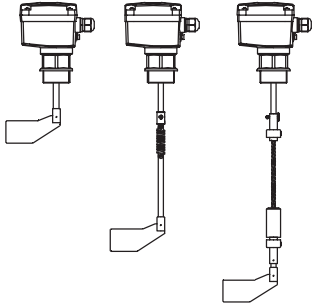


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Electrical connections	8
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Subject to change.

All dimensions in mm (inches).

All prices in Euro (€) or USD (\$),
 excluding VAT.

All EURO prices are EXW Betzigau,
 all USD prices are EXW Memphis,
 excluding packaging costs.

Valid: From 01.04.2021 until 31.03.2022, 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/ TR-CU/ CCC approvals (Dust Ex)
- 2011/65/EU RoHS conform



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

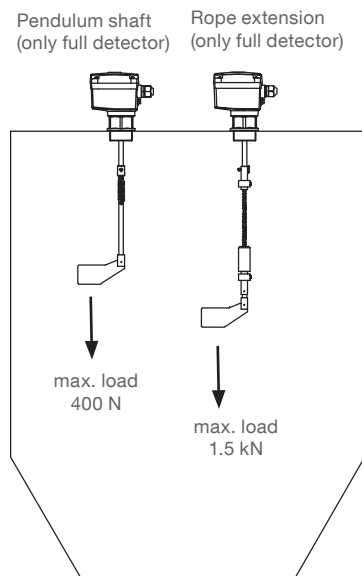
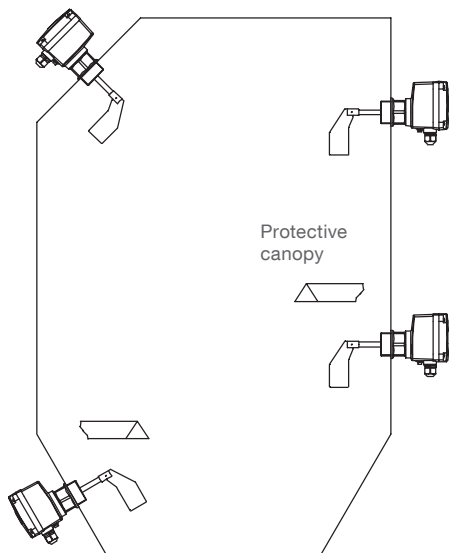
Technical data	Ambient temperature	-20 .. +60°C (-4 .. +140°F) -40 .. +60°C (-40 .. +140°F) with *heating *for certificate CE
	Process temperature	-20 .. +80°C (-4 .. +176°F) -40 .. +80°C (-40 .. +176°F) with *heating *for certificate CE
	Process pressure	-0.9 .. +0.8 bar (-13.1 .. 11.6 psi)
	Type of 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	24 V or 48 V or 115 V or 230 V AC	•	-	-	-	-
DC version	24 V DC	•	-	-	-	-
DC version	24 V DC PNP	-	•	•	•	-
Universal voltage	24 V DC/ 22 .. 230 V 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 1/2D Ex ta/tb IIIC T! Da/Db				●
	A	IEC-Ex ta/tb IIIC T! Da/Db ⁽²⁾				●
	E	TR-CU Ex ta/tb IIIC T90°C...T250°C Da/Db X				●
	G	CCC Ex tD A21 IP6X T!				●
pos.3	Power supply					
	A / S	230 V AC 50 - 60 Hz	Motor Speed: A=1/min S=5/min			● / ●
	B / T	115 V AC 50 - 60 Hz	Motor Speed: B=1/min T=5/min			● / ●
	C / U	48 V AC 50 - 60 Hz	Motor Speed: C=1/min U=5/min			● / ●
	D / V	24 V AC 50 - 60 Hz	Motor Speed: D=1/min V=5/min			● / ●
	E / W	24 V DC	Motor Speed: E=1/min W=5/min			● / ●
	G / H	24 V DC PNP	Motor Speed: G=1/min H=5/min			● / ●
	F / X	24 V DC / 22 .. 230 V AC universal voltage	Motor Speed: F=1/min X=5/min			● / ●
pos.4	Process connection					
	A	thread G 1½", DIN 228				●
	B	thread G 1¼", DIN 228				●
	C	thread G 1", DIN 228				●
	D	thread M32 x 1.5				●
	E	thread M30 x 1.5				●
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⁾			for 1½" socket	●
	D	boot-shaped ⁽³⁾ 35 x 106 mm 1.4301/ 304 .. L=140 ⁽⁴⁾			for 1¼" socket	●
	R	boot-shaped ⁽³⁾ 28 x 98 mm 1.4301/ 304 ... L=130 ⁽⁴⁾			for 1" and M32 x 1.5 socket	●
	J	boot shaped ⁽³⁾ 26 x 77 mm 1.4301/ 304 ... L=130 ⁽⁴⁾			for M30 socket	●
	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				●
	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	100 mm (110 mm with vane D, U; not with vane K, S)				●
	B	150 mm (160 mm with vane D, K, S, U)				●
	C	200 mm (210 mm with vane D, K, S, U)				●
	D	250 mm (260 mm with vane D, K, S, U)				●
	E	300 mm (310 mm with vane D, K, S, U)				●
	Z	other lengths price per 50 mm or part thereof (starting from 0 mm)				●
					min. 350 mm, max. 1,000 mm	

