Rotating Vane Level Monitor
for bulks
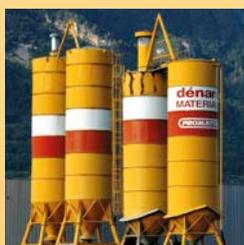
KOBOLD

NIR-9

Ex

- Heavy design
- Aluminium housing
- Easy connection
- New motor
- Different mounting options
- Competitive price
- ATEX approval
- Adjustable sensibility

N1

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Description

The NIR-9 level monitor is suitable for wide applications for bulks and solids in silos and hoppers. Regardless of humidity and conductivity of the product, the maximum or minimum level is controlled reliably. Available are different vanes and process connections according to each product and tank size.

Operation

A synchronous motor drives a rotating vane that is extended into the tank by means of a shaft. As soon as the bulk reaches the rotating vane, its rotation is blocked. The restoring force moves the pivoted motor away from its original position. Hereby, a micro switch is actuated, wich gives out an alarm signal. A second microswitch turns off the motor. If the filling level decreases, the rotating vane is released again and the force of a spring pulls the motor back to its original position. The motor gets turned on again and the working contact is switched back.

The switching sensitivity can be adjusted in three steps by changing the spring position.

Applications

- Cereal
- Flour
- Granulated plastics
- Cement
- Sand
- Cacao
- Sugar
- Various bulk materials

Technical Details

Measuring principle:	rotating vane
Medium temperature:	-20 ... +90 ºC
	-20 ... +200 ºC (NIR-92)
Ambient temperature:	-20 ... +60 ºC
Pressure:	-0.5 ... +0.5 bar
Max. grain size:	50 mm
Min. bulk density:	0.038 g/cm^3 (depends on vane and sensibility) see table below
Sensibility:	adjustable in 3 steps
Rotation speed:	5 r.p.m.

Materials

|	
Housing:	polyester coated aluminium 360º rotatable
Connection, cable, extension, tube, vane:	stainless steel, aluminium (page 5)

Process connection (standard)

|	
-NIR-910 / E910	G1 male stainless steel 1.4305
-NIR-920 / E920	G1 male stainless steel 1.4305
-NIR-962 / E962	G1 male stainless steel 1.4305
-NIR-95F / E95F	G1 male stainless steel 1.4305
-NIR-940 / E940	G1 male aluminium
-NIR-930 / E930	G1½ male stainless steel 1.4305
Other connections:	thread adapters for G1¼, G1½, 110 mm and 200 mm flanges
Vane types:	standard N, foldable vane V, cruciform vane X, aggregate vane A, reinforced vane R
ATEX approval:	⟨Ex⟩II 2/1D Ex t IIIC T85ºC Db/Da
Power supply:	24 V$_{DC}$, 24 V$_{AC}$, 48 V$_{AC}$, 110 V$_{AC}$, 230 V$_{AC}$, 50/60 Hz power led
Power consumption:	max. 2 VA
Electrical connection:	2 x M20 x 1.5
Contact:	micro switch (SPDT) max. 250 V$_{AC}$, 2 A (max. 125 VA)
Protection:	IP 66

Bulk density with different types of rotating vanes*

Rotating vane types	High sensibility	Medium sensibility	Low sensibility
N and R	0.14 g/cm^3	0.185 g/cm^3	0.214 g/cm^3
V	0.038 g/cm^3	0.047 g/cm^3	0.057 g/cm^3
X	0.04 g/cm^3	0.05 g/cm^3	0.06 g/cm^3
A	0.45 g/cm^3	0.55 g/cm^3	0.65 g/cm^3

* Approximate value

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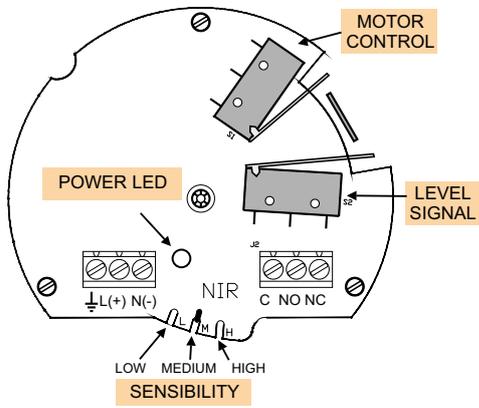
Connection

ATEX Mounting
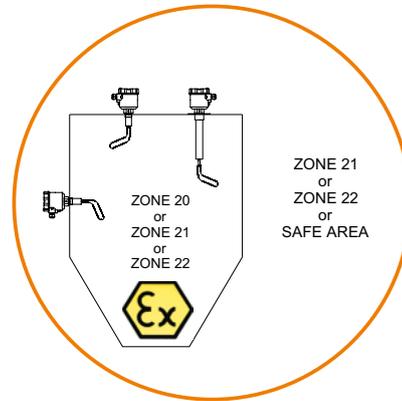
Mounting Examples

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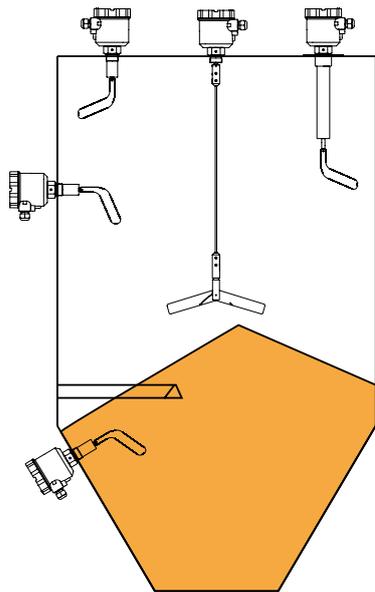
Order Details (Example: **NIR-91 0 N G6 0 0**)

| Model	Extension	Vane	Mechanical connection [4]	Supply	Option
NIR-91... **NIR-E91... (ATEX)** (neck pipe l = 65 mm) **NIR-92...** **NIR-E92... (ATEX)** (t_{max}: 200 °C) **NIR-94...** **NIR-E94... (ATEX)** (aluminium thread)	**0** = without extension **W** [1] = extension without protection pipe (until 1500 mm) **L** [2] = extension with protection pipe (until 4000 mm) **Y** = special	**0** = without **N** = standard **V** = foldable **X** = cruciform (only with F2 connection) **Y** = special	**G6** = G 1 **G7** = G 1¼ **G8** = G 1½ **F1** = flange 110 mm 1" GF **F2** = flange 200 mm 1" GF **YY** = special	**0** = 230 V_{AC} **4** = 110 V_{AC} **2** = 24 V_{AC} **5** = 48 V_{AC} **3** = 24 V_{DC} **Y** = special	**0** = without **Y** = special
NIR-96... **NIR-E96... (ATEX)** (neck pipe l = 200 mm)	**2** = 200 mm (reinforced version, