# Data sheet
# Mini float switch in stainless steel with plug connection 2xM12

**ENGLER**
Steuer- und Messtechnik

## Order key

M60. 2 . A1 . B4 . 100 . 200 . 09 . 01 . 8 . 60O

**Type mini float switch M60**

Material Tube
stainless steel tube ø8 --2

Function switching point A  24V/150mA

closes on level rise -- A1
opens on level rise -- A2
closes on level drop -- A3
opens on level drop -- A4
change over contact -- A5

Function switching points B  24VDC/150mA

closes on level rise -- B1
opens on level rise -- B2
closes on level drop -- B3
opens on level drop -- B4
change over contact-- B5

Comment:
For a device with only one
switching point please use
switching point B
Example: M60.1.B4.100.01.01.8

Switching point SPA
in mm according to customer´s indication

Switching point SPA
in mm according to customer´s indication

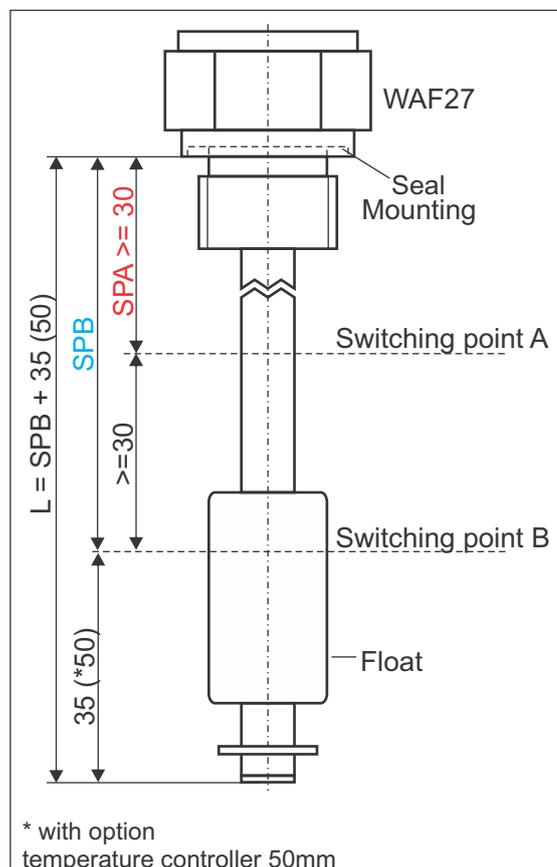Connection
2x M12 4 pol --- 09

Optional
Temperature switch:
Technical data
60°C n. c. contact --- 60O
65°C n. c. contact --- 65O
70°C n. c. contact --- 70O
75°C n. c. contact --- 75O
85°C n. c. contact --- 85O

Temperature sensor PT100
Technical data
PT100 2 wire --- PT100
PT100 3 wire --- PT103
PT100 4 wire --- PT104

Temperature sensor PT1000
Technical data
PT1000 2 Draht --- Pt1000

Flaot switch
ø17,8x32mm material NBR --- 8

Mounting material alu / Pa6
screwed connection  1/2" --------- 27
screwed connection  3/4" --------- 13
screwed connection  1" ------------ 22
round flange ø74 Lk60 -- 46
screwed connection  M20x1,5 --- 01
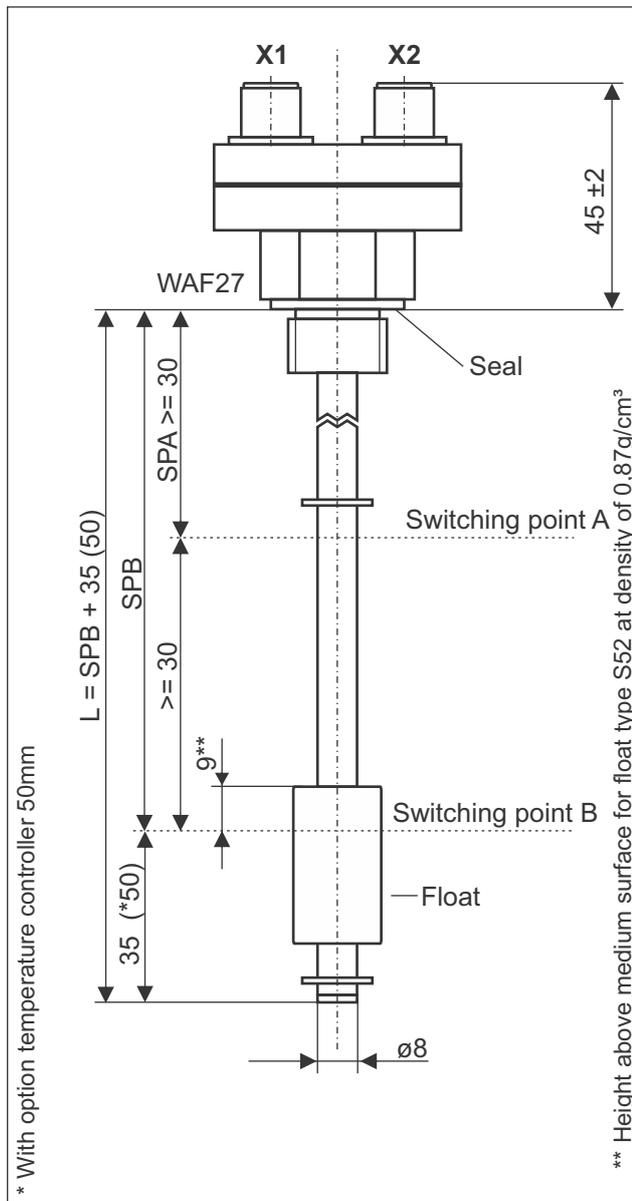screwed connection  M22x1,5 --- 24
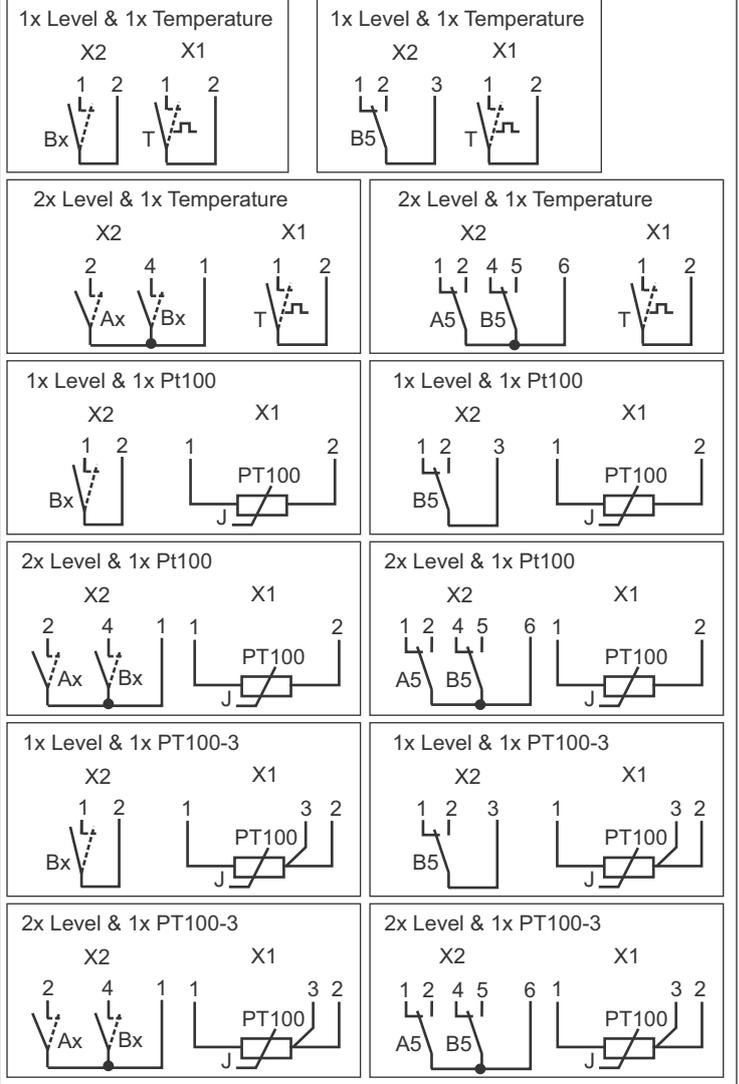screwed connection  M24x1,5 --- 33

WAF27

Seal
Mounting

$L = SPB + 35\ (50)$

SPB

SPA >= 30

Switching point A

>=30

Switching point B

Float

35 (*50)

* with option
temperature controller 50mm

# Data sheet
# Mini float switch in stainless steel with plug connection 2xM12
# Type: M60...09.27.8
# Mounting 1/2"

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X1    X2

45 ±2

WAF27

Seal

SPA >= 30

L = SPB + 35 (50)

SPB

>= 30

9**

Switching point A

Switching point B

Float

35 (*50)

ø8

* With option temperature controller 50mm

** Height above medium surface for float type S52 at density of 0,87g/cm³

## Terminal diagrams

### 1x Level & 1x Temperature
X2    X1
1  2   1  2
Bx     T

### 1x Level & 1x Temperature
X2       X1
1 2  3   1    2
B5       T

### 2x Level & 1x Temperature
X2          X1
2   4   1   1    2
Ax  Bx       T

### 2x Level & 1x Temperature
X2              X1
1 2  4 5  6     1    2
A5  B5           T

### 1x Level & 1x Pt100
X2      X1
1  2    1        2
Bx         PT100
         J

### 1x Level & 1x Pt100
X2        X1
1 2  3    1        2
B5           PT100
           J

### 2x Level & 1x Pt100
X2           X1
2   4   1    1        2
Ax  Bx          PT100
              J

### 2x Level & 1x Pt100
X2              X1
1 2  4 5  6     1        2
A5  B5             PT100
                 J

### 1x Level & 1x PT100-3
X2      X1
1  2    1        3  2
Bx         PT100
         J

### 1x Level & 1x PT100-3
X2        X1
1 2  3    1        3  2
B5           PT100
           J

### 2x Level & 1x PT100-3
X2           X1
2   4   1    1        3  2
Ax  Bx          PT100
              J

### 2x Level & 1x PT100-3
X2              X1
1 2  4 5  6     1        3  2
A5  B5             PT100
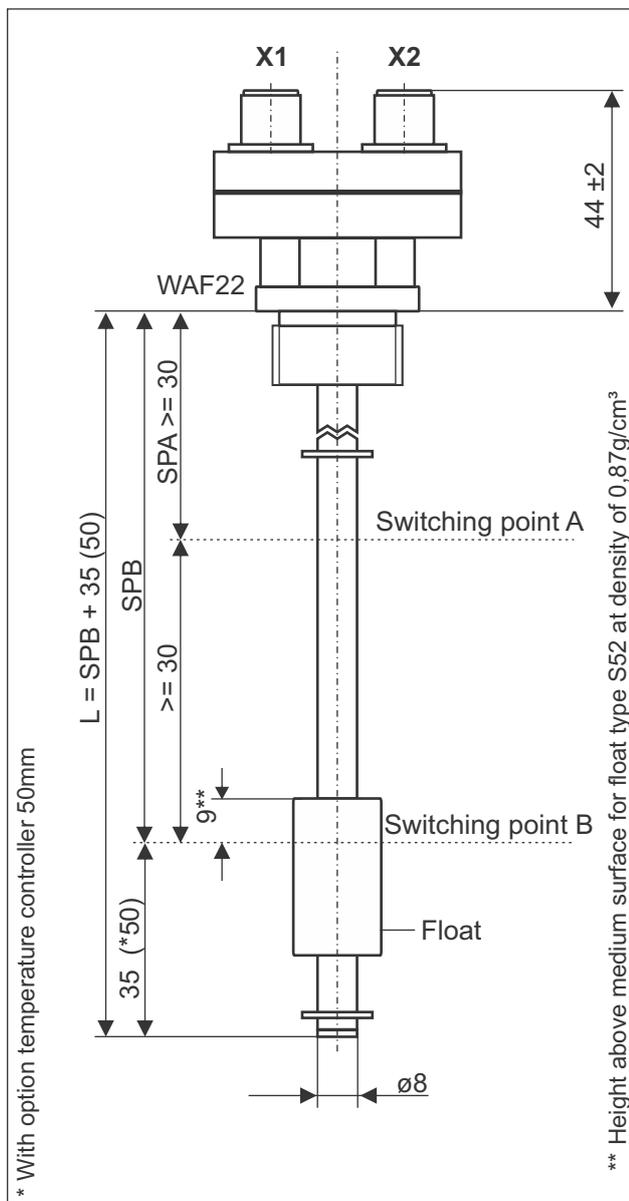                 J

## Technical data:

| | |
|---|---|
| Anschluss: | plug-type connector 2x M12x1 4-pole, material TPU, on aluminium housing thread 1/2", material stainless steel |
| Befestigung: | vertical ± 10° |
| Einbaulage: | profile seal, material NBR |
| Dichtung: | ø8mm material stainless steel, length and material acc. to customer specification |
| Gleitrohr: | ø17,8x32mm, material NBR, type S52 |
| Schwimmer: | max. 2x reed contact n.o., contact / n.c. contact or 2x change over contact, |
| Reedkontakt: | function bistable |
|   Schaltspannung: | max. 24VDC |
|   Schaltstrom: | 150mA |
| Temperaturschalter: | optional, see performance data |
| Temperatursensor: | optional, see performance data |
| Druck: | max. 1 bar |
| Einsatztemperatur: | -20°C to100°C in medium, -15°C to 70°C above mounting |
| Schutzart: | IP 65 |

# Data sheet
# Mini float switch in stainless steel with plug connection 2xM12
# Type: M60...09.13.8
# Mounting 3/4"

**ENGLER**
Steuer- und Messtechnik

X1    X2

44 ±2

WAF22

SPA >= 30

Switching point A

SPB

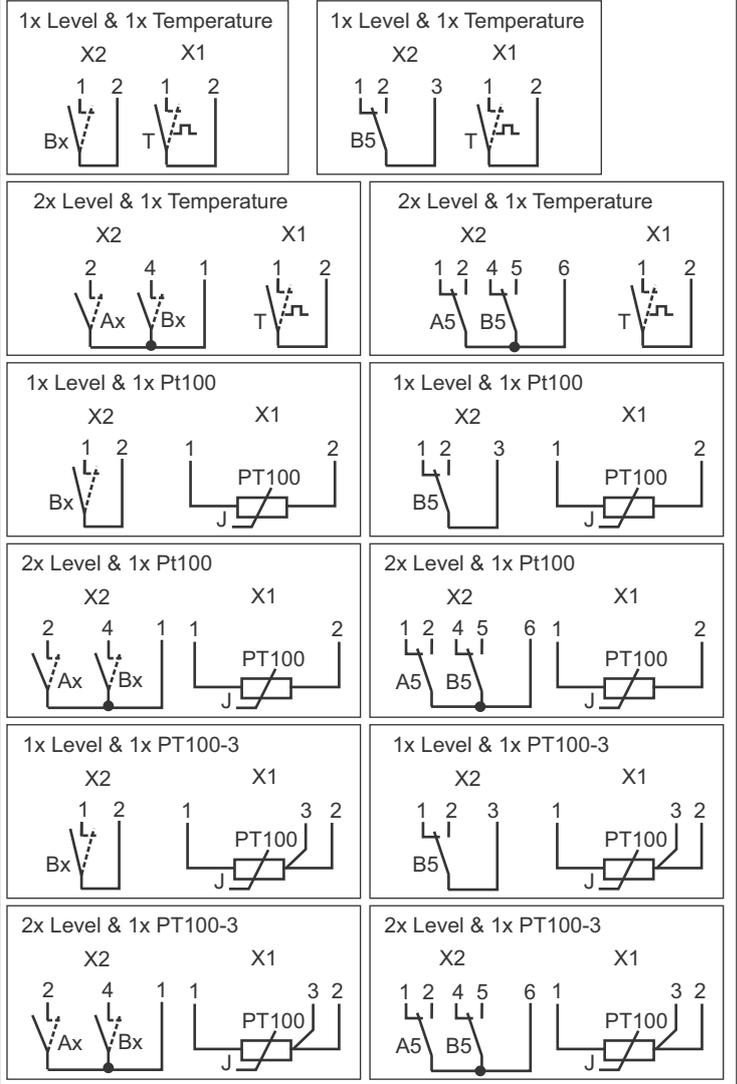L = SPB + 35 (50)

>= 30

9**

Switching point B

Float

35 (*50)

ø8

* With option temperature controller 50mm

** Height above medium surface for float type S52 at density of 0,87g/cm³

## Terminal diagrams



1x Level & 1x Temperature
X2    X1
Bx    T

1x Level & 1x Temperature
X2    X1
B5    T

2x Level & 1x Temperature
X2    X1
Ax  Bx    T

2x Level & 1x Temperature
X2    X1
A5  B5    T

1x Level & 1x Pt100
X2    X1
Bx    PT100  J

1x Level & 1x Pt100
X2    X1
B5    PT100  J

2x Level & 1x Pt100
X2    X1
Ax  Bx    PT100  J

2x Level & 1x Pt100
X2    X1
A5  B5    PT100  J

1x Level & 1x PT100-3
X2    X1
Bx    PT100  J

1x Level & 1x PT100-3
X2    X1
B5    PT100  J

2x Level & 1x PT100-3
X2    X1
Ax  Bx    PT100  J

2x Level & 1x PT100-3
X2    X1
A5  B5    PT100  J

## Technical datasche Daten:
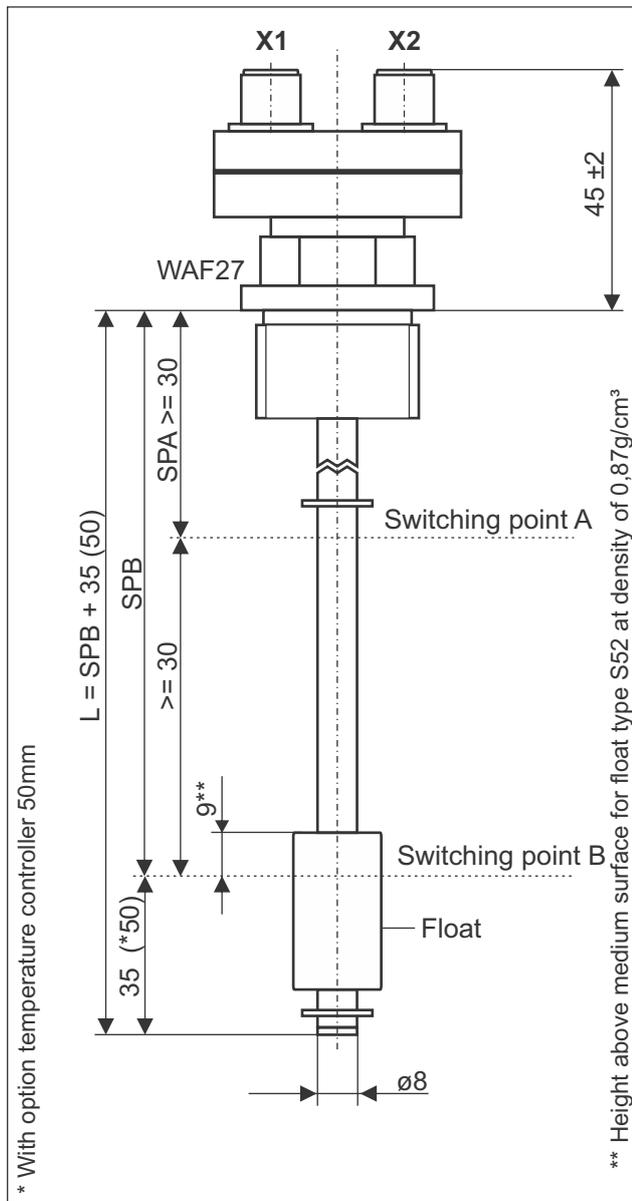
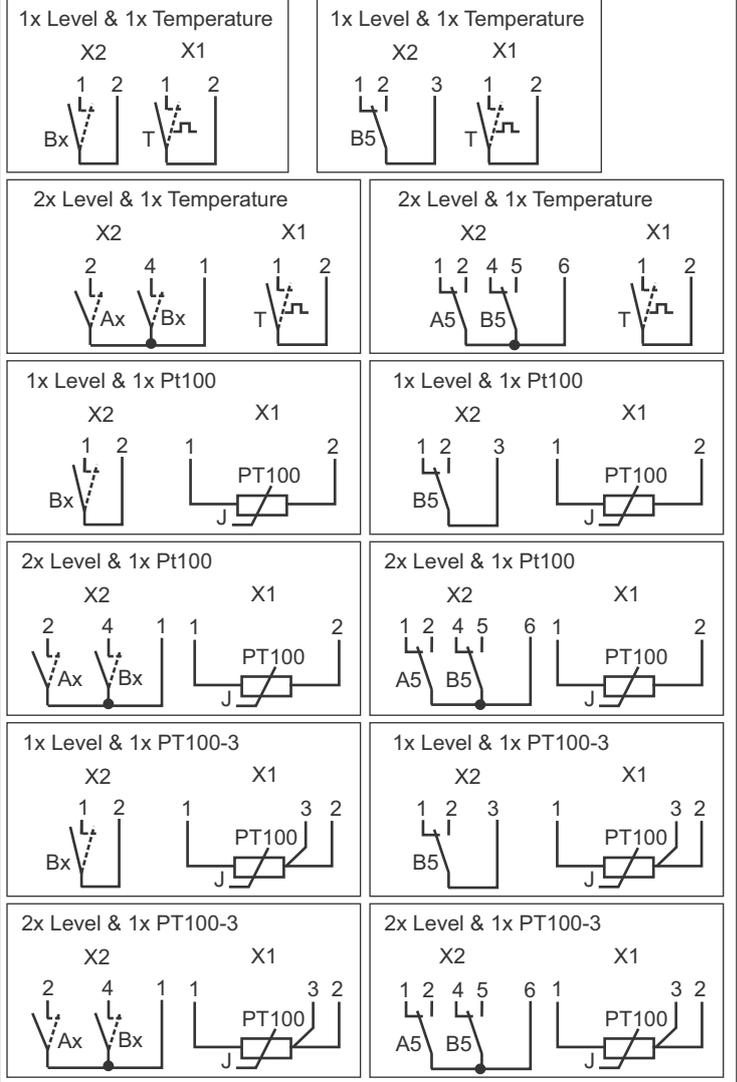| | |
|---|---|
| Connection: | plug-type connector 2x M12x1 4-pole, material TPU, on alu housing |
| Mounting: | thread 3/4", material aluminium |
| Mounting position: | vertical ± 10° |
| Sliding tube: | ø8mm material stainless steel, length and material acc. to customer specification |
| Float: | ø17,8x32mm, material NBR, type S52 |
| Reed contact: | max. 2x reed contacts n.o., contact / n.c. contact or 2x change over contact, function bistable |
| Switching voltage: | max. 24VDC |
| Switching current: | 150mA |
| Temperature switching: | optional, see performance data |
| Temperature sensor: | optional, see performance data |
| Pressure: | max. 1 bar |
| Operating temperature: | -20°C to100°C in medium, -15°C to 70°C above mounting |
| Protection rating: | IP 65 |

