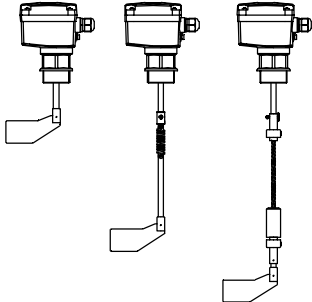


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Subject to change.

All dimensions in mm (inches).

All prices in Euro, excluding VAT.

All prices are EXW Betzigau, excluding packaging costs.

Valid: From 01.04.2016 until 31.03.2017, unless otherwise agreed.

By publishing this selection list all other lists become invalid.

We assume no liability for typing errors.

Different variations to those specified are possible. Please contact our technical consultants.

Overview / Specification / Applications

- Level limit detection in bulk goods / solids
- Compact unit
- Wide range of applications, no maintenance
- Full-, demand-, empty detector
- Flexible extensions (kits)
- ATEX / IEC-Ex / INMETRO approvals (Dust Ex)
- TR-CU
- 2011/65/EU RoHS conform



| | |
|-----------|--|
| Approvals | CE |
| | ATEX / IEC-Ex / INMETRO Zone 20/21 (Dust Ignition Proof) |
| | TR-CU Ordinary Locations Dust Ignition Proof |

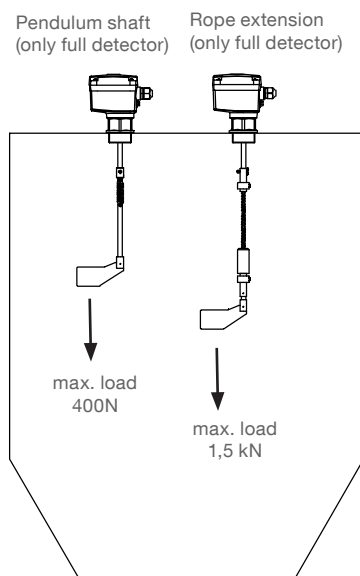
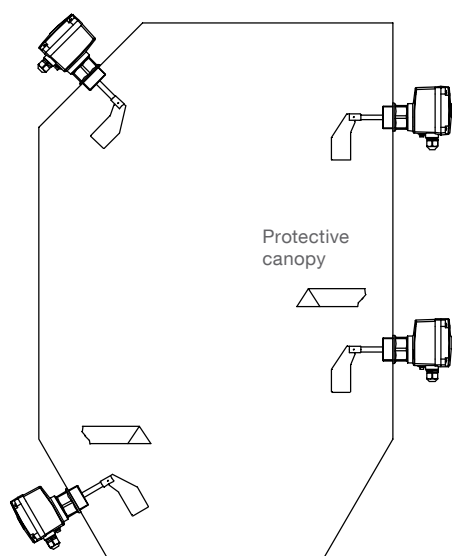
| | | |
|----------------|---|--|
| Technical data | Ambient temperature | -20 .. +60°C (-4 .. +140°F) -40 .. +60°C (-40 .. +140°F) with *heating *for certificate CE |
| | Process temperature | -20 .. +80°C (-4 .. +176°F) -40 .. +80°C (-40 .. +176°F) with *heating *for certificate CE |
| | Process pressure | -0.9 .. +0,8 bar (-13.1 .. 11.6psi) |
| | Type of protection | IP66 |
| | Material housing | Plastics PA6 |
| | Material process connection | Aluminum or plastics PA6 |
| | Material of measuring vane / shaft / extensions | 1.4301 (SS304) / 1.4305 (SS303) |

| Electronics | | Signal output | | | | |
|-------------------|-------------------------------|---------------------|-----|-------------------------|---------------|-----------------|
| | | SPDT ⁽¹⁾ | PNP | FSH/ FSL ⁽²⁾ | Adjust. delay | Fail safe alarm |
| Supply | | | | | | |
| AC version | 24V or 48V or 115V or 230V AC | • | - | - | - | - |
| DC version | 24VDC | • | - | - | - | - |
| DC version | 24VDC PNP | - | • | • | • | - |
| Universal voltage | 24VDC /22..230V AC | • | - | • | • | option |

⁽¹⁾ Micro switch, Relais for universal voltage

⁽²⁾ Switchable signal output (Fail safe high /low)

Applications



Selection

Basic type RN 4001 ●

| | | | | | | | | | | | |
|--------|------------------------------------|---|----------------------|----------------|--|--|--|---|---|---|---------------------------|
| pos. 2 | Certificate | | | | | | | | | | |
| | 0 | CE ⁽¹⁾ | | | | | | | | | ● |
| | W | ATEX II 1/2 D | | | | | | | | | ● |
| | A | IEC-Ex t IIIC T! Da/Db IP6X ⁽⁵⁾ | | | | | | | | | ● |
| | E | TR-CU DIP A20/A21 | | | | | | | | | ● |
| pos. 3 | Power supply | | | | | | | | | | |
| | A / S | 230V AC 50-60 Hz | Motor Speed: A=1/min | S= 5/min | | | | ● | / | ● | |
| | B / T | 115V AC 50-60 Hz | Motor Speed: B=1/min | T= 5/min | | | | ● | / | ● | |
| | C / U | 48V AC 50-60 Hz | Motor Speed: C=1/min | U= 5/min | | | | ● | / | ● | |
| | D / V | 24V AC 50-60 Hz | Motor Speed: D=1/min | V= 5/min | | | | ● | / | ● | |
| | E / W | 24V DC | Motor Speed: E=1/min | W= 5/min | | | | ● | / | ● | |
| | G / H | 24V DC PNP | Motor Speed: G=1/min | H= 5/min | | | | ● | / | ● | |
| | F / X | 24V DC / 22...230V AC universal voltage | Motor Speed: F=1/min | X= 5/min | | | | ● | / | ● | |
| pos. 4 | Process connection | | | | | | | | | | |
| | A | thread G 1½ inches, DIN 228 | | | | | | ● | | | |
| | B | thread G 1¼ inches, DIN 228 | | | | | | ● | | | |
| | C | thread G 1 inch, DIN 228 | | | | | | ● | | | |
| | D | thread M32x1.5 | | | | | | ● | | | |
| | E | thread M30x1.5 | | | | | | ● | | | |
| pos. 5 | Material process connection | | | | | | | | | | |
| | 1 | Plastics PA6 | | | | | | ● | | | |
| | 2 | Aluminium | | | | | | ● | | | |
| pos. 6 | Measuring vane | | | | | | | | | | |
| | A | boot-shaped ⁽³⁾ 40 x 98 mm 1.4301/304 ... L=130 ⁽⁴⁾ | | | | | | ● | | | |
| | D | boot-shaped ⁽³⁾ 35 x 106 mm 1.4301/304 .. L=140 ⁽⁴⁾ | | | | | | ● | | | |
| | R | boot-shaped ⁽³⁾ 28 x 98 mm 1.4301/304 ... L=130 ⁽⁴⁾ | | | | | | ● | | | |
| | J | boot shaped ⁽³⁾ 26 x 77 mm 1.4301/304 ... L=130 ⁽⁴⁾ | | | | | | ● | | | |
| | K | hinged vane 98 x 200 mm 1.4301/304 ... L=190 ⁽⁴⁾ double sided | | | | | | ● | | | |
| | S | hinged vane 98 x 100 mm 1.4301/304 ... L=190 ⁽⁴⁾ single sided | | | | | | ● | | | |
| | U | universal vane 27 x 150 mm plastics L=140 ⁽⁴⁾ | | | | | | ● | | | |
| | Y | without | | | | | | ● | | | |
| | | | | | | | | | | | including fixing splint ● |
| pos. 7 | Length of extension "L" | | | | | | | | | | |
| | | For material process connection plastics: | | | | | | | | | |
| | S | standard (see length L under vane) | | | | | | ● | | | |
| | | For material process connection aluminium: | | | | | | | | | |
| | A | 100mm (110mm with vane D, U; not with vane K, S) | | | | | | ● | | | |
| | B | 150mm (160mm with vane D, K, S, U) | | | | | | ● | | | |
| | C | 200mm (210mm with vane D, K, S, U) | | | | | | ● | | | |
| | D | 250mm (260mm with vane D, K, S, U) | | | | | | ● | | | |
| | E | 300mm (310mm with vane D, K, S, U) | | | | | | ● | | | |
| | Z | other lengths price per 50mm or part thereof (starting from 0mm) | | | | | | ● | | | |
| | | min. 350mm, max. 1000mm | | | | | | | | | |

| | | | | | | | | |
|----------|---|---|---|---|---|---|---|---|
| RN 4001 | A | | | | | | | |
| Position | 1 | 2 | 3 | 4 | 5 | 6 | 7 | ← |

