 100 °C                                         |
| Display accuracy                 | ± 1 % from end value                                   |
| Temperature sensor               | Pt 100 Class B, DIN EN 60 751 Tolerance ±0.8 °C        |

### Includes

Mounting screws (quantity 6), rubberised cork seal



| Alternative temperature outputs                                     | -2T                                                    | -1T-KT                                                 | -4T                                                    |
|---------------------------------------------------------------------|--------------------------------------------------------|--------------------------------------------------------|--------------------------------------------------------|
| Plug (base)                                                         | 2 x M12 – 4-pin                                        | 2 x M12 – 4-pin                                        | 1 x M12 – 4-pin 1 x M12 – 8-pin                        |
| Switching outputs                                                   | 2 x freely programmable*                               | 1 x freely programmable*                               | 4 x freely programmable                                |
| Alarm memory                                                        |                                                        | with 1 x assignable to alarm logbook                   | with 1 x assignable to alarm logbook                   |
| max. switching current**                                            | 0.5 A per output<br>continuous short-circuit protected | 0.5 A per output<br>continuous short-circuit protected | 0.5 A per output<br>continuous short-circuit protected |
| Contact load                                                        | max. 1 A total                                         | max. 1 A total                                         | max. 1 A total                                         |
| Analogue output                                                     |                                                        | 1 x 4 – 20 mA 2-10 V DC, 0-10 V DC, 0-5 V DC           |                                                        |
| Max. burden $\Omega$ as current output                              |                                                        | $= (U_B - 8 \text{ V}) / 0.02 \text{ A}$               |                                                        |
| Min. input load as voltage output                                   |                                                        | 10 k $\Omega$                                          |                                                        |
| <b>Options:</b> Stilling tube SSR (same material as immersion tube) |                                                        |                                                        |                                                        |

\*also programmable as frequency output

\*\*Output 1 max. 0.2 A.

## Ordering instructions NT 61D

### Model key

| Type designation, with display                       |                                        | Options                        |                                                          |
|------------------------------------------------------|----------------------------------------|--------------------------------|----------------------------------------------------------|
| Version                                              | NT 61D-□□-2M12-nn-□□-nn-□□-nn-□□-□□-□□ | SSR                            | Stilling tube                                            |
| MS Brass                                             |                                        | Temperature measurement        |                                                          |
| VA float and VA immersion tube                       |                                        | 2T                             | 2x PNP switching output                                  |
| Plug connector                                       |                                        | 4T                             | 4x PNP switching output                                  |
| 2M12                                                 |                                        | 1T-KT                          | 1x PNP switching output<br>1x analogue output<br>4-20 mA |
| Length in mm                                         |                                        | Switching function 2nd contact |                                                          |
| 280 Standard lengths                                 |                                        | NO                             | falling NC contact                                       |
| 370                                                  |                                        | NC                             | falling NO contact                                       |
| 500                                                  |                                        | 2nd level contact              |                                                          |
| nnn variable, please specify value, max. 1500        |                                        | (if applicable)                |                                                          |
| Level measurement                                    |                                        | nn                             | Please specify installation dimensions (L2 in mm)        |
| 1K 1x K10                                            |                                        | Switching function 1st contact |                                                          |
| 2K 2x K10                                            |                                        | NO                             | falling NC contact                                       |
| 1st level contact                                    |                                        | NC                             | falling NO contact                                       |
| nn Please specify installation dimensions (L1 in mm) |                                        |                                |                                                          |