**Hotline +49 (0)7389 90920 - eMail  info@engler-msr.de**

*Subject to change*
*Dimensions in mm*

Ts01 - 01.08.2024 - be - G: je - TS_DoNr_Mini.cdr

# Data sheet
# Mini float switch in stainless steel with plug connection 2xM12
# Type: M60...09.22.8
# Mounting 1"

**ENGLER**
Steuer- und Messtechnik

X1 X2

WAF27

45 ±2

SPA >= 30

L = SPB + 35 (50)

SPB

>= 30

Switching point A

9**

Switching point B

Float

35 (*50)

ø8

* With option temperature controller 50mm

** Height above medium surface for float type S52 at density of 0,87g/cm³

## Terminal diagrams

**1x Level & 1x Temperature**
X2 — 1 2 — Bx
X1 — 1 2 — T

**1x Level & 1x Temperature**
X2 — 1 2 3 — B5
X1 — 1 2 — T

**2x Level & 1x Temperature**
X2 — 2 4 1 — Ax Bx
X1 — 1 2 — T

**2x Level & 1x Temperature**
X2 — 1 2 4 5 6 — A5 B5
X1 — 1 2 — T

**1x Level & 1x Pt100**
X2 — 1 2 — Bx
X1 — 1 2 — PT100 J

**1x Level & 1x Pt100**
X2 — 1 2 3 — B5
X1 — 1 2 — PT100 J

**2x Level & 1x Pt100**
X2 — 2 4 1 — Ax Bx
X1 — 1 2 — PT100 J

**2x Level & 1x Pt100**
X2 — 1 2 4 5 6 — A5 B5
X1 — 1 2 — PT100 J

**1x Level & 1x PT100-3**
X2 — 1 2 — Bx
X1 — 1 3 2 — PT100 J

**1x Level & 1x PT100-3**
X2 — 1 2 3 — B5
X1 — 1 3 2 — PT100 J

**2x Level & 1x PT100-3**
X2 — 2 4 1 — Ax Bx
X1 — 1 3 2 — PT100 J

**2x Level & 1x PT100-3**
X2 — 1 2 4 5 6 — A5 B5
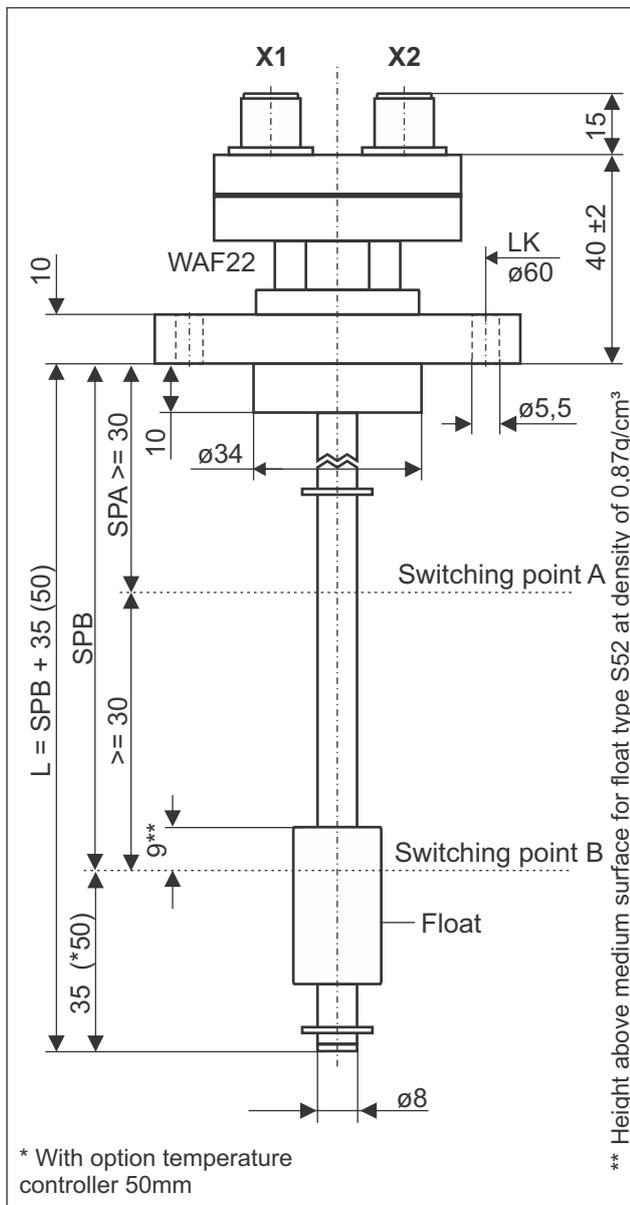X1 — 1 3 2 — PT100 J

## Technical data:

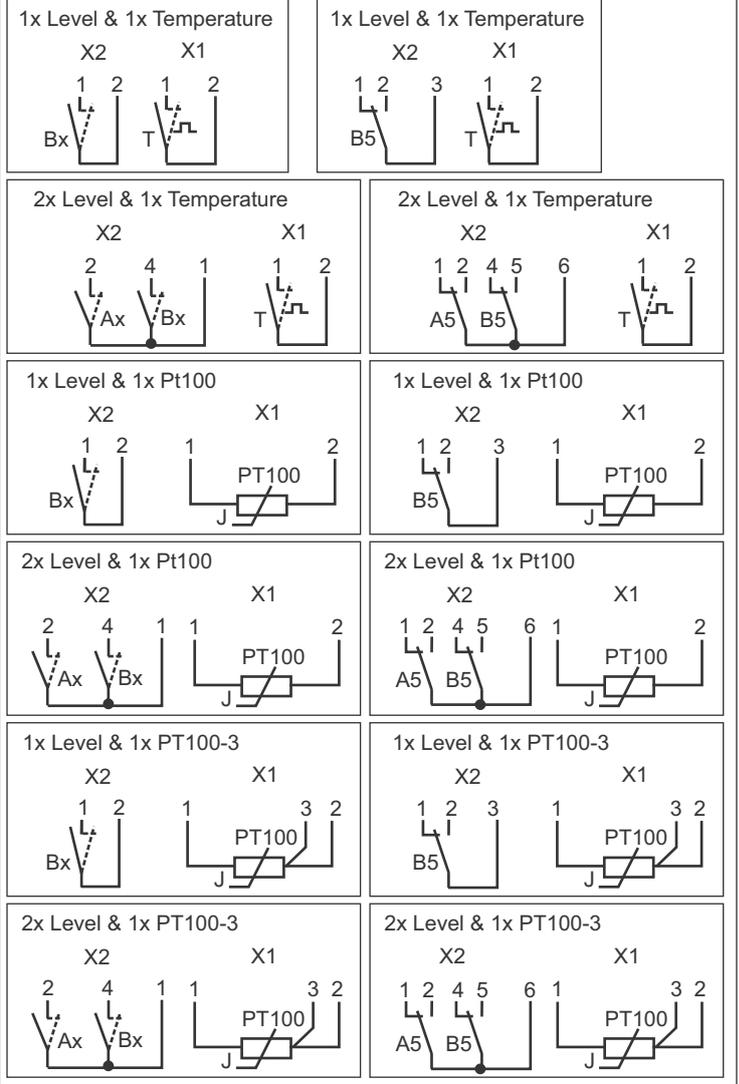| | |
|---|---|
| Connection: | plug-type connector 2x M12x1 4-pole, material TPU, on aluminium housing |
| Mounting: | thread 1", material aluminium |
| Mounting position: | vertical ± 10° |
| Sliding tube: | ø8mm material stainless steel, length and material acc. to customer specification |
| Float: | ø17,8x32mm, material NBR, type S52 |
| Reed contact: | max. 2x reed contact, n.o. contact / n.c. contact or 2x change over contact, function bistable |
| Switching voltage: | max. 24VDC |
| Switching current: | 150mA |
| Temperature switching: | optional, see performance data |
| Temperature sensor: | optional, see performance data |
| Pressure: | max. 1 bar |
| Operating temperature: | -20°C to100°C in medium, -15°C to 70°C above mounting |
| Protection rating: | IP 65 |

# Data sheet
# Mini float switch in stainless steel with plug connection 2xM12
# Type: M60...09.46.8
# Mounting round flange

**ENGLER**
Steuer- und Messtechnik



X1  X2

15
40 ±2
10
WAF22
LK ø60
10
ø34
ø5,5
SPA >= 30
Switching point A
SPB
L = SPB + 35 (50)
>= 30
9 **
Switching point B
Float
35 (*50)
ø8

\*\* Height above medium surface for float type S52 at density of 0,87g/cm³

\* With option temperature controller 50mm

## Terminal diagrams



1x Level & 1x Temperature
X2   X1
1  2   1   2
Bx   T

1x Level & 1x Temperature
X2   X1
1 2  3   1   2
B5   T

2x Level & 1x Temperature
X2   X1
2  4  1   1   2
Ax  Bx   T

2x Level & 1x Temperature
X2   X1
1 2  4 5  6   1   2
A5  B5   T

1x Level & 1x Pt100
X2   X1
1  2   1        2
Bx   PT100
J

1x Level & 1x Pt100
X2   X1
1 2  3   1        2
B5   PT100
J

2x Level & 1x Pt100
X2   X1
2  4  1   1        2
Ax  Bx   PT100
J

2x Level & 1x Pt100
X2   X1
1 2  4 5  6   1        2
A5  B5   PT100
J

1x Level & 1x PT100-3
X2   X1
1  2   1      3  2
Bx   PT100
J

1x Level & 1x PT100-3
X2   X1
1 2  3   1      3  2
B5   PT100
J

2x Level & 1x PT100-3
X2   X1
2  4  1   1      3  2
Ax  Bx   PT100
J

2x Level & 1x PT100-3
X2   X1
1 2  4 5  6   1      3  2
A5  B5   PT100
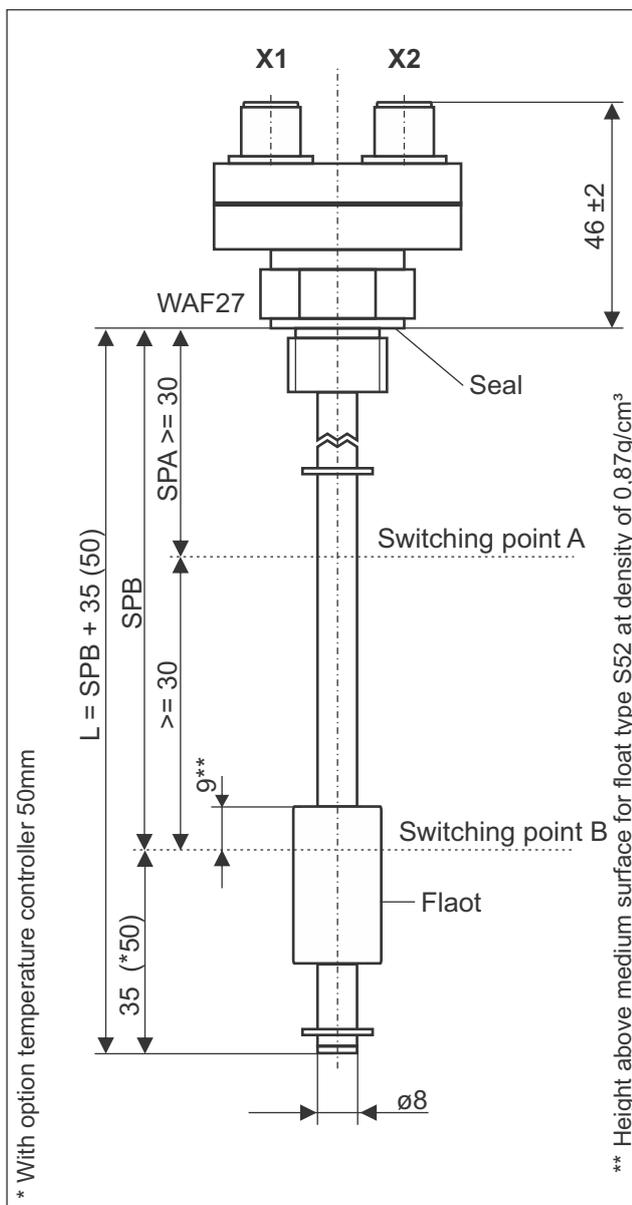J

