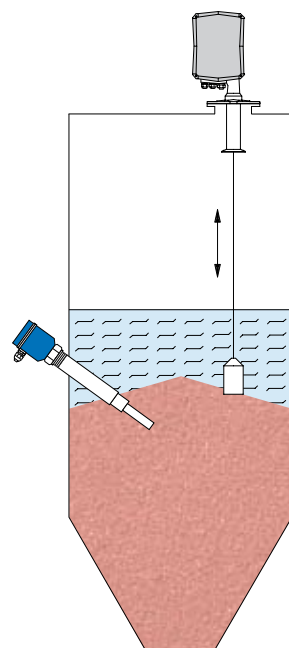


# Vast in vloeistof

## Precies naar de grens

Ongeacht of het zout, slib of zand onder water is, wij stellen de grenslaag vast en meten het niveau.

Vraag het ons.





# Nivobob® 3000

## Microprocessor controlled level measuring system

The multifunctional unit for discontinuous level monitoring in bulk goods and for interface applications – very precise, even suitable for problematic media, also for use in hazardous locations



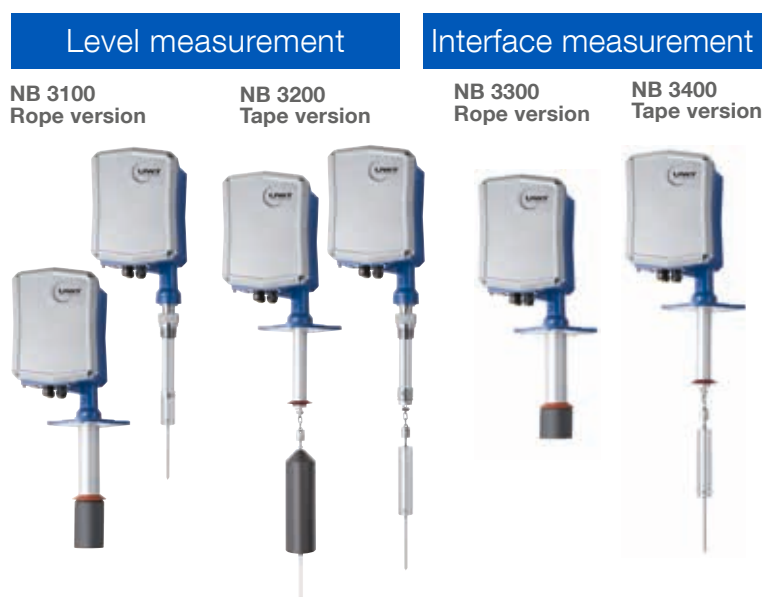


# Nivobob® 3000



- Microprocessor controlled measurement, intelligent monitoring
- Easy installation; variety of process connections (flange and thread)
- Unaffected by material properties such as conductivity, dust, di-electricity

**Application:** Nivobob® is used for discontinuous level measurement in silos and vessels. It provides extremely reliable measuring results in solids as well as in interface applications. Nivobob® offers different output signals: 0/4-20mA or communication via Modbus or Profibus DP.



## Technical Data

Model	NB 3100 / 3200	NB 3300 / 3400
Housing	Aluminium IP 66 (Type 4)	
Pressure	Max. +1.7 bar (+25 psi)	
Supply voltage	AC version: 98...253V 50-60Hz DC version: 20...28V	
Measuring range	Rope version max. 30m; tape version max. 50m	
Signal output/ Communication	0/4-20mA; relay counting pulse; Modbus; Profibus DP	
Certificates	CE; ATEX II 1/2 D FM Cl. II, III, Div. 1, TR-CU	CE; FM general purpose
Process temperature	-40°C up to +250°C (-40°F up to +482°F)	-40°C up to +80°C (-40°F up to +176°F)
Sensitivity	From 20g/l (1.2lb/ft³) depending on sensor weight	-
Process connection	Flange DN 100 PN16 Flange 4" 150lbs Flange 2" and 3" 150lbs Thread R 1 1/2" Thread NPT 1 1/2" Thread NPT 3"	Flange DN 100 PN16 Flange 4" 150lbs

## Interior view

### View rope/tape chamber



### View electronic chamber



## Sensor weights



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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 01.04.2019 until 31.03.2020, 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

### Features

Continuous level measurement of solids and interface applications

#### Process

- Independent of bulk material properties
- Very accurate measurement

#### Service

- Simple installation and commissioning
- Rope, tape and (optional) motor with increased service life
- Low maintenance

#### Approvals

- Approval for use in Hazardous Areas
- 2011/65/EU RoHS conform

#### Mechanics

- Measurement range up to 50 m (164 ft)
- 1½" process connection possible
- Internal tape cleaner for difficult materials
- Window in lid and outside start button (optional)

#### Electronics

- Micro processor controlled measurement
- Comprehensive diagnostic possibilities
- Output 0/ 4-20 mA/ Modbus/ Profibus DP/ counting pulses
- Programmable Relais (can be used as level limit switch outputs)

### Solids measurement



#### NB 3100

Rope version  
(fig. with process connection thread and stainless steel weight)

#### NB 3200

Tape version  
(fig. with process connection thread and stainless steel weight)