Order code

All positions are available in special design (use code "Z")

⁽¹⁾ TR-CU (Ordinary Locations) included
⁽²⁾ maximum length of socket 40mm
⁽³⁾ specification of length valid with process connection material plastics
⁽⁴⁾ INMETRO included

Options

| | | | |
|---------|---|--|---|
| pos. 11 | x | Guarantee extension to 5 years | • |
| pos. 15 | | Flat gasket | |
| | a | for process connection thread G 1 1/2" aluminium (pos.4.A, pos.5.2), incl. sealing face | • |
| | b | for all other process connections | • |
| pos. 21 | x | Weather protection cover | • |
| pos. 23 | a | Vane extension plastics, for universal vane pos. 6 U | • |
| pos. 24 | | Hexagon nut | |
| | a | aluminium 1 piece | • |
| | b | aluminium 2 pieces | • |
| | e | stainless steel (1.4305/303) 1 piece | • |
| | f | stainless steel (1.4305/303) 2 pieces | • |
| pos. 25 | a | Switchable signal output FSH/FSL¹ | • |
| pos. 26 | x | Heating of housing³ 2,5 watt for ambient-/process temperature to -40°C (-40°F) | • |
| pos. 27 | | Control bulk⁴ | |
| | a | bulk in cable gland 2W green | • |
| | c | bulk in cable gland 2W red | • |
| | d | LED (transparent lid section) | • |
| pos. 28 | x | Second screwed cable gland M20x1,5 (not mounted) | • |
| pos. 39 | | Kit "rope extension" (only available as full detector) | |
| | x | L = 2m | • |
| pos. 40 | | Kit "pendulum shaft" max. tension 400N, only with Pos. 7A For vertical and horizontal installation: | |
| | w | L= 200mm | • |
| | | For vertical installation: | |
| | a | L=500mm (drilled holes also for 300 and 400mm) | • |
| | b | L=1000mm (drilled holes also for 600, 700, 800 and 900mm) | • |

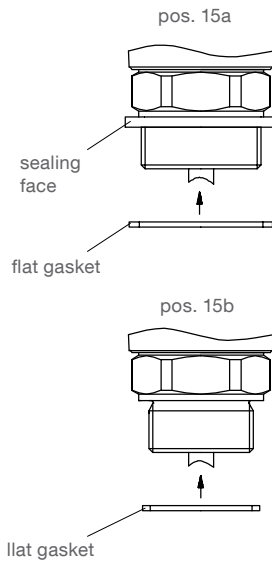
2 Available with universal voltage (pos. 3 F, X)

3 Available with CE (pos.2 0) and universal voltage (pos.3 F,X) and PNP (pos. 5 G,H). Consider reduced switching sensitivity (see technical data). Note: For temperatures down to -20°C (-4°F) the electronic "universal voltage" and "PNP" have a "heating of housing" implemented by default (in this case option pos. 26x is not needed).

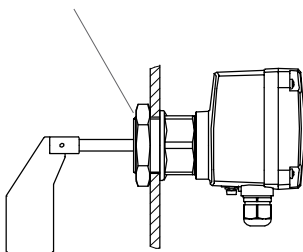
4 Available for CE (pos. 2,0)