## Technical data:

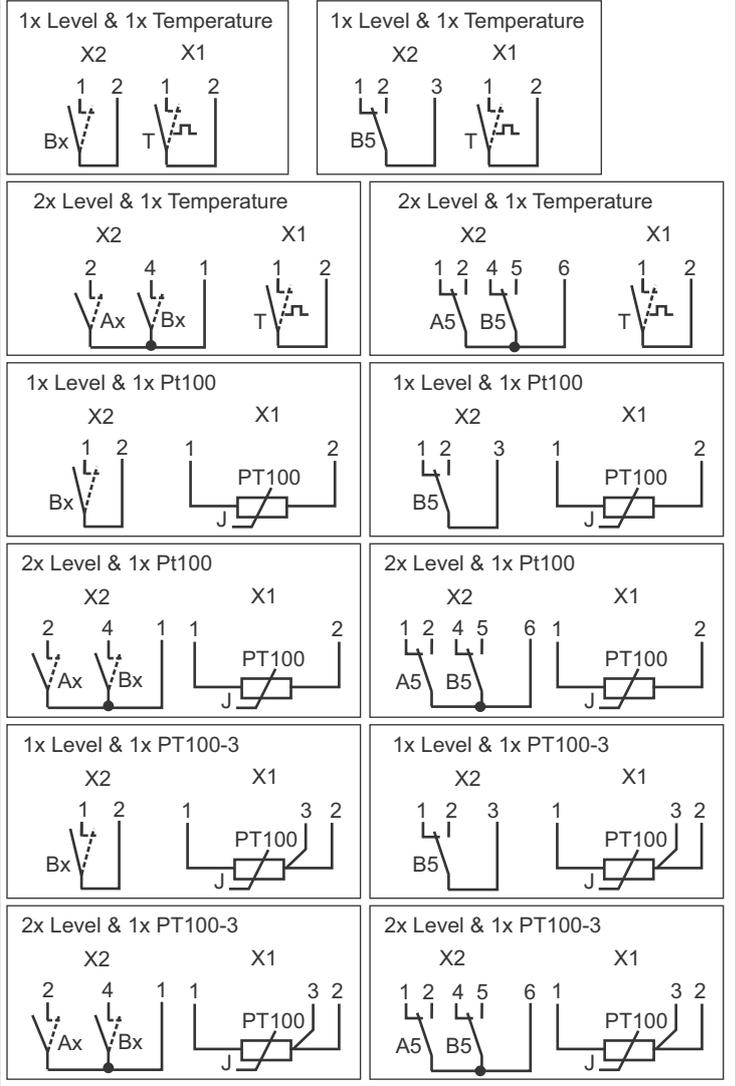| | |
|---|---|
| Connection: | plug-type connector 2x M12x1, 4-pole, material TPU, on alu housing |
| Mounting: | round flange AD 74mm, material aluminium |
| Mounting position: | vertical ± 10° |
| Sliding tube: | ø8mm material stainless steel, length and material acc. to customer specification |
| Float: | ø17,8x32mm, material NBR, type S52 |
| Reed contact: | max. 2x reed contacts, n.o. contact / n.c. Contact or 2x change over contact, function bistable |
| Switching voltage: | max. 24VDC |
| Switching current: | 150mA |
| Temperature switching: | optional, see performance data |
| Temperature sensor: | optional, see performance data |
| Pressure: | max. 1 bar |
| Operating temperature: | -20°C to100°C in medium, -15°C to 70°C above mounting |
| Protection rating: | IP 65 |

**Data sheet**
**Mini float switch in stainless steel with plug connection 2xM12**
**Type: M60...09.01.8**
**Mounting M20x1,5**

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Steuer- und Messtechnik

Dimensional drawing with labels: X1, X2, WAF27, Seal, 46 ±2, SPA >= 30, L = SPB + 35 (50), SPB, >= 30, 9**, Switching point A, Switching point B, Flaot, Float, 35 (*50), ø8, * With option temperature controller 50mm, ** Height above medium surface for float type S52 at density of 0,87g/cm³

**Terminal diagrams**



1x Level & 1x Temperature — X2, X1 — 1 2, 1 2 — Bx, T

1x Level & 1x Temperature — X2, X1 — 1 2 3, 1 2 — B5, T

2x Level & 1x Temperature — X2, X1 — 2 4 1, 1 2 — Ax, Bx, T

2x Level & 1x Temperature — X2, X1 — 1 2 4 5 6, 1 2 — A5, B5, T

1x Level & 1x Pt100 — X2, X1 — 1 2, 1 2 — Bx, PT100, J

1x Level & 1x Pt100 — X2, X1 — 1 2 3, 1 2 — B5, PT100, J

2x Level & 1x Pt100 — X2, X1 — 2 4 1, 1 2 — Ax, Bx, PT100, J

2x Level & 1x Pt100 — X2, X1 — 1 2 4 5 6, 1 2 — A5, B5, PT100, J

1x Level & 1x PT100-3 — X2, X1 — 1 2, 1 3 2 — Bx, PT100, J

1x Level & 1x PT100-3 — X2, X1 — 1 2 3, 1 3 2 — B5, PT100, J

2x Level & 1x PT100-3 — X2, X1 — 2 4 1, 1 3 2 — Ax, Bx, PT100, J

2x Level & 1x PT100-3 — X2, X1 — 1 2 4 5 6, 1 3 2 — A5, B5, PT100, J
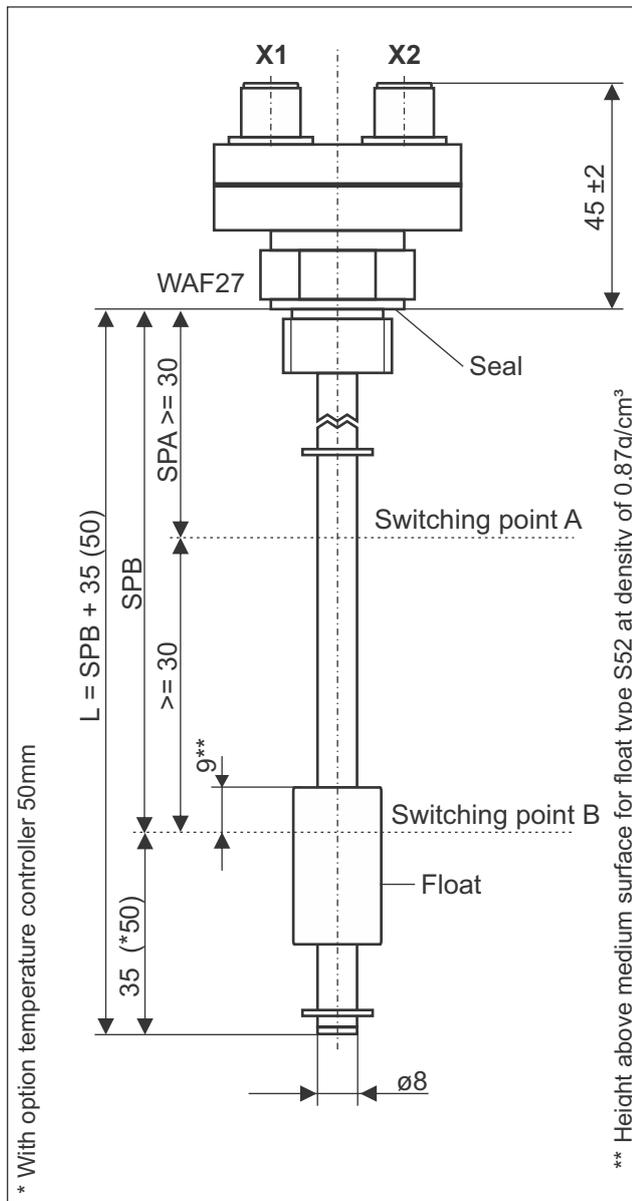
**Technical data:**

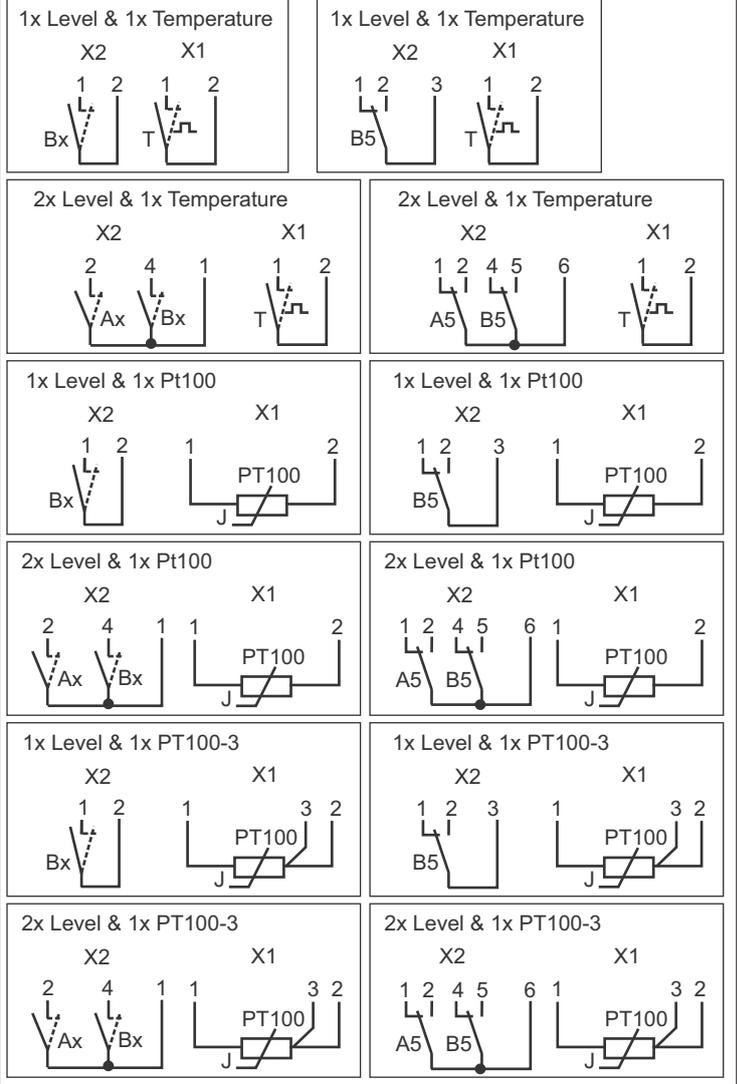| | |
|---|---|
| Connection: | connector 2x M12x1 4-pole, material TPU, on aluminium housing |
| Mounting: | thread M20x1,5, material aluminium |
| Mounting position: | vertical ± 10° |
| Seal: | profile seal, material NBR |
| Sliding tube: | ø8mm material stainless steel, length and material acc. to customer specification |
| Float: | ø17,8x32mm, material NBR, type S52 |
| Reed contact: | max. 2x reed contacts, n.o. contact / n.c. Contact or 2x change over contact, function bistable |
| Switching voltage: | max. 24VDC |
| Switching current: | 150mA |
| Temperature switching | optional, see performance data |
| Temperature sensor: | optional, see performance data |
| Pressure: | max. 1 bar |
| Operating temperature | -20°C to100°C in medium, -15°C to 70°C above mounting |
| Protection rating: | IP 65 |

# Data sheet
# Mini float switch in stainless steel with plug connection 2xM12
# Type: M60...09.24.8
# Mounting M22x1,5

**ENGLER**
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X1    X2

45 ±2

WAF27

Seal

SPA >= 30

SPB

L = SPB + 35 (50)

>= 30

9**

Switching point A

Switching point B

Float

35 (*50)