### Accessories

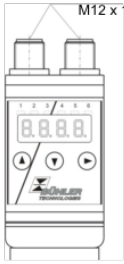
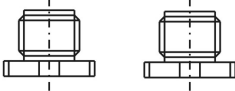
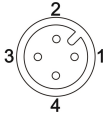
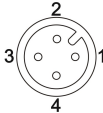
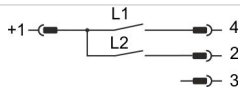
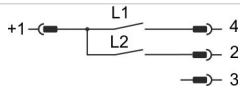
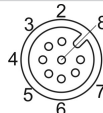
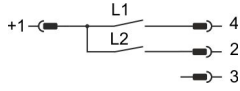
| Item no. 4-pin | Item no. 8-pin | Description                                                       |
|----------------|----------------|-------------------------------------------------------------------|
| 9144050010     | 9144050048     | Connecting cable M12x1, 1.5 m, angular coupling and straight plug |
| 9144050046     | 9144050049     | Connecting cable M12x1, 3.0 m, angular coupling and straight plug |
| 9144050047     | 9144050033     | Connecting cable M12x1, 5.0 m, angular coupling and strands       |

### Ordering example

|              |                                                                                                                                                                 |
|--------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| You require: | Level switch VA version, length L= 550 mm, 2 level contacts: 1st contact 100 mm NC, 2nd contact 470 mm NO, 1 temperature output, 1 analog output, stilling tube |
| Order        | NT 61D-VA-2M12-550-2K-100- NC-470-NO-1T-KT-SSR                                                                                                                  |

# Standard pin assignment NT 61D

## Plug connection

|                                               |                                                                                                             |                                                                                                                     |
|-----------------------------------------------|-------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|
|                                               | 2 x M12 (base)                                                                                              |                                                                                                                     |
| Dimensions                                    |                            |                                                                                                                     |
| Number of pins                                | 4-pin / 4-pin                                                                                               |                                                                                                                     |
| DIN EN                                        | 61076-2-101                                                                                                 |                                                                                                                     |
| Voltage max.                                  | 30 V DC                                                                                                     |                                                                                                                     |
|                                               |                           |                                                                                                                     |
| Connection schematic                          | <b>Plug A<br/>(level)</b>  | <b>Plug B<br/>(temperature)</b>  |
| <b>2T</b>                                     |                                                                                                             | <b>Pin</b>                                                                                                          |
| 2 x temperature output                        |                          | 1 +24 V DC<br>2 S2 (PNP)<br>3 GND<br>4 S1 (PNP)                                                                     |
| <b>1T-KT</b>                                  |                                                                                                             | <b>Pin</b>                                                                                                          |
| 1 x Temperature output<br>1 x Analogue output |                          | 1 +24 V DC<br>2 Analogue<br>3 GND<br>4 S1 (PNP)                                                                     |
| Connection schematic                          |                                                                                                             |                                |
| <b>4T</b>                                     |                                                                                                             | <b>Pin</b>                                                                                                          |
| 4 x Temperature output                        |                          | 1 +24 V DC<br>2 S2 (PNP)<br>3 GND<br>4 S1 (PNP)<br>5 S3 (PNP)<br>6 S4 (PNP)                                         |

## 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/dm <sup>3</sup>                                                   |
| Lengths (all versions) | 280, 370, 500 mm (Standard), variable to max. 1500 mm in 10 mm increments |

### Material/Version

|                    |               |
|--------------------|---------------|
| Float              | 1.4571        |
| Immersion tube     | 1.4571        |
| Flange (DIN 24557) | 1.4571        |
| Weight at L=280 mm | approx. 950 g |
| Each 100 mm add    | 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              |