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⁾ INMETRO Ex tb IIIC T250°C...T90°C Da/Db IP6X included
⁽³⁾ Maximum length of socket 40 mm
⁽⁴⁾ Specification of length valid with process connection material plastics

Options

pos.11	x	Guarantee extension to 5 years	•
pos.15		Flat gasket	
	a	for process connection thread G 1½" 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	x	Fail safe alarm ¹ (for 24 V DC/ 22 .. 230 V AC universal voltage)	•
pos.26	x	Heating of housing ² 2.5 watt for ambient-/ process temperature to -40°C (-40°F)	•
pos.27		Control lamp ³	
	a	LED, mounted in cable entry M20 x 1.5, green	•
	c	LED, mounted in cable entry M20 x 1.5, red	•
	d	LED (transparent lid section) ⁵	•
pos.28	x	Second screwed cable gland M20 x 1.5 (not mounted)	•
pos.39		Kit "rope extension" (only available as full detector)	
	x	L=2.000 mm	•
pos.40		Kit "pendulum shaft" max. tension 400 N, only with pos.7 A For vertical and horizontal installation:	
	w	L=200 mm	•
		For vertical installation:	
	a	L=500 mm (drilled holes as well for 300 and 400 mm)	•
	b	L=1,000 mm (drilled holes as well for 600, 700, 800 and 900 mm)	•

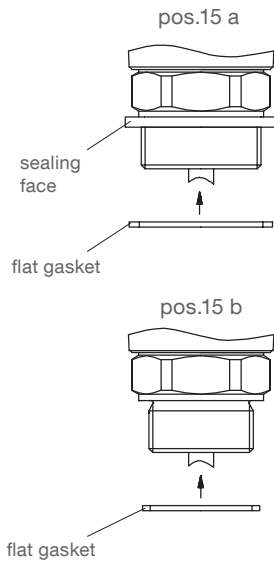
1 Available with universal voltage (pos.3 F, X)

2 Available with CE (pos.2 0) and universal voltage (pos.3 F,X) and PNP (pos.3 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.26 x is not needed).

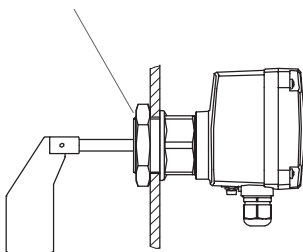
3 Available for CE (pos.2 0), not in combination with weather protection cover (pos.21 x). In combination with universal voltage (pos.5 F, X) 2 LED's (24V, 80-260V) will be delivered. Connection of signal lamp wires with internal terminals: without (standard) or according to customer specification.