ø8

* With option temperature controller 50mm

** Height above medium surface for float type S52 at density of 0,87g/cm³

## Terminal diagrams

**1x Level & 1x Temperature**
X2    X1
1  2    1  2
Bx    T

**1x Level & 1x Temperature**
X2    X1
1  2  3    1  2
B5    T

**2x Level & 1x Temperature**
X2    X1
2  4  1    1  2
Ax  Bx    T

**2x Level & 1x Temperature**
X2    X1
1  2  4  5  6    1  2
A5  B5    T

**1x Level & 1x Pt100**
X2    X1
1  2    1    2
Bx    PT100
J

**1x Level & 1x Pt100**
X2    X1
1  2  3    1    2
B5    PT100
J

**2x Level & 1x Pt100**
X2    X1
2  4  1    1    2
Ax  Bx    PT100
J

**2x Level & 1x Pt100**
X2    X1
1  2  4  5  6    1    2
A5  B5    PT100
J

**1x Level & 1x PT100-3**
X2    X1
1  2    1    3  2
Bx    PT100
J

**1x Level & 1x PT100-3**
X2    X1
1  2  3    1    3  2
B5    PT100
J

**2x Level & 1x PT100-3**
X2    X1
2  4  1    1    3  2
Ax  Bx    PT100
J

**2x Level & 1x PT100-3**
X2    X1
1  2  4  5  6    1    3  2
A5  B5    PT100
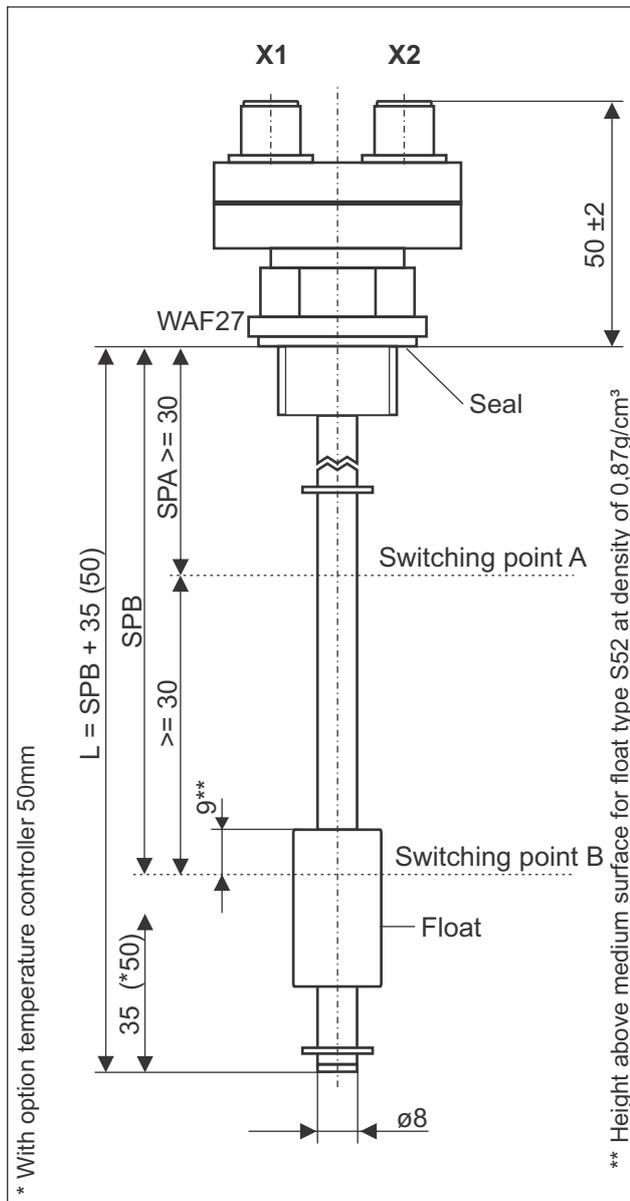J

## Technical data:

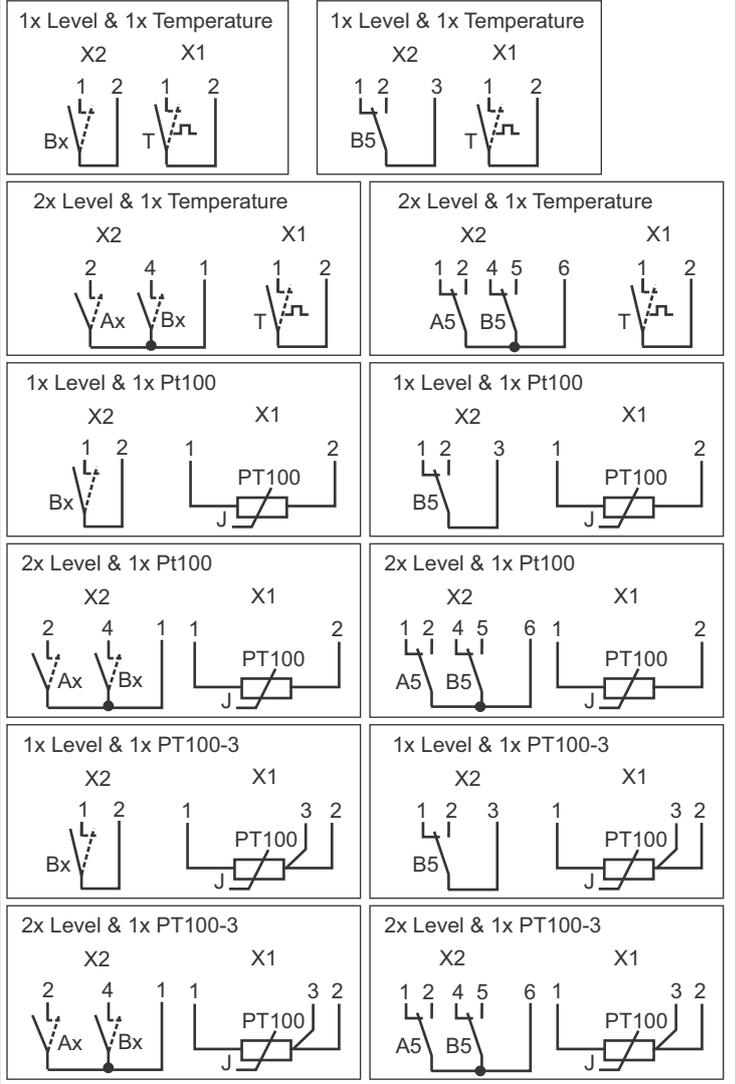| | |
|---|---|
| Connection: | plug-type connector 2x M12x1, 4-pole, material TPU, on aluminium housing |
| Mounting: | thread M22x1,5, material aluminium |
| Mounting position: | vertical ± 10° |
| Seal: | profile seal, material NBR |
| Sliding tube: | ø8mm material stainless steel, length and material acc. to customer specification |
| Float: | ø17,8x32mm, material NBR, type S52 |
| Reed contact: | max. 2x reed contacts, n.o. contact / n.c. Contact or 2x change over contact, function bistable |
| Switching voltage: | max. 24VDC |
| Switching current: | 150mA |
| Temperature switching: | optional, see performance data |
| Temperature sensor: | optional, see performance data |
| Pressure: | max. 1 bar |
| Operating temperature: | -20°C to100°C in medium, -15°C to 70°C above mounting |
| Protection rating: | IP 65 |

# Data sheet
# Mini float switch in stainless steel with plug connection 2xM12
# Type: M60...09.33.8
# Mounting M24x1,5

**ENGLER**
Steuer- und Messtechnik

X1    X2

50 ±2

WAF27

Seal

SPA >= 30

SPB

>= 30

9**

Switching point A

Switching point B

Float

L = SPB + 35 (50)

35 (*50)

ø8

* With option temperature controller 50mm

** Height above medium surface for float type S52 at density of 0,87g/cm³

## Terminal diagrams

**1x Level & 1x Temperature**
X2    X1
1  2   1  2
Bx     T

**1x Level & 1x Temperature**
X2       X1
1 2  3   1   2
B5       T

**2x Level & 1x Temperature**
X2         X1
2  4  1    1  2
Ax  Bx     T

**2x Level & 1x Temperature**
X2            X1
1 2  4 5  6   1  2
A5   B5       T

**1x Level & 1x Pt100**
X2        X1
1  2    1      2
Bx        PT100
          J

**1x Level & 1x Pt100**
X2          X1
1 2  3    1       2
B5          PT100
            J

**2x Level & 1x Pt100**
X2          X1
2  4  1   1      2
Ax  Bx      PT100
            J

**2x Level & 1x Pt100**
X2             X1
1 2  4 5  6   1       2
A5   B5         PT100
                J

**1x Level & 1x PT100-3**
X2        X1
1  2    1    3  2
Bx        PT100
          J

**1x Level & 1x PT100-3**
X2          X1
1 2  3    1    3  2
B5          PT100
            J

**2x Level & 1x PT100-3**
X2          X1
2  4  1   1    3  2
Ax  Bx      PT100
            J

**2x Level & 1x PT100-3**
X2             X1
1 2  4 5  6   1    3  2
A5   B5         PT100
                J

## Technical data:

| | |
|---|---|
| Connection: | plug-type connector 2x M12x1, 4-pole, material TPU, on alu housing |
| Mounting: | thread M24x1,5, material aluminium |
| Mounting position: | vertical ± 10° |
| Seal: | profile seal, material NBR |
| Sliding tube: | ø8mm material stainless steel, length and material acc. to customer specification |
| Float: | ø17,8x32mm, material NBR, type S52 |
| Reed contact: | max. 2x reed contacts, n.o. contact / n.c. contact or change over contact, function bistable |
| Switching voltage: | max. 24VDC |
| Switching current: | 150mA |
| Temperature switching: | optional, see performance data |
| Temperature sensor: | optional, see performance data |
| Pressure: | max. 1 bar |
| Operating temperature: | -20°C to100°C in medium, -15°C to 70°C above mounting |
| Protection rating: | IP 65 |

# Data sheet
# Mini float switch in stainless steel with plug connection 2xM12
# Optional Temperature switch, PT100 and PT1000

**Temperature switch:**

Temperature switch point ranges:

| Switching temperature | Reset temperature | Switching temperature | Reset temperature |
|---|---|---|---|
| 40°C±5K | ≥ 27°C | 95°C±5K | 70°C±15K |
| 45°C±5K | ≥ 30°C | 100°C±5K | 70°C±15K |
| 50°C±5K | ≥ 33°C | 105°C±5K | 75°C±15K |
| 55°C±5K | 34-47°C | 110°C±5K | 75°C±15K |
| 60°C±5K | 35-52°C | 115°C±5K | 80°C±15K |
| 65°C±5K | 36-57°C | 120°C±5K | 85°C±15K |
| 70°C±5K | 38-60°C | 125°C±5K | 90°C±15K |
| 75°C±5K | 38-63°C | 130°C±5K | 95°C±15K |
| 80°C±5K | 55°C±15K | 135°C±5K | 100°C±15K |
| 85°C±5K | 60°C±15K | 140°C±5K | 105°C±15K |
| 90°C±5K | 65°C±15K | 145°C±5K | 105°C±15K |

*Technical data:*

*Technology: bimetal*
*Accuracy: ±5K*
*Switching voltage: 230VAC - connection 01, 10, 13*
*24VDC - connection 02, 08, 09, 12, 17*
*Switching current: 1A - connection 01, 10, 13*
*150mA - connection 02, 08, 09, 12, 17*

**Temperature sensor PT100**

PT100 2 wire --- PT100
PT100 3 wire --- PT103
PT100 4 wire --- PT104

*Technical data:*

*Nominal resistance: 100 Ohm at 0°C*
*Tolerance: DIN EN 60751, class B*
*Temperature coefficient: TK = 3850ppm/K*
*Temperature range: -20 up to 100°C*
*Self-heating: 0,4K/mW*

**Temperature sensor PT1000**

PT1000 2 wire --- PT1000
PT1000 3 wire --- PT1003

*Technical data:*

*Nominal resistance: 1000 Ohm at 0°C*
*Tolerance: DIN EN 60751, class B*
*Temperature coefficient: TK = 3850ppm/K*
*Temperature range: -20 up to 100°C*
*Self-heating: 0,2K/mW*