### Interface measurement



#### NB 3300

Rope version

#### NB 3400

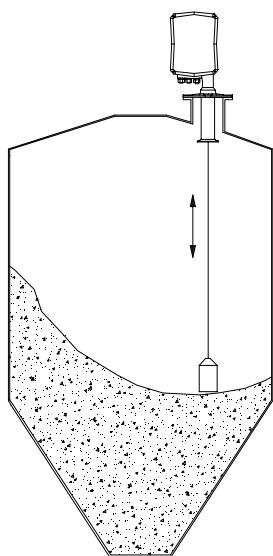
Tape version

## Specifications

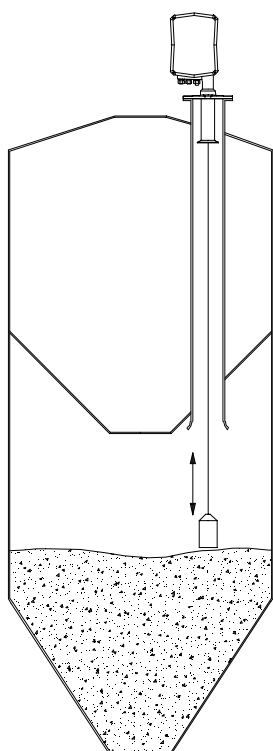
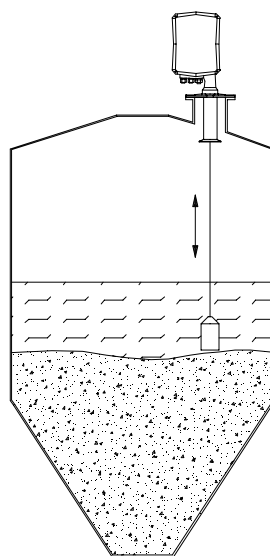
				NB 3100/ 3200 Solids measurement	NB 3300/ 3400 Interface measurement
<b>Process</b>	Measurement range	Rope version	30 m (98.4 ft)	•	•
		Tape version	40 m (131 ft)/ 50 m (164 ft)	•	•
	Process temperature		80°C (176°F)	•	•
			150°C (302°F)	•	
			250°C (482°F)	•	
	Process overpressure		-0.3 .. +0.3 bar (-4.35 .. + 4.35 psi)	•	•
			-0.5 .. +1.7 bar (-7.3 .. +25 psi)	•	•
<b>Electronics</b>	Power supply	AC version	98 .. 253 V 50 - 60 Hz	•	•
		DC version	20 .. 28 V	•	•
	Output		0/ 4-20 mA	•	•
			4 relais	•	•
			Modbus RTU	•	•
			Profibus DP	•	•
<b>Approvals</b>	Dust Ex		ATEX 1/2D	•	•
			FM Cl. II, III Div. 1	•	•
			TR-CU	•	•
	Ordinary Locations		CE, FM, TR-CU	•	•

## Applications

**Solids measurement**



**Interface measurement**  
(solids in water)



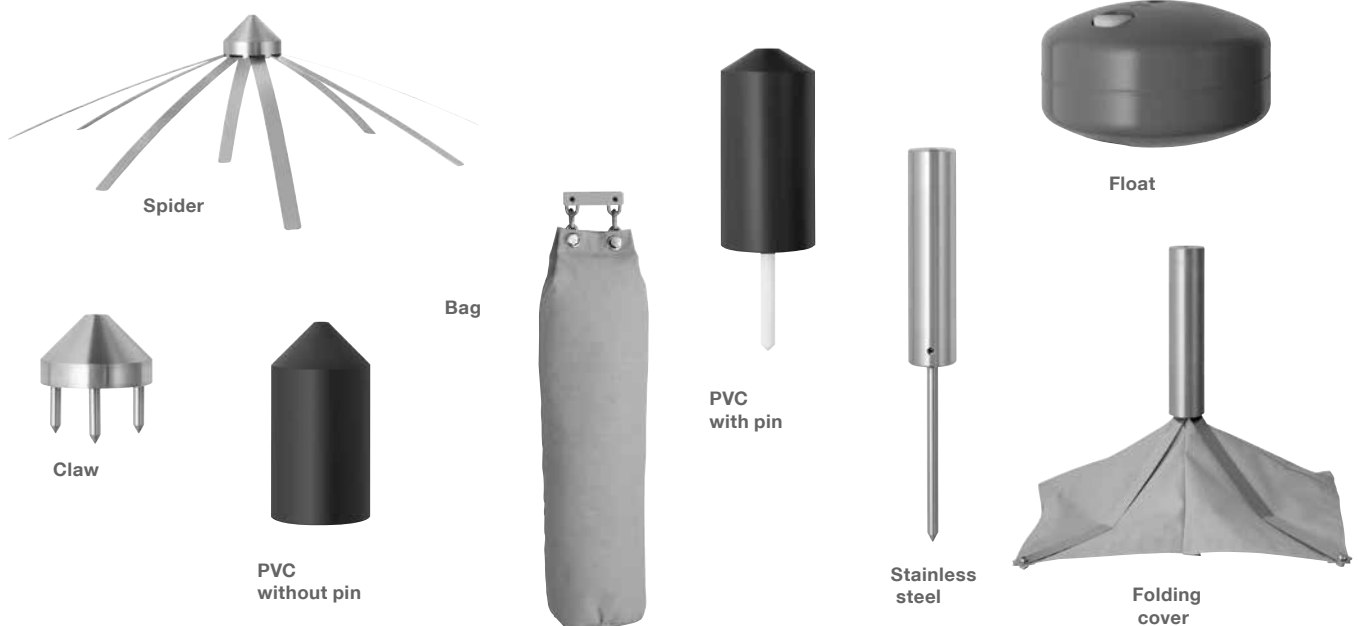
For measurements through a long pipe in a double chamber silo we recommend the use of NB 3200 (tape version).

## Applications

### Sensor weight guide (solids measurement)

Sensor weight	Application				Note	Fits through mounting hole				
						Thread		Flange		
						1½"	3"	2"	3"	DN100 / 4"
PVC without pin	>300 (18)	granulate	flat	80°C (176°F)	Standard weight					•
PVC with pin	>300 (18)	granulate, powder	steep	80°C (176°F)	The pin penetrates into the material and avoids slipping or tilting of the sensor weight on the steep bulk surface.					•
Stainl. steel	>300 (18)	granulate, powder	flat, steep	250°C (482°F)	The pin penetrates into the material and avoids slipping or tilting of the sensor weight on the steep bulk surface.	•	•	•	•	•
Claw	>200 (12)	coarse (e.g. stones)	steep	250°C (482°F)	Avoids slipping or tilting on the steep bulk surface.					•
Folding cover	>20 (1.2)	light powder	flat, steep	80°C (176°F)	Big surface prevents the sensor weight from sinking into the material.	•	•	•	•	•
Spider	>40 (1.4)	light powder	flat, steep	250°C (482°F)	Big surface prevents the sensor weight from sinking into the material.					•
Bag	>300 (18)	granulate, powder	flat	80°C (176°F)	Prevents damage of the conveying screw. To be filled with bulk material.					•
Float	-	liquids only	-	80°C (176°F)	To be filled with material.					

\* The above mentioned data is a guideline and is valid for material which has settled after filling. During the filling the bulk density can change (e. g. for fluidised material).





## Solids measurement

**NB 3100**  
Rope version



**NB 3200**  
Tape version



### Cable entries (by default)

Depending on selected version (options see pos.31):

CE, ATEX, TR-CU	Screwed cable gland: 2x M20 x 1.5 and 1x M25 x 1.5 Blindplug: 2x M20 x 1.5
FM	Open conduit ANSI B1.20.1: 1x NPT ¾" and 2x NPT ½" Blindplug: 2x NPT ½"

**Dimensions** see page 12

pos.1	<b>Basic type</b>		
	C <b>NB 3100</b> Rope version (30 m)	.....	•
	D <b>NB 3200</b> Tape version (40 m)	.....	•
pos.2	<b>Certificate</b>		
	0 CE <sup>(1)</sup>	.....	•
	W ATEX II 1/2 D	.....	•
	M FM general purpose	.....	•
	N FM Class II, III Div.1 Group E-G	.....	•
	E TR-CU Ex ta/tb IIIC T! Da/Db X	.....	•
pos.3	<b>Process temperature</b>		
	A max. +80°C (176°F)	.....	•
	S max. +150°C (302°F)	.....	•
	T max. +250°C (482°F)	.....	•
pos.4	<b>Power supply</b>		
	1 98 .. 253 V 50 - 60 Hz	.....	•
	3 20 .. 28 V DC	.....	•
pos.5	<b>Signal output</b>		
	D 0/ 4-20 mA Modbus Relay counting pulse (5 cm 10 cm 1/6 ft 1/3 ft)	.....	•
	B 0/ 4-20 mA Modbus Electronic counting pulse (1 cm 2.5 cm 1/20 ft 1/10 ft)	.....	•
	E 0/ 4-20 mA Profibus DP Relay counting pulse (5 cm 10 cm 1/6 ft 1/3 ft)	.....	•
pos.6	<b>Process connection</b>		
	X Flange DN100 PN16 (EN 1092-1) and flange 4" 150lbs ANSI B16.5 (unit is fitting to this flange)	.....	•
	Y Flange 2" and flange 3" 150 lbs ANSI B16.5 (unit is fitting to this flange)	.....	•
	A Thread R 1½" tapered EN 10226-1	.....	•
	B Thread NPT 1½" tapered ANSI B1.20.1	.....	•
	C Thread NPT 3" tapered ANSI B1.20.1	.....	•

## Solids measurement

pos.7	<b>Motor for high measurement frequency</b> <sup>(1)</sup>	
	1	Standard .....
	2	Brushless motor <sup>(2)</sup> .....
pos.8	<b>Sensor weight</b> <sup>(3,4)</sup>	
	Y	without <sup>(5)</sup> .....
	A	PVC without pin      only with rope version pos.1 C, max. 80°C .....
	B	PVC with pin      max. 80°C .....
	C	Stainless steel .....
	D	Claw      stainless steel .....
	E	Folding cover      max. 80°C, stainless steel, PA canvas .....
	F	Spider      stainless steel .....
	G	Bag      max. 80°C, PA canvas .....
	H	Float      max. 80°C. PP .....

<b>NB 3..00</b>							
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) Motor with increased service life
- (3) For use in Hazardous Locations (Dust Ex): It must be ensured, that no static discharge from the material surface can occur. Sensor weights, which can be used in case of possible static discharge, on request.
- (4) See Sensor weight guide on page 5
- (5) Including mounting set for sensor weight (see page 14: Sensor weights)

## Options

pos.11	x	<b>Guarantee extension to 5 years</b>	.....
		Wear and tear parts rope/tape and standard motor pos.7 1 not included	
pos.21		<b>Weather protection cover</b>	.....
		For Ex only approved for Zone 22 or Division 2	
pos.23		<b>Measurement range 50 m</b>	.....
		Available with tape version pos.1 D, not with sensor weight pos.8 G,H	
pos.25		<b>Window in lid and external start button</b>	.....
pos.26		<b>Internal heater</b>	.....
		Needed for: ambient temp. < -20°C (-4°F) or condense water inside silo or wet process atmosphere (Note: < -20°C (-4°F) with ATEX, FM Class II or TR-CU possible on request)	
pos.27		<b>Length of socket pipe</b>	.....
	A	500 mm (19.7")	.....
	B	1,000 mm (39.4")	.....
pos.28		<b>Compressed air connector</b>	.....
		Quick coupling including counter part, for hose diameter 9 mm (0.35")	
pos.29		<b>Increased corrosion resistance</b>	.....
		All metal parts on process side coated, rope with plastic coating, use of stainless steel bearings Available with: Rope version (pos.1 C), CE or FM gen.purp. (pos.2 0,M), 80°C (pos.3 A), PVC weight (pos.8 A,B)	
pos.30		<b>Increased process overpressure</b>	.....
		-0.5 to 1.7 bar (-7.3 to 25 psi) (for CE and ATEX, pos.2 0,W) -0.5 to 1.1 bar (-7.3 to 16 psi) (for FM general purpose, pos.2 M)	
pos.31		<b>Cable entry</b>	.....
		Selection of the following options only necessary, if a deviation from the default cable gland/ conduit is required:	
	0	Screwed cable gland 1x M25 x 1.5 + 2x M20 x 1.5 + blindplug 2x M20 x 1.5	.....
	A	Conduit 1x NPT ¾" + 2x NPT ½" + blindplug 2x NPT ½"	.....
pos.33		<b>Preset fieldbus address (Modbus)</b>	.....
		Enables easy commissioning with Nivotec Level Monitoring System Preset from address = "1" to "amount of ordered units". Address label on enclosure. Termination resistor set on unit with highest address. Other addresses possible on request.	

## Interface measurement (solids in water)

### NB 3300

Rope version

For applications with soft/ muddy  
 or compact material surface



### NB 3400

Tape version

For applications with  
 compact material surface



#### Implemented

- Internal heater
- Rope/ tape roller with rubber coating to avoid slipping
- Plastic coated steel weight (rope version)
- Adjustment possibility for applications with soft/muddy material surface (rope version)

#### Cable entries (by default)

Depending on selected version (options see pos. 31):

CE, ATEX,      Screwed cable gland: 2x M20 x 1.5 and 1x M25 x 1.5  
 TR-CU          Blindplug: 2x M20 x 1.5

FM              Open conduit ANSI B1.20.1: 1x NPT ¾" and 2x NPT ½"  
                     Blindplug: 2x NPT ½"

**Dimensions** see page 12

## Interface measurement (solids in water)

pos.1	<b>Basic unit</b>	
	E <b>NB 3300</b>	Rope version (30 m) incl. sensor weight .....
	F <b>NB 3400</b>	Tape version (40 m) incl. sensor weight .....
pos.2	<b>Certificate</b>	
	0 CE <sup>(1)</sup>	.....
	W ATEX II 1/2 D	.....
	M FM general purpose	.....
	N FM Class II, III Div.1 Group E-G	.....
	E TR-CU Ex ta/tb IIIC T! Da/Db X	.....
pos.4	<b>Power supply</b>	
	1 98 .. 253 V 50 - 60 Hz	.....
	3 20 .. 28 V DC	.....
pos.5	<b>Signal output</b>	
	D 0/ 4-20 mA Modbus Relay counting pulse (5 cm 10 cm 1/6 ft 1/3 ft)	.....
	B 0/ 4-20 mA Modbus Electronic counting pulse (1 cm 2.5 cm 1/20 ft 1/10 ft)	.....
	E 0/ 4-20 mA Profibus DP Relay counting pulse (5 cm 10 cm 1/6 ft 1/3 ft)	.....
pos.6	<b>Process connection</b>	
	X Flange DN100 PN16, EN 1092-1 and flange 4" 150lbs ANSI B16.5 (unit is fitting to this flange)	.....
pos.7	<b>Motor for high measurement frequency</b>	
	1 Standard	.....
	2 Brushless motor <sup>(2)</sup>	.....