Options

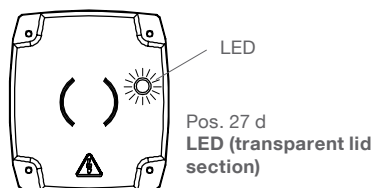
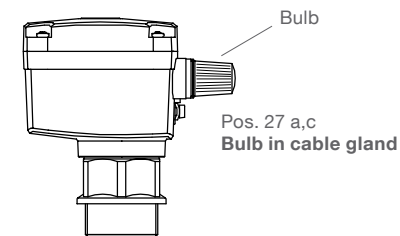
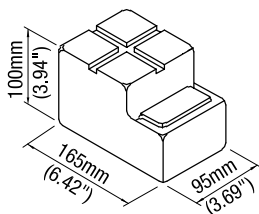
pos. 15
Flat gasket



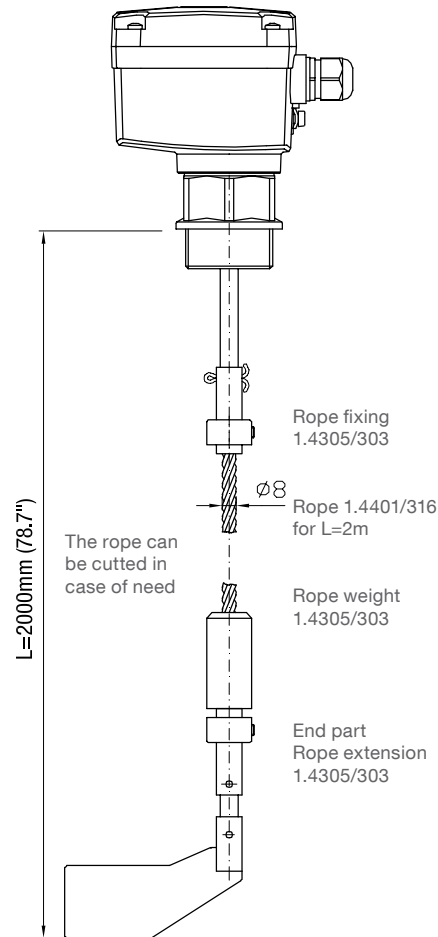
pos. 24
Hexagon nut



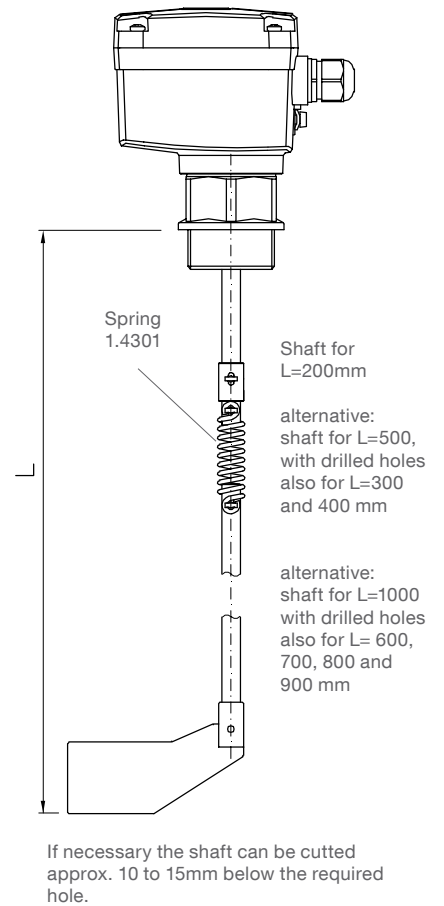
pos. 21
Weather protection cover



pos. 39
Kit „rope extension“

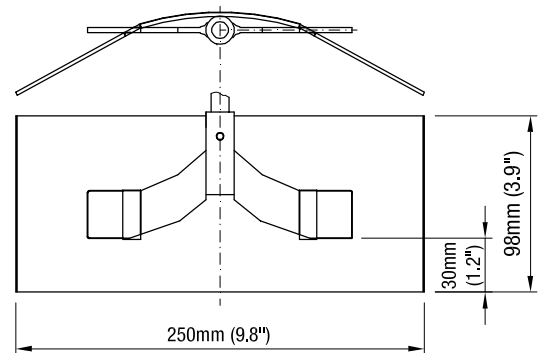


pos. 40
Kit „pendulum shaft“

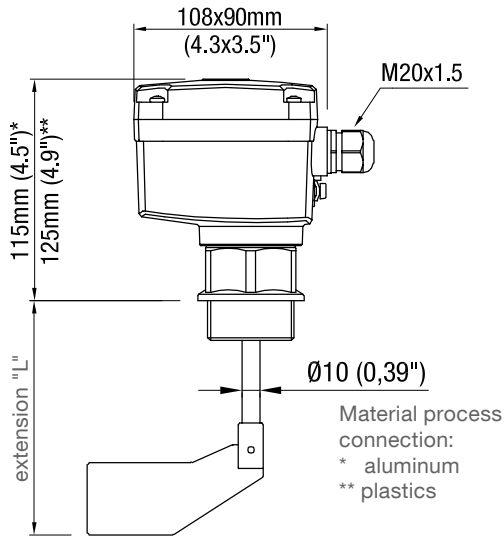


Pos. 27
Control lamp

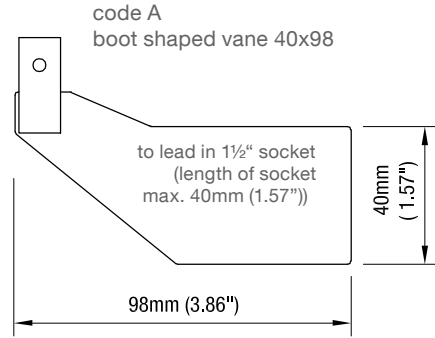