Contact position in 10 mm increments

\*NO= falling NC contact / NC = falling NO contact \*\*HT= not adjustable

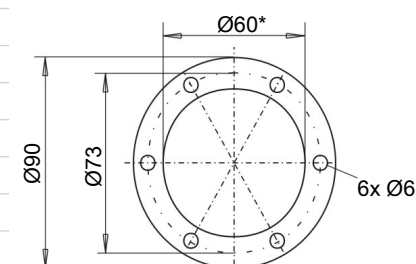
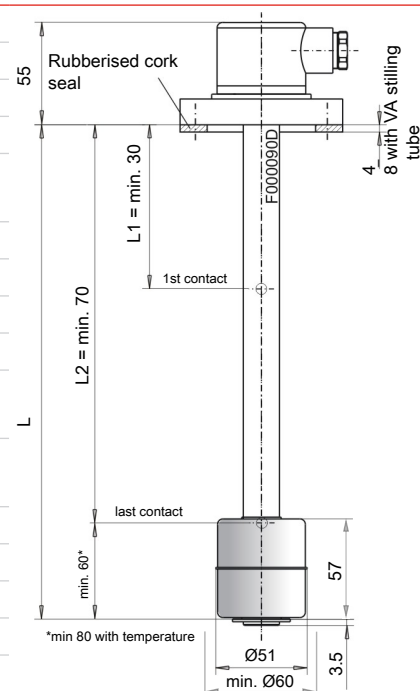
Optional temperature switching outputs

| 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.

### 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 <sub>B</sub> )           | 10 - 30 V DC                                    |
| Output                                        | 4 - 20 mA                                       |
| Burden Ω max.                                 | = (U <sub>B</sub> - 7.5 V) / 0.02 A             |
| Accuracy                                      | ± 1 % from end value                            |
| Other measuring ranges available upon request |                                                 |



\*min. Ø61 for VA version with stilling tube

## Ordering instructions NT 61-HT

### Model key

| Model designation        |      | NT 61-□□-□□-nn-nn-□□-□□-□□-□□                   |     | Options                               |                                          |
|--------------------------|------|-------------------------------------------------|-----|---------------------------------------|------------------------------------------|
| Version                  | HT   | Stainless steel                                 |     | SSR                                   | Stilling tube                            |
| Plug connector           | M3   | S6                                              | M12 | 2nd temperature contacts (TM... only) |                                          |
|                          | 2M12 | C6F                                             |     | NC contact NO contact                 |                                          |
| Length in mm (max. 1500) | 280  | Standard lengths                                | 370 | TM...                                 | TM50NC TM50NO = 50 °C                    |
|                          | 500  |                                                 | nnn |                                       | TM60NC TM60NO = 60 °C                    |
|                          | nnn  | variable, please specify value                  |     |                                       | TM70NC TM70NO = 70 °C                    |
| Level measurement        | 1-4  | Number of contacts <sup>1)</sup>                |     |                                       | TM80NC TM80NO = 80 °C                    |
| Level contact            | K    | Model K10 (NC/NO)                               |     | 1st temperature signal                |                                          |
|                          | K-HT | Model K10HT <sup>2)</sup> (NC/NO)               |     | NC contact NO contact                 |                                          |
|                          | W    | Model W11 (change-over contact)                 |     | TK...                                 | TK50NC TK50NO = 50 °C                    |
|                          | W-HT | Model W11HT <sup>2)</sup> (change-over contact) |     |                                       | TK60NC TK60NO = 60 °C                    |
|                          |      |                                                 |     |                                       | TK70NC TK70NO = 70 °C                    |
|                          |      |                                                 |     |                                       | TK80NC TK80NO = 80 °C                    |
|                          |      |                                                 |     | TM <sup>5)</sup>                      | TM50NC TM50NO = 50 °C                    |
|                          |      |                                                 |     |                                       | TM60NC TM60NO = 60 °C                    |
|                          |      |                                                 |     |                                       | TM70NC TM70NO = 70 °C                    |
|                          |      |                                                 |     |                                       | TM80NC TM80NO = 80 °C                    |
|                          |      |                                                 |     | Pt100                                 | Temperature sensor <sup>3)</sup>         |
|                          |      |                                                 |     | KT                                    | Temperature transmitter <sup>3) 4)</sup> |