Options

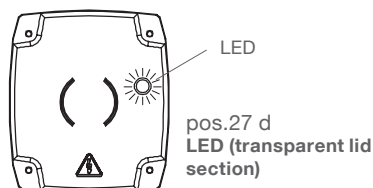
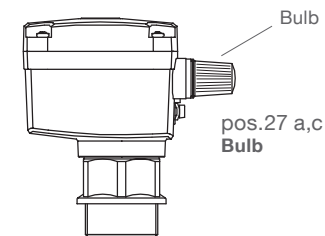
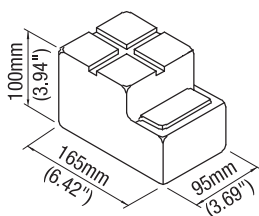
pos.15
Flat gasket



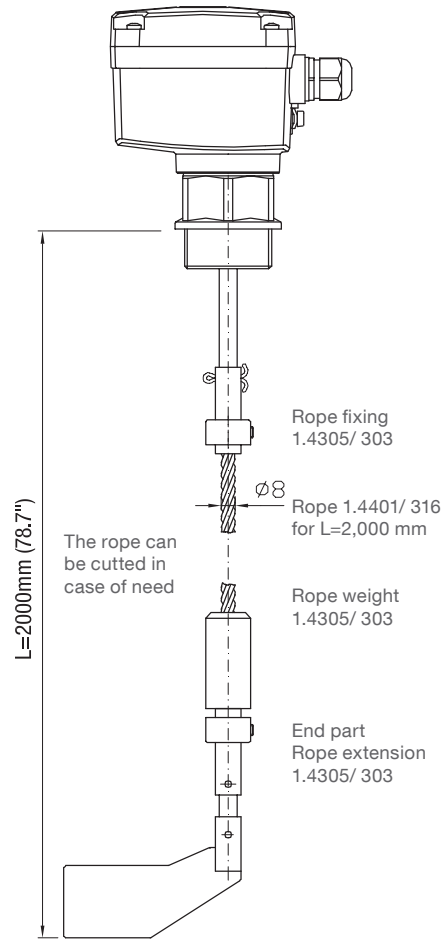
pos.24
Hexagon nut



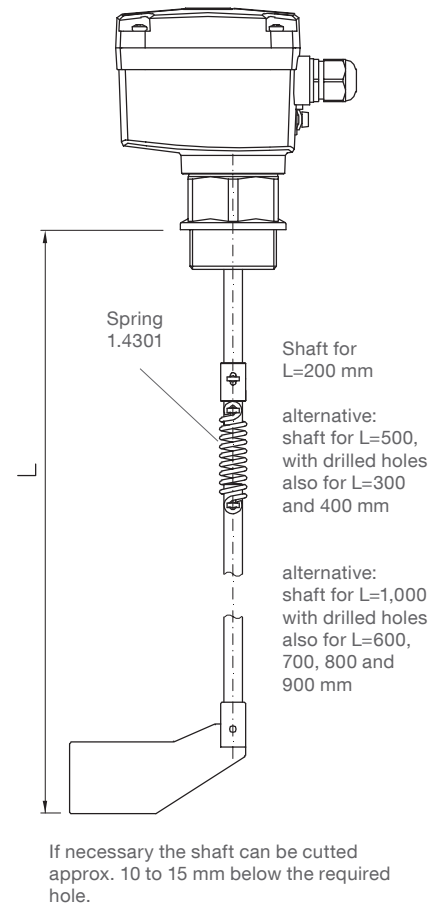
pos.21
Weather protection cover



pos.39
Kit „rope extension“

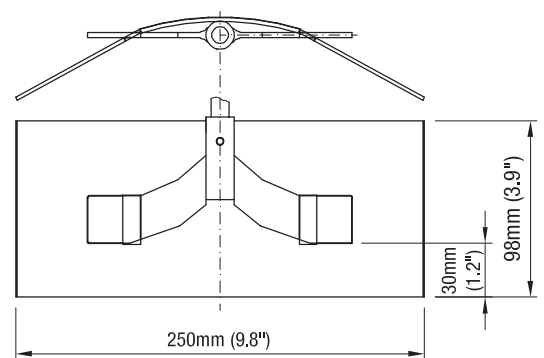