NB 3..00			A			X		1	← Order code
Basic type	1	2	3	4	5	6	7	8	

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

(1) TR-CU (Ordinary Locations) included

(2) Motor with increased service life

## Options

pos.11	x	<b>Warranty extension to 5 years</b> .....
		Wear and tear parts rope/ tape and standard motor pos.7 1 not included
pos.21		<b>Weather protection cover</b> .....
		For Ex only approved for Zone 22 or Division 2
pos.25		<b>Window in lid and external start button</b> .....
pos.27		<b>Length of socket pipe</b>
	A	500 mm (19.7") .....
	B	1,000 mm (39.4") .....
pos.28		<b>Compressed air connector</b> .....
		Quick coupling including counter part, for hose diameter 9 mm (0.35")
pos.29		<b>Increased corrosion resistance</b> .....
		All metal parts on process side coated, rope with plastic coating, use of stainless steel bearings
		Available with rope version (pos.1 E), CE or FM gen.purp. (pos.2 0,M)
pos.30		<b>Increased process overpressure</b> .....
		-0.5 to 1.7 bar (-7.3 to 25 psi) (for CE, pos.2 0)
		-0.5 to 1.1 bar (-7.3 to 16 psi) (for FM general purpose, pos.2 M)
pos.31		<b>Cable entry</b>
		Selection of the following options only necessary, if a deviation from the default cable gland/ conduit is required:
	0	Screwed cable gland 1x M25 x 1.5 + 2x M20 x 1.5 + blindplug 2x M20 x 1.5 .....
	A	Conduit 1x NPT ¾" + 2x NPT ½" + blindplug 2x NPT ½" .....
pos.33		<b>Preset fieldbus address (Modbus)</b> .....
		Enables easy commissioning with Nivotec Level Monitoring System.
		Preset from address = "1" to "amount of ordered units". Address label on enclosure.
		Termination resistor set on unit with highest address. Other addresses possible on request.

## Accessories

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

### Mounting Kit

Bolts, washers and nuts for mounting the unit on a flange

	material	bolts	washers	nuts	
zu107000	stainless steel/ A2	4 pieces M16 x 60	8 pieces	4 pieces	•

### Flange sealings

Sealings for mounting the unit on a flange.

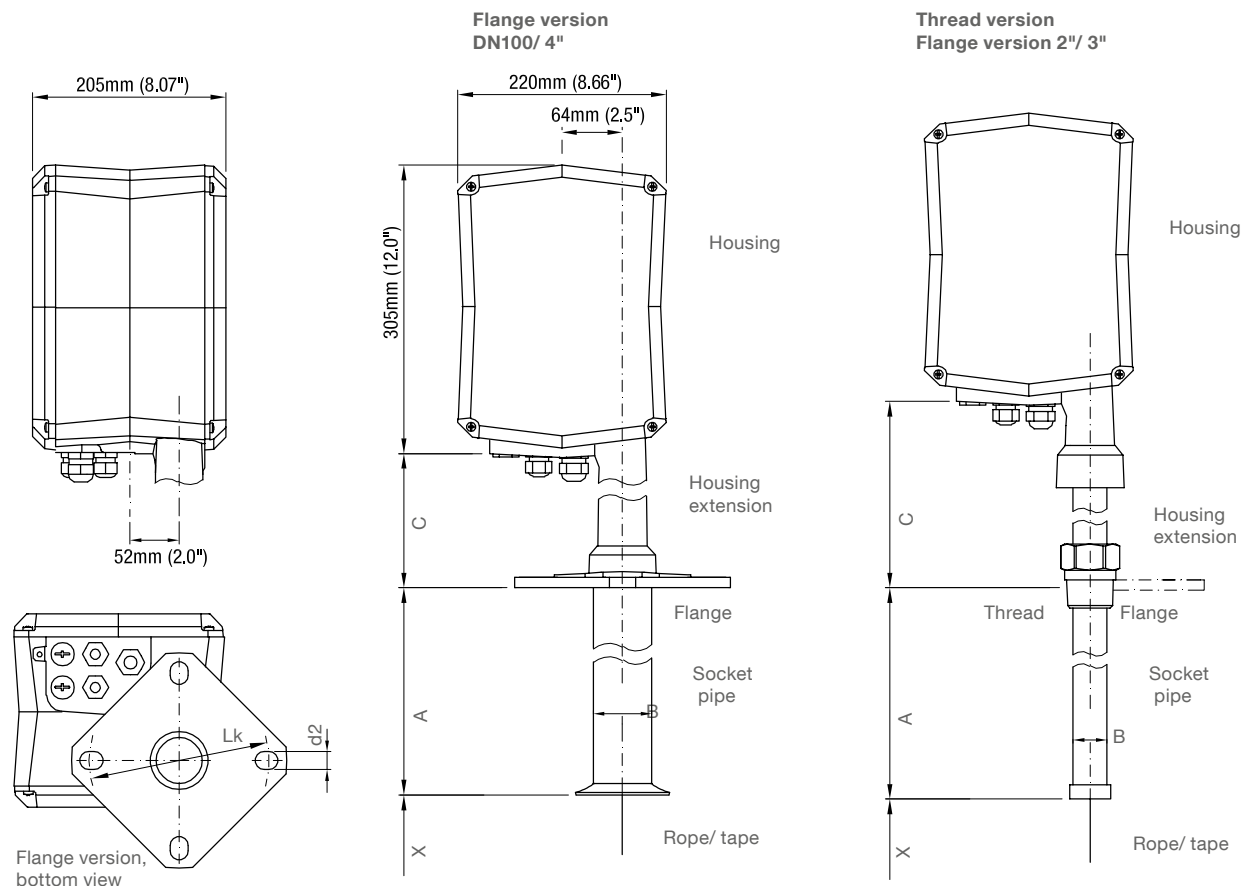
Material: neoprene (85°C), temperature resistive plastic AFM30 (250°C)

	suitable for flanges	max. temp.	suitable mounting kit	
di300125	DN100 PN16/ 4"	+85°C (185°F)	zu107000	•
di300108	DN100 PN16/ 4"	+250°C (482°F)	zu107000	•
di300127	2"/ 3" 150lbs	+85°C (185°F)	zu107000	•
di300128	2"/ 3" 150lbs	+250°C (482°F)	zu107000	•