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

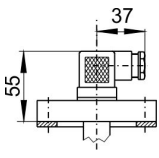
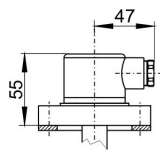
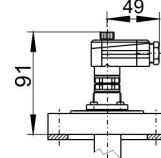
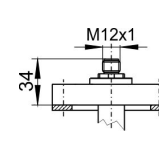
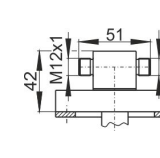
### Accessories

| Item no.   | Description                                                              |
|------------|--------------------------------------------------------------------------|
| 9144050010 | Connecting cable M12x1, 4-pin, 1.5 m, angular coupling and straight plug |
| 9144050046 | Connecting cable M12x1, 4-pin, 3.0 m, angular coupling and straight plug |
| 9144050047 | Connecting cable M12x1, 4-pin, 5.0 m, angular coupling and strands       |

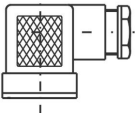
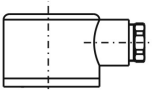
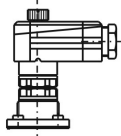
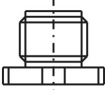
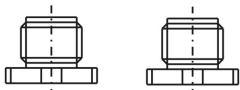
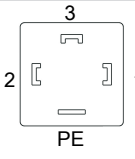
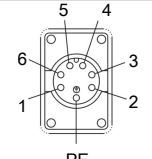
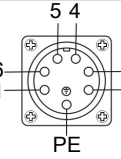
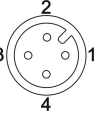
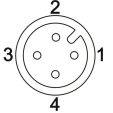
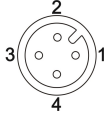
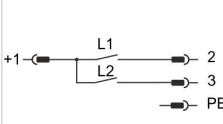
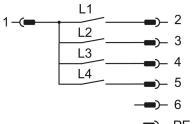
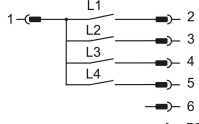
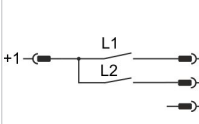
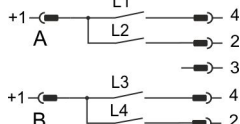
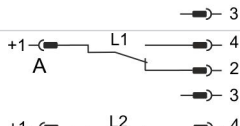
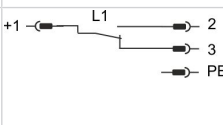
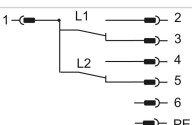
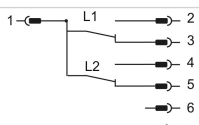
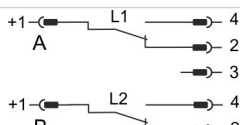
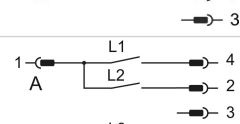
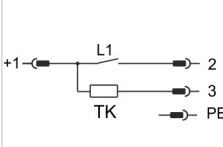
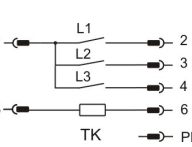
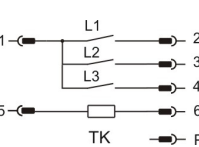
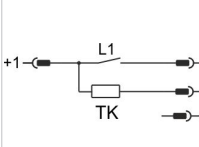
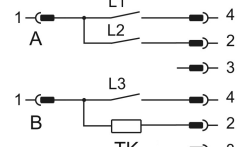
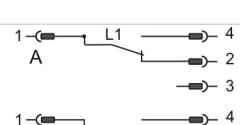
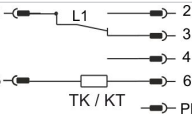
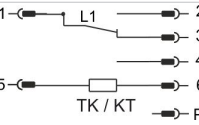
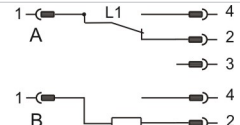
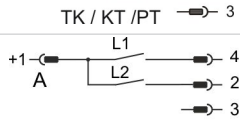
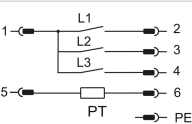
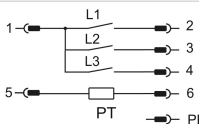
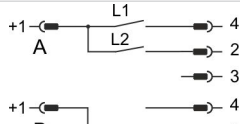
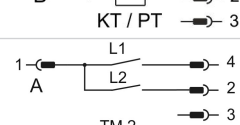
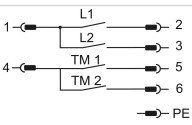
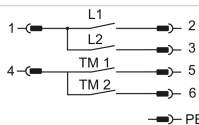
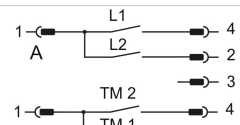
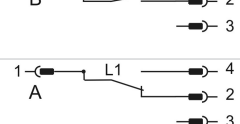
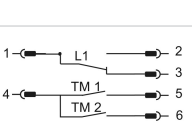
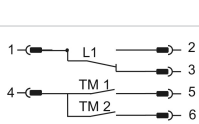
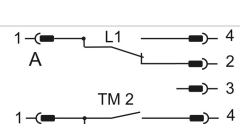
### Ordering example