pos.40
Kit „pendulum shaft“

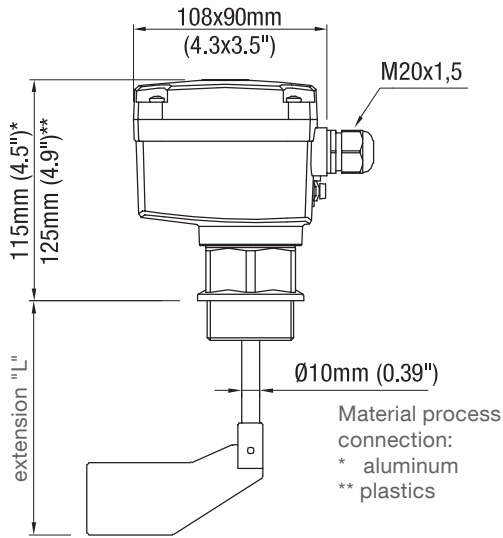


pos.27
Control lamp

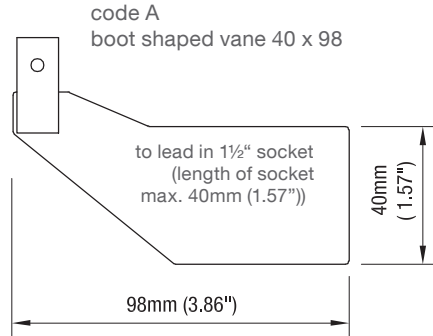
pos.23 a
Vane extension (plastics)



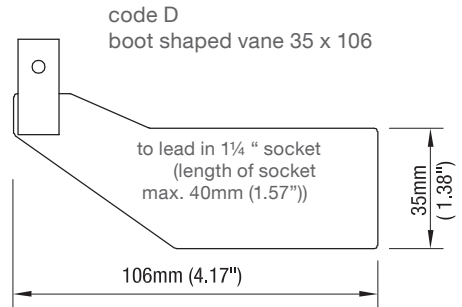
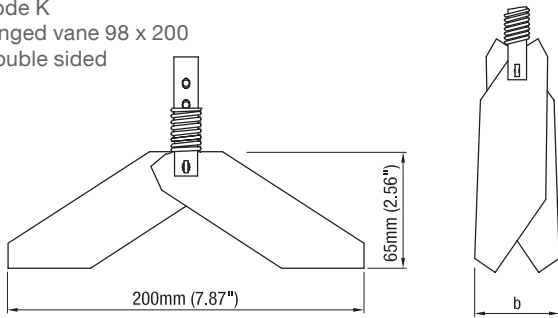
Dimension



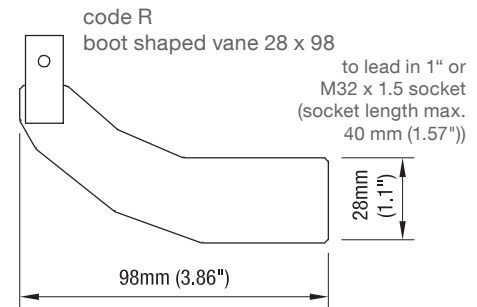
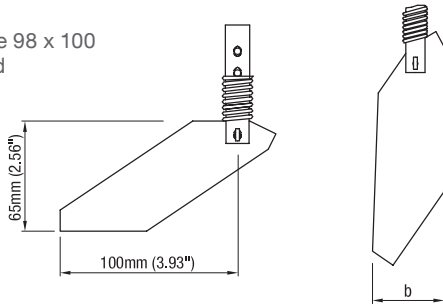
Measuring vanes