## Dimensions

### Basic type



### Dimensions

**X** = Length to bottom of sensor weight  
(in upper stop position): see next page

**A** = Length of socket pipe

200 mm (7.9")  
Optional 500 mm (19.7")/ 1,000 mm (39.4")

**B** = Diameter of socket pipe

Rope version with  
Flange DN100/ 4"  $\varnothing 60$  mm ( $\varnothing 2.36$ ")

All other versions  $\varnothing 40$  mm ( $\varnothing 1.57$ ")

**C** = Housing extension

Flange version DN 100/4"	80°C/ 150°C	95 mm (3.74")
	250°C	340 mm (13.4")
Other Versions	80°C/ 150°C	160 mm (6.3")
	250°C	340 mm (13.4")

**Rope**  $\varnothing 1.0$  mm ( $\varnothing 0.04$ ")

**Tape** 12 x 0.2 mm (0.47 x 0.008")

### Flanges

fitting to: DN100 PN16/ 4" 150lbs	Lk = $\varnothing 180 - 190.5$ mm ( $\varnothing 7.1 - 7.5$ ") slot d2 = $\varnothing 19$ mm ( $\varnothing 0.75$ ")
fitting to: 2"/ 3" 150lbs	Lk = $\varnothing 120.7 - 152.4$ mm ( $\varnothing 4.75 - 6.0$ ") slot d2 = $\varnothing 19$ mm ( $\varnothing 0.75$ ")

### Materials

<b>Housing outside</b>	Aluminium, powder coated
<b>Housing inside</b>	Aluminium
<b>Housing extension</b>	Aluminium, powder coated or 1.4305 (303)
<b>Flange</b>	80°C/ 150°C: Aluminium, powder coated 250°C: 1.4305 (303)
<b>Thread</b>	1.4301 (304)
<b>Socket pipe</b>	Flange version DN100/ 4", 80°C/ 150°C: Aluminium All other versions: 1.4301 (304)
<b>Rope</b>	1.4401 (316)
<b>Tape</b>	1.4310 (301)

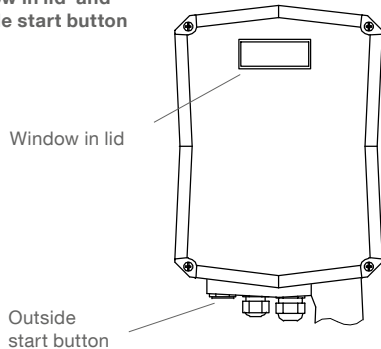
### With option "Increased corrosion resistance":

All metal parts in contact with the process are coated.  
The rope is plastic coated with PA.  
The internal bearings are made of stainless steel.

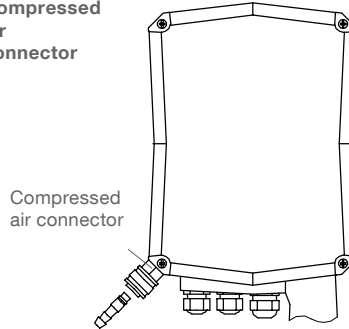
## Dimensions

### Options and Accessories

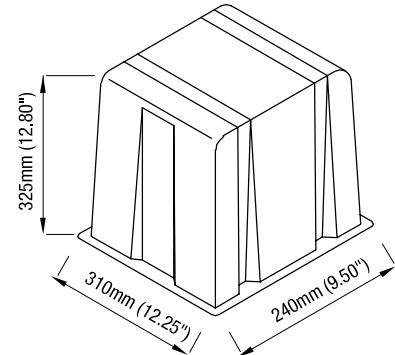
pos.25  
Window in lid and  
outside start button



pos.28  
Compressed  
air  
connector



pos.21  
Weather protection cover

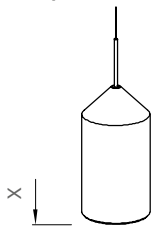


### Sensor weights

#### Solids measurement: Rope version

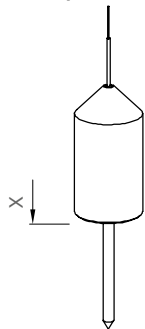
All weights ca. 1,0 kg (2.2 lbs)

PVC without  
pin



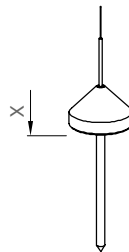
ø81 mm (ø3.2")  
X = 137 mm (5.4")  
Material: PVC

PVC with  
pin

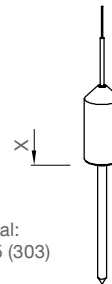


ø81 mm (ø3.2")  
X = 137 mm (5.4")  
Pin: 130 mm (5.1")  
Material: PVC (pin POM)

Stainless steel



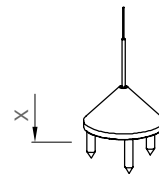
Version with  
Flange DN100/ 4"  
ø75 mm (ø3.0")  
X = 25 mm (1.0")  
Pin: 130 mm (5.1")



Material:  
1.4305 (303)

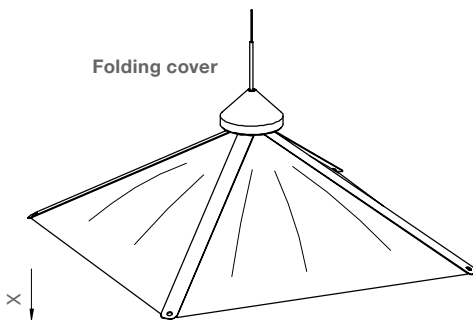
All other versions  
ø42 mm (ø1.65")  
X = 81 mm (3.19")  
Pin: 130 mm (5.1")

Claw



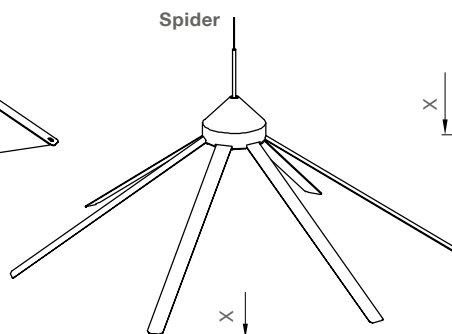
ø95 mm (3ø.7")  
X = 71 mm (2.8")  
Material: 1.4305 (303)

Folding cover



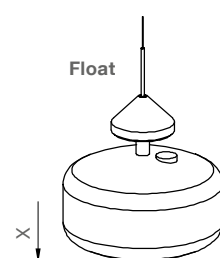
380 x 380 mm (15 x 15")  
X = 150 mm (5.9")  
Material: 1.4310 (301)/ 1.4305 (303)  
PA canvas

Spider



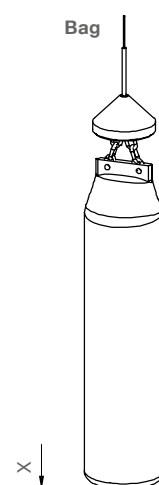
ø600 mm (ø23.6")  
X = 160 mm (6.3")  
Material: 1.4301 (304)/ 1.4305 (303)  
1.4310 (301)

Float



ø190 mm (ø7.5")  
X = 175 mm (6.9")  
Material: Float PP,  
Cone: aluminium

Bag

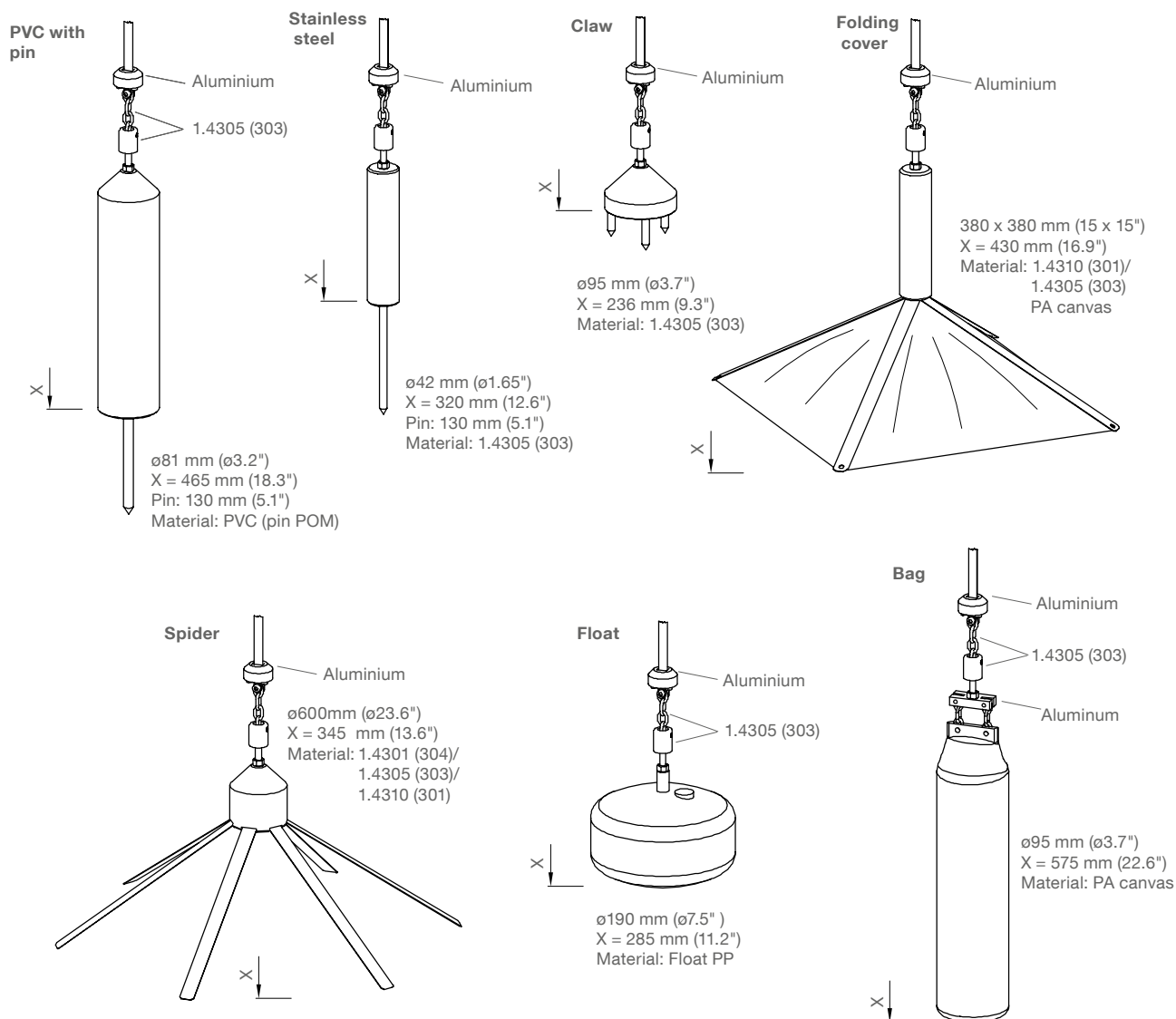


ø95 mm (ø3.7")  
X = 460 mm (18.1")  
Material: PA canvas,  
Chain: 1.4305 (303)  
Cone: aluminium

## Dimensions

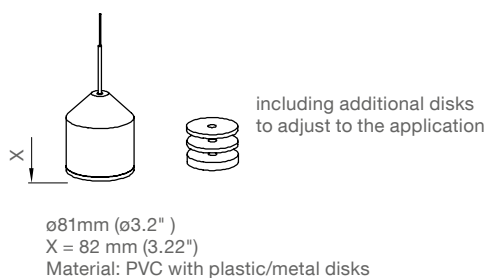
### Solids measurement: Tape version

All weights ca. 2.1 kg (4.6 lbs)



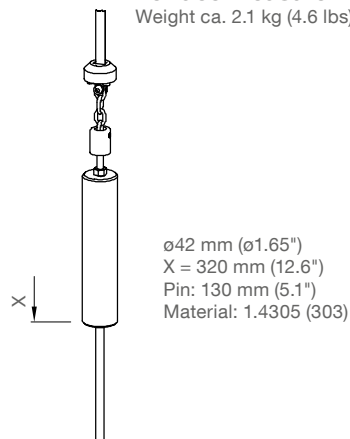
### Interface measurement: Rope version

Weight ca. 1.0 kg (2.2 lbs)



### Interface measurement: Tape version

Weight ca. 2.1 kg (4.6 lbs)



## Spare parts

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

### Rope roller

<b>sl102243</b>	Rope roller with 30 m rope (13 mm* rope chamber) Process temperature max. 80°C .....	•
<b>sl102240</b>	Rope roller with 30 m rope (33 mm* rope chamber) Process temperature max. 80°C .....	•
<b>sl102242</b>	Rope roller with 30 m rope for increased corrosion resistance (plastic coated) .....	•

\*For safe function 13 mm and 33 mm rope chamber must be substituted only by the same type.

### Tape roller

<b>sb102240</b>	Tape roller with 40 m tape .....	•
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### Sensor weights

All sensor weights are delivered incl. mounting set for proper fixing to the rope/tape and excl. rope/tape

#### Solid measurement

<b>sl102220</b>	Sensor weight for rope	PVC without pin .....	•
<b>sl102221</b>	Sensor weight for rope	PVC with pin .....	•
<b>sl102222</b>	Sensor weight for rope	Stainless steel ø75 mm (ø3.0") .....	•
<b>sl102228</b>	Sensor weight for rope	Stainless steel ø42 mm (ø1.65") .....	•
<b>sl102223</b>	Sensor weight for tape	Claw .....	•
<b>sl102224</b>	Sensor weight for rope	Folding cover .....	•
<b>sl102225</b>	Sensor weight for rope	Spider .....	•
<b>sl102226</b>	Sensor weight for rope	Bag .....	•
<b>sl102227</b>	Sensor weight for rope	Float .....	•
<b>sb102221</b>	Sensor weight for tape 40 m	PVC with pin .....	•
<b>sb102222</b>	Sensor weight for tape 40 m	Stainless steel .....	•
<b>sb102223</b>	Sensor weight for tape 40 m	Claw .....	•
<b>sb102224</b>	Sensor weight for tape 40 m	Folding cover .....	•
<b>sb102225</b>	Sensor weight for tape 40 m	Spider .....	•
<b>sb102226</b>	Sensor weight for tape 40 m	Bag .....	•
<b>sb102227</b>	Sensor weight for tape 40 m	Float .....	•

#### Interface measurement

<b>sl102230</b>	Sensor weight for rope	PVC with metal core .....	•
<b>sb102230</b>	Sensor weight for tape	Stainless steel .....	•

### Mounting set without sensor weights

<b>sl100270</b>	For rope version 80°C .....	•
<b>zu108030</b>	For tape version .....	•

### Motor

<b>gm102202</b>	Motor standard version .....	•
<b>gm102211</b>	Motor brushless version .....	•

### Electronics

<b>pl102691</b>	Electronics	98 .. 253 V 50 - 60 Hz	0/ 4-20 mA	Modbus	Relay counting pulse (5 cm 10 cm 1/6 ft 1/3 ft) .....	•
<b>pl102690</b>	Electronics	98 .. 253 V 50 - 60 Hz	0/ 4-20 mA	Modbus	Electr. counting pulse (1 cm 2.5 cm 1/20ft 1/10 ft) .....	•
<b>pl102692</b>	Electronics	98 .. 253 V 50 - 60 Hz	0/ 4-20 mA	Profibus DP	Relay counting pulse (5 cm 10 cm 1/6 ft 1/3 ft) .....	•
<b>pl102696</b>	Electronics	20 .. 28 V DC	0/ 4-20 mA	Modbus	Relay counting pulse (5 cm 10 cm 1/6 ft 1/3 ft) .....	•
<b>pl102695</b>	Electronics	20 .. 28 V DC	0/ 4-20 mA	Modbus	Electr. counting pulse (1 cm 2.5 cm 1/20 ft 1/10 ft) .....	•
<b>pl102697</b>	Electronics	20 .. 28 V DC	0/ 4-20 mA	Profibus DP	Relay counting pulse (5 cm 10 cm 1/6 ft 1/3 ft) .....	•

**Required information:** Rope or Tape version. Evt. further menue presetsings.

### Internal Heater

<b>em100372</b>	220 Ohms	For power supply 98 .. 253 V 50 - 60 Hz .....	•
<b>em100371</b>	8 Ohms	For power supply 20 .. 28 V DC .....	•

### Weather protection cover

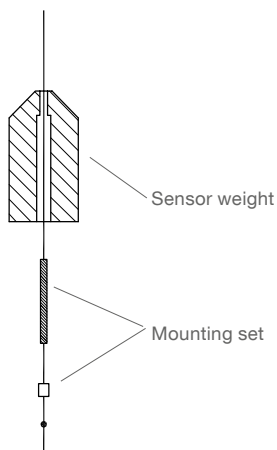
<b>zu400215</b>	.....	•
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## Spare parts

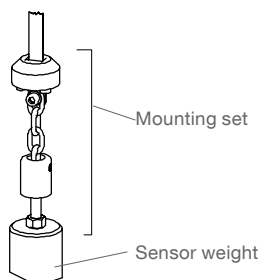
### Sensor weights/ Mounting set

All sensor weights are delivered including stated parts for proper fixing to the rope/ tape

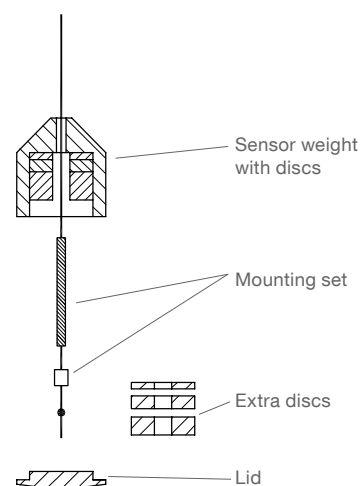
#### Solids measurement: rope version



#### Solids measurement: tape version Interface measurement: tape version

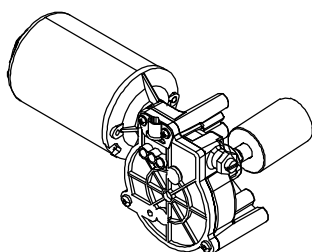


#### Interface measurement: rope version

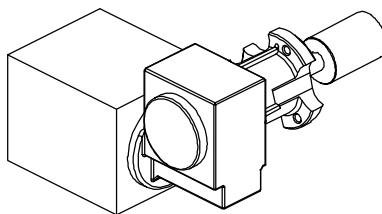


### Motor

#### Standard

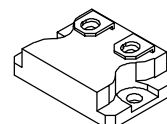


#### Brushless motor



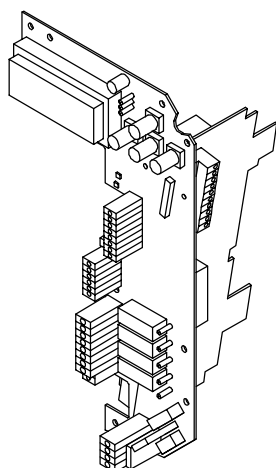
Delivery including: cable, plug, sealing, mounting tools

### Heater

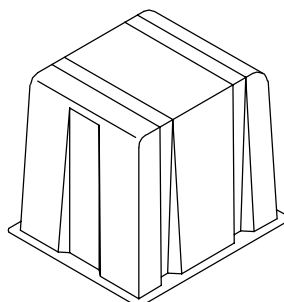


Delivery including cable and plug

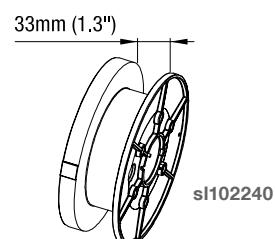
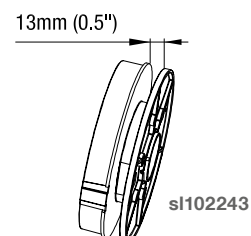
### Electronics



### Weather protection cover



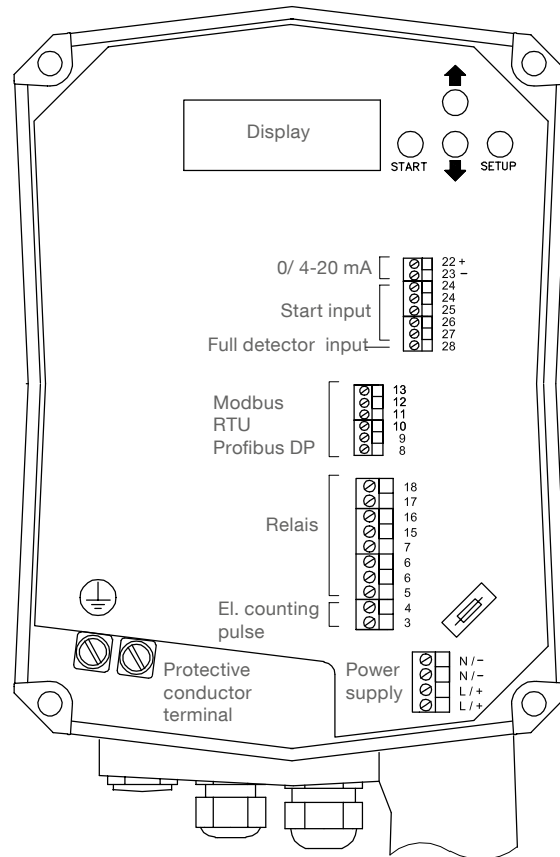
### Rope roller





## Electrical installation

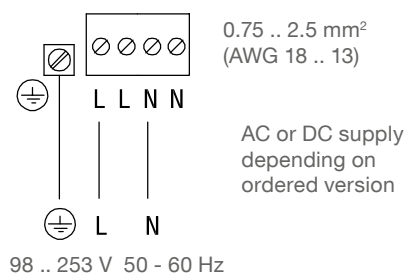
### Terminal location



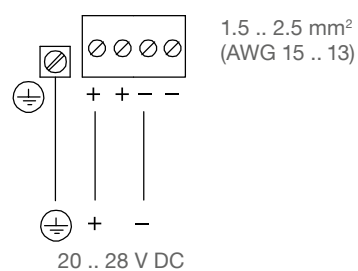
### Power supply and Signal input/ output

#### Power supply

##### AC version

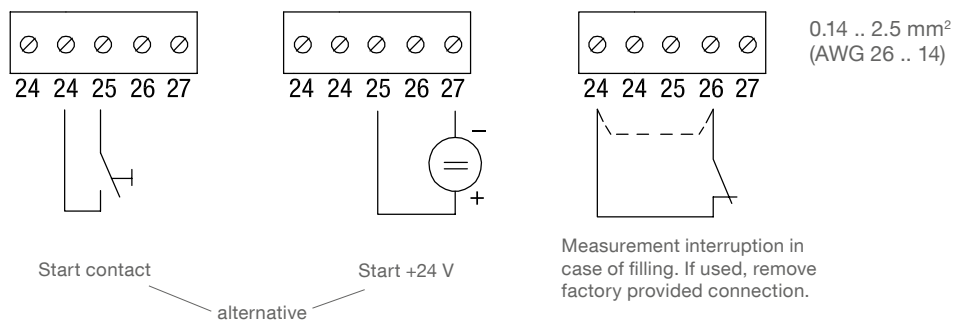


##### DC version



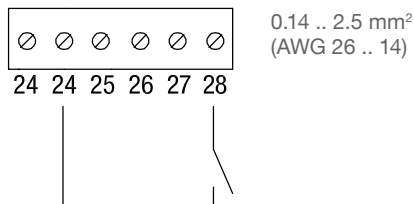
#### Signal input:

##### Start of measurement

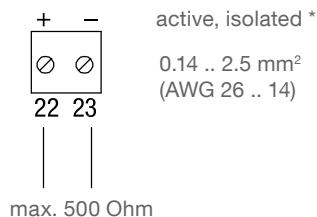


## Electrical installation

### Signal input: Full detector

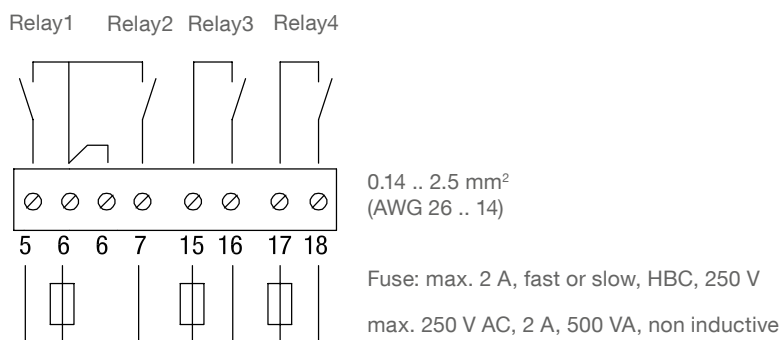


### Signal output: 0/4-20 mA

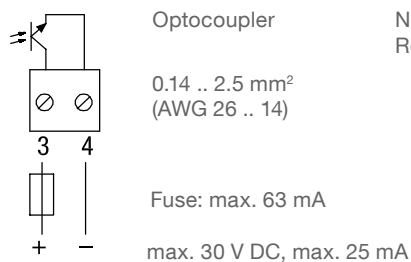


\* CAUTION:  
If connecting to a PLC with isolated (floating) 4-20 mA input, the "-" line must be connected to ground of the PLC. See user manual of the PLC.

### Signal output: Relay



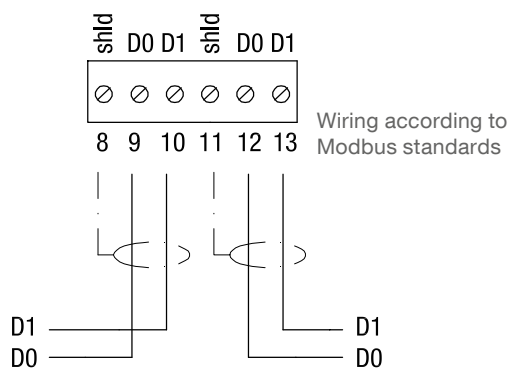
### Signal output: Electronic counting pulse



Note:  
Reset pulse is done with Relay 2

## Electrical installation

### Modbus network



### Profibus DP network