|              |                                                                                                                                                                                  |
|--------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| You require: | Level switch MS version, plug connector S6, length L= 550 mm, 2 level contacts (NO/NC) and temperature contact 80 °C as NC contact, 1st contact 100 mm NC, 2nd contact 470 mm NO |
| Order        | NT 61HT-M3-550-2-K-HAT-PT100-SSR, L1=100 NC L2=470 NO                                                                                                                            |

**Standard pin assignment 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                                                                        |                                                                                   | 175301-804                                                                        | 61076-2-101                                                                         | 61076-2-101                                                                         |
| Max. voltage            | 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<br>- / -<br>- / -                                                | 3 x K10 / 1 x TK<br>2 x K10 / 2 x TM<br>1 x W11 / 1 x TK<br>1 x W11 / 2 x TM      | 3 x K10 / 1 x TK<br>2 x K10 / 2 x TM<br>1 x W11 / 1 x TK<br>1 x W11 / 2 x TM      | 1 x K10 / 1 x TK<br>- / -<br>- / -                                                  | 3 x K10 / 1 x TK<br>2 x K10 / 2 x TM<br>1 x W11 / 1 x TK<br>1 x W11 / 2 x TM        |
| Level contacts only     | 2 x K10<br>1 x W11                                                                | 4 x K10<br>2 x W11                                                                | 4 x K10<br>2 x W11                                                                | 2 x K10<br>1 x W11                                                                  | 4 x K10<br>2 x W11                                                                  |

\*max. 48 V AC/V DC for change-over contact. \*\*with IP67 cable box attached. Other plug connections available upon request.

|                                                       | M3                                                                                 | S6                                                                                  | C6F                                                                                 | M12<br>(base)                                                                       | 2 x M12<br>(base)                                                                                                                                                                                               |
|-------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                       |   |    |    |  |                                                                                                                              |
| Connection schematic                                  |   |    |    |  | <div>Plug A</div>  <div>Plug B</div>      |
| K10<br>Level contact(s)                               |   |    |    |   | <div>Plug A</div>  <div>Plug B</div>      |
| W11<br>Level contact(s)                               |   |    |    |   | <div>Plug A</div>  <div>Plug B</div>      |
| K10<br>Level- and temper-<br>ature contact            |  |   |   |  | <div>Plug A</div>  <div>Plug B</div>   |
| W11<br>Level- and temper-<br>ature contact(s)         |                                                                                    |  |  |                                                                                     | <div>Plug A</div>  <div>Plug B</div>  |
| K10 / Pt100<br>Level- and temper-<br>ature contact(s) |                                                                                    |  |  |                                                                                     | <div>Plug A</div>  <div>Plug B</div>  |
| K10<br>Level and 2 x tem-<br>perature contact(s)      |                                                                                    |  |  |                                                                                     | <div>Plug A</div>  <div>Plug B</div>  |
| W11<br>Level and 2 x tem-<br>perature contact(s)      |                                                                                    |  |  |                                                                                     | <div>Plug A</div>  <div>Plug B</div>  |

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