Pos. 23a
Vane extension (plastics)



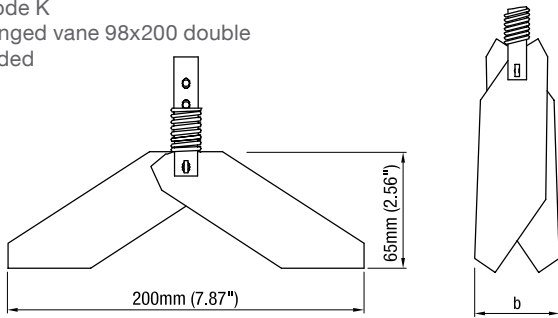
Dimension



Measuring vanes



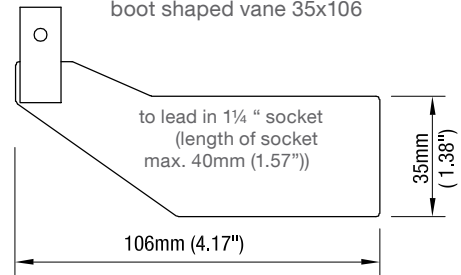
code K
 hinged vane 98x200 double sided



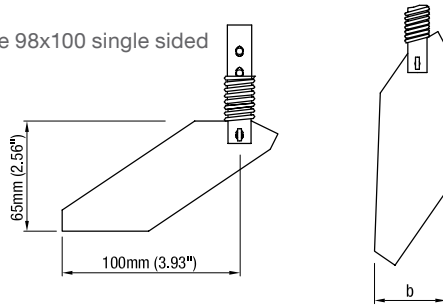
b=37mm (1,46")
 for 1 1/2" / 1 1/4"

b=28mm (1,1")
 for 1" / M32x1,5

code D
 boot shaped vane 35x106



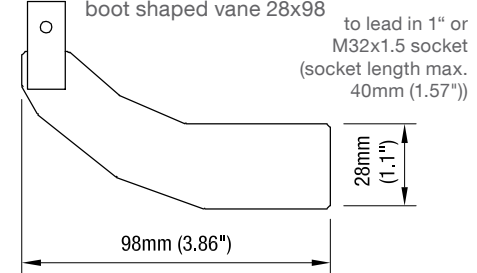
code S
 hinged vane 98x100 single sided



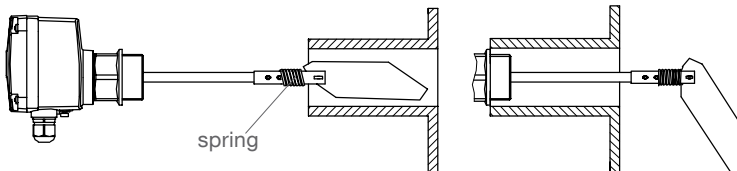
b=37mm (1,46")
 für 1 1/2" / 1 1/4"

b=28mm (1,1")
 for 1" / M32x1,5

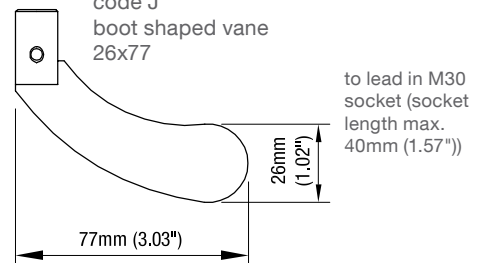
code R
 boot shaped vane 28x98



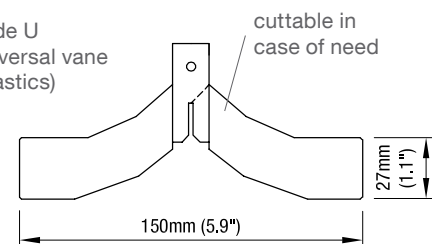
Insertion of the hinged vane through a long socket



code J
 boot shaped vane
 26x77



code U
 universal vane
 (plastics)



Dimension

Sensitivity

The table shows approximate values for the minimum densities, at which a normal function should be possible.

| Vane | *Minimum density in g/l = kg/m ³ (lb/ft ³) (without guarantee) | | | |
|--------------------------------------|---|-----------------------------|---|-----------------------------|
| | Vane completely covered with bulk material | | Bulk material covers vane up to 100mm (3.93") | |
| | Spring adjustment | | Spring adjustment | |
| | fine | medium (Factory setting) | fine | medium (Factory setting) |
| Boot shaped vane 40x98 | 200 (12) | 300 (18) | 100 (60) | 150 (9) |
| Boot shaped vane 35x106 | 200 (12) | 300 (18) | 100 (60) | 150 (9) |
| Boot shaped vane 28x98 | 300 (18) | 500 (30) | 150 (9) | 200 (12) |
| Boot shaped vane 26x77 | 350 (21) | 560 (33) | 200 (12) | 250 (15) |
| Hinged vane 98x200 b=37 double sided | 70 (4.2) | 100 (60) | 35 (2.16) | 50 (3) |
| Hinged vane 98x200 b=28 double sided | 100 (60) | 150 (9) | 50 (3) | 75 (4.5) |
| Hinged vane 98x100 b=37 single sided | 200 (12) | 300 (18) | 100 (60) | 150 (9) |
| Hinged vane 98x100 b=28 single sided | 300 (18) | 500 (30) | 150 (9) | 250 (15) |

The above mentioned data is a guideline and is for loose, non compacted material.

During the filling the bulk density can change (e. g. for fluidised material).

*For versions with option 26 (heating of housing) the above mentioned data must be multiplied by 1.5.

Electrical installation

Version:

- AC
- DC
- Universal voltage

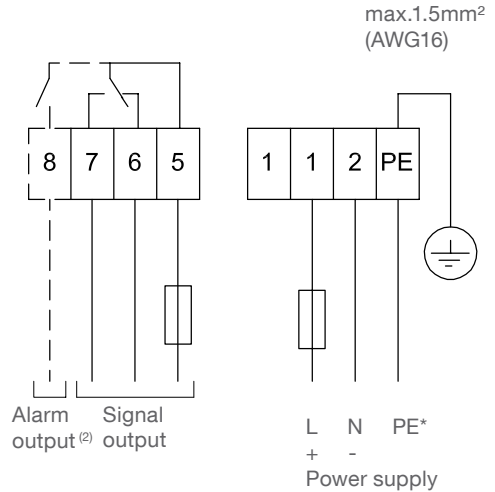
Power supply:

- **AC version:**
 24V or 48V or 115V or 230V 50/60Hz max. 4VA
 All voltages $\pm 10\%$ ⁽¹⁾
 Supply voltage as selected.
 External fuse: max 10A, fast or slow, HBC, 250V
- **DC version:**
 24V DC $\pm 15\%$ ⁽¹⁾ max. 2.5W
 External fuse: not required
- **Universal voltage:**
 24V DC $\pm 15\%$ ⁽¹⁾ max.4W
 22 .. 230V 50/60Hz $\pm 10\%$ ⁽¹⁾ max.10VA
 External fuse: not required

⁽¹⁾ including $\pm 10\%$ of EN 61010

Signal and alarm output:

Micro switch or relay, SPDT contact
 max. 250V AC, 2A, 500VA ($\cos\phi = 1$)
 max. 300V DC, 2A, 60W
 External fuse: max 10A, fast or slow, HBC, 250V



⁽²⁾ With option Fail safe alarm (rotation control)
 Contact open when de-energised

Version:

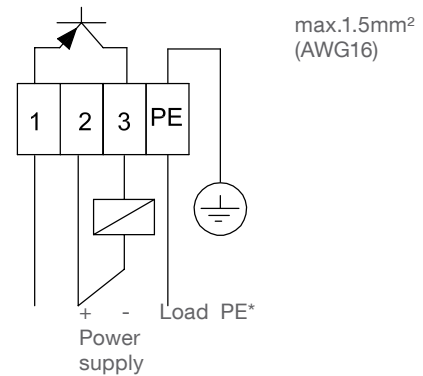
- PNP

Power supply:

24V DC $\pm 15\%$ ⁽¹⁾
⁽¹⁾ including $\pm 10\%$ of EN 61010
 Input current: max. 0.6A

Signal output:

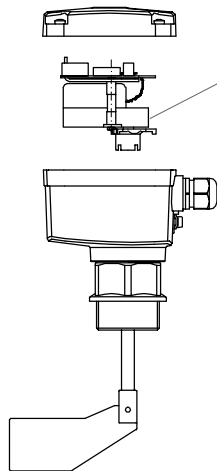
Load max.0.4A
 Output voltage equal to input voltage, drop <2,5V
 Open collector
 Protected against short circuit and overload



* Protection against static charge:

- The PE terminal of the unit must be grounded to avoid static charging of the unit.
- This is particularly important for applications with pneumatic conveying.

Spare parts

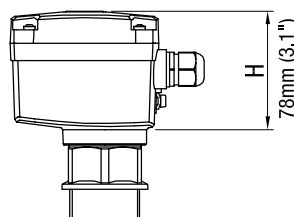
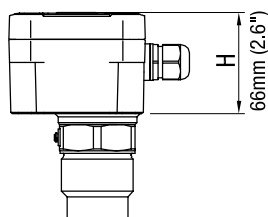


Motor / PCB

| Order code | | | Voltage | Motor Speed | Spare part Articiel number | |
|------------------------|-----------------------------|--------------------------------|--|-------------|----------------------------|---|
| Pos. 3 Power supply | Pos. 25x Fail safe alarm | Pos. 26x Heating of housing | | | | |
| A | - | - | 230V AC | 1/min | gm402000 | • |
| S | - | - | | 5/min | gm403000 | • |
| B | - | - | 115V AC | 1/min | gm402005 | • |
| T | - | - | | 5/min | gm403005 | • |
| C | - | - | 48V AC | 1/min | gm402015 | • |
| U | - | - | | 5/min | gm403015 | • |
| D | - | - | 24V AC | 1/min | gm402010 | • |
| V | - | - | | 5/min | gm403010 | • |
| E | - | - | 24V DC | 1/min | gm402020 | • |
| W | - | - | | 5/min | gm403020 | • |
| G | - | - | 24V DC PNP | 1/min | gm402026* | • |
| H | - | - | | 5/min | gm403026* | • |
| F | - | - | 24V DC / 22 ... 230V AC Universal voltage | 1/min | gm402038* | • |
| F | x | - | | 1/min | gm404038** | • |
| F | - | x | | 1/min | gm402039* | • |
| F | x | x | | 1/min | gm404039** | • |
| X | - | - | | 5/min | gm403038* | • |
| X | x | - | | 5/min | gm405038** | • |
| X | - | x | | 5/min | gm403039* | • |
| X | x | x | | 5/min | gm405039** | • |
| M | - | - | 230V AC/115V AC/24V DC Mutivoltage | 1/min | gm402025 | • |
| Y | - | - | | 5/min | gm403025 | • |

* For lower housing (H=66mm): This module requires a higher housing lid than the other modules. Therefore it can not be mounted into a housing, where a different module was present before.

For higher housing (H=78mm): No restriction



** This module requires a sensor to detect the motor rotation, which is mounted inside the housing. Therefore it can not be mounted into a housing, where a different module was present before.

Spare parts

| | Fitting to unit / model code | Description see page | Spare part Article number | |
|--|------------------------------|----------------------|---------------------------|---|
| Measuring vane (delivery incl. cotter pin) | | | | |
| Boot shaped 40 x 98mm | Pos.6 A | 6 | fg400605 | • |
| Boot shaped 35 x 106mm | Pos.6 D | 6 | fg400508 | • |
| Boot shaped 28 x 98mm | Pos.6 R | 6 | fg400603 | • |
| Hinged vane 98 x 200mm double sided (37mm for G 1 1/2" and G 1 1/4") | Pos.6 K | 6 | fg400081 | • |
| Hinged vane 98 x 200mm double sided (28mm for G 1" and M32) | Pos.6 K | 6 | fg400085 | • |
| Hinged vane 98 x 100mm single sided (37mm for G 1 1/2" and G 1 1/4") | Pos.6 S | 6 | fg400084 | • |
| Hinged vane 98 x 100mm single sided (28mm for G 1" and M32) | Pos.6 S | 6 | fg400086 | • |
| Boot shaped 26 x 77mm | Pos.6 J | 6 | fg400607 | • |
| Universal vane 27 x 150mm | Pos.6 U | 6 | fg402010 | • |
| Vane extension for universal vane 98 x 250mm | Pos.23 | 5 | fg200070 | • |

Extension parts

| | | | | | |
|---|----------|---------|----|----------|---|
| Extension shaft ø10mm: (delivery incl. fixing parts) | by 50mm | RN 4001 | - | we400005 | • |
| | by 100mm | RN 4001 | - | we401023 | • |
| | by 150mm | RN 4001 | - | we401025 | • |
| | by 200mm | RN 4001 | - | we401026 | • |
| Kit Pendular shaft L=500mm (delivery incl. fixing parts) | | Pos.40 | 5 | zu400130 | • |
| Kit Pendular shaft L=1000mm (delivery incl. fixing parts) | | Pos.40 | 5 | zu400140 | • |
| Kit rope extension L=2000mm (implements 2m single rope (zu400729) and rope fixing parts (zu400110)) | | Pos. 39 | 22 | zu400100 | • |
| Single rope ø8mm, tail welded, price per meter | | Pos. 39 | 5 | zu400729 | • |
| Rope fixing parts, usable for kit rope extension | | Pos. 39 | 5 | zu400110 | • |

Hexagon nut

| | | | | |
|-------------------------------|----------|---|----------|---|
| 1 1/2" aluminium | Pos.24 A | 5 | zu300170 | • |
| 1 1/2" stainless steel 1.4305 | Pos.24 A | 5 | zu300180 | • |
| 1 1/4" aluminium | Pos.24 B | 5 | zu300171 | • |
| 1 1/4" stainless steel 1.4305 | Pos.24 B | 5 | zu300181 | • |
| 1" aluminium | Pos.24 C | 5 | zu200150 | • |
| 1" stainless steel 1.4305 | Pos.24 C | 5 | zu200160 | • |
| M32 aluminium | Pos.24 D | 5 | zu200120 | • |
| M32 stainless steel 1.4305 | Pos.24 D | 5 | zu200130 | • |
| M30 aluminium | Pos.24 E | 5 | zu200170 | • |
| M30 stainless steel 1.4305 | Pos.24 E | 5 | zu200180 | • |

Weather protection cover

| | | | | |
|--|----------|---|----------|---|
| for lower housing, dimension H = 66mm | Pos.21 x | 5 | zu300230 | • |
| for higher housing, dimension H = 78mm | Pos.21 x | 5 | zu300232 | • |