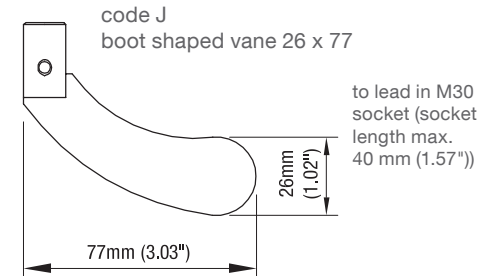
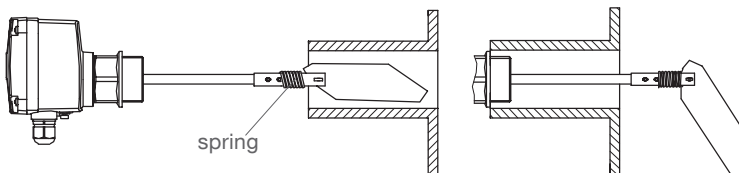
code K
 hinged vane 98 x 200
 double sided



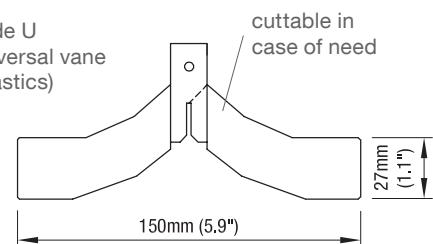
code S
 hinged vane 98 x 100
 single sided



Insertion of the hinged vane through a long socket



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 100 mm (3.93")	
	Spring adjustment		Spring adjustment	
	fine	medium (Factory setting)	fine	medium (Factory setting)
Boot shaped vane 40 x 98	200 (12)	300 (18)	100 (60)	150 (9)
Boot shaped vane 35 x 106	200 (12)	300 (18)	100 (60)	150 (9)
Boot shaped vane 28 x 98	300 (18)	500 (30)	150 (9)	200 (12)
Boot shaped vane 26 x 77	350 (21)	560 (33)	200 (12)	250 (15)
Hinged vane 98 x 200 b=37 double sided	70 (4.2)	100 (60)	35 (2.16)	50 (3)
Hinged vane 98 x 200 b=28 double sided	100 (60)	150 (9)	50 (3)	75 (4.5)
Hinged vane 98 x 100 b=37 single sided	200 (12)	300 (18)	100 (60)	150 (9)
Hinged vane 98 x 100 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**

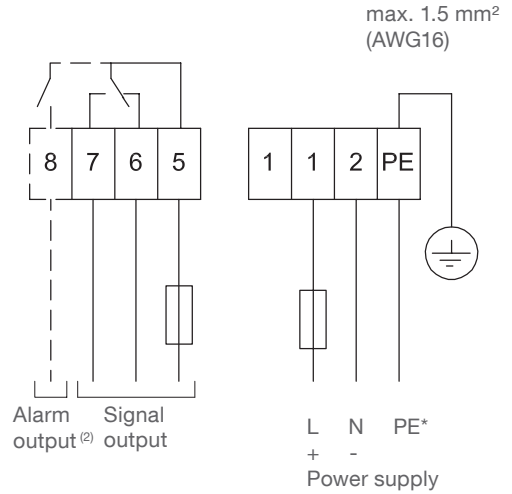
Power supply:

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

⁽¹⁾ including $\pm 10\%$ of EN 61010

Signal and alarm output:

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



Alarm output ⁽²⁾ Signal output

L N PE*
 + -
 Power supply

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

Version:

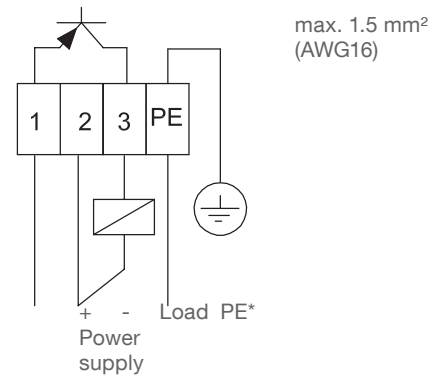
- PNP

Power supply:

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

Signal output:

Load max. 0.4 A
 Output voltage equal to input voltage, drop < 2.5 V
 Open collector
 Protected against short circuit and overload



+ - Load PE*
 Power supply

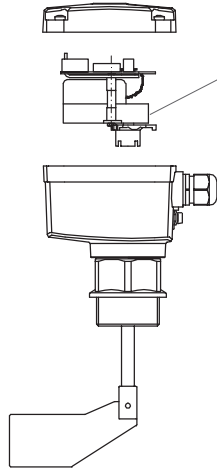


* Protection against static charge:

- 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

Minimum order value for separate orders of spare parts or accessories is 75 €.



Motor/ PCB

Order code			Voltage	Motor Speed	Spare part Articiel number	
Pos.3 Power supply	Pos.25 x Fail safe alarm	Pos.26 x Heating of housing				
A	-	-	230 V AC	1/min	gm402000	•
S	-	-		5/min	gm403000	•
B	-	-	115 V AC	1/min	gm402005	•
T	-	-		5/min	gm403005	•
C	-	-	48 V AC	1/min	gm402015	•
U	-	-		5/min	gm403015	•
D	-	-	24 V AC	1/min	gm402010	•
V	-	-		5/min	gm403010	•
E	-	-	24 V DC	1/min	gm402020	•
W	-	-		5/min	gm403020	•
G	-	-	24 V DC PNP	1/min	gm402026	•
H	-	-		5/min	gm403026	•
F	-	-	24 V DC/ 22 .. 230 V 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 **	•

** 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

Minimum order value for separate orders of spare parts or accessories is 75 €.

Fitting to unit/ model code	Description see page	Spare part Article number
-----------------------------	----------------------	---------------------------

Measuring vane (delivery incl. cotter pin)

Boot shaped 40 x 98 mm	Pos.6 A	6	fg400605	•
Boot shaped 35 x 106 mm	Pos.6 D	6	fg400508	•
Boot shaped 28 x 98 mm	Pos.6 R	6	fg400603	•
Hinged vane 98 x 200 mm double sided (37 mm for G 1½" and G 1¼")	Pos.6 K	6	fg400081	•
Hinged vane 98 x 200 mm double sided (28 mm for G 1" and M32)	Pos.6 K	6	fg400085	•
Hinged vane 98 x 100 mm single sided (37 mm for G 1½" and G 1¼")	Pos.6 S	6	fg400084	•
Hinged vane 98 x 100 mm single sided (28 mm for G 1" and M32)	Pos.6 S	6	fg400086	•
Boot shaped 26 x 77 mm	Pos.6 J	6	fg400607	•
Universal vane 27 x 150 mm	Pos.6 U	6	fg402010	•
Vane extension for universal vane 98 x 250 mm	Pos.23	5	fg200070	•

Extension parts

Extension shaft ø10 mm: (delivery incl. fixing parts)	by 50 mm	RN 4001	-	we400005	•
	by 100 mm	RN 4001	-	we401023	•
	by 150 mm	RN 4001	-	we401025	•
	by 200 mm	RN 4001	-	we401026	•
Kit Pendular shaft L=500 mm (delivery incl. fixing parts)		Pos.40	5	zu400130	•
Kit Pendular shaft L=1,000 mm (delivery incl. fixing parts)		Pos.40	5	zu400140	•
Kit rope extension L=2,000 mm (implements 2 m single rope (zu400729) and rope fixing parts (zu400110))		Pos.39	22	zu400100	•
Single rope ø8 mm, tail welded, price per meter		Pos.39	5	zu400729	•
Rope fixing parts, usable for kit rope extension		Pos.39	5	zu400110	•

Hexagon nut

1½" aluminium	Pos.24 A	5	zu300170	•
1½" stainless steel 1.4305	Pos.24 A	5	zu300180	•
1¼" aluminium	Pos.24 B	5	zu300171	•
1¼" 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 standard housing (plastic and aluminium)	Pos.21 x	5	zu300232	•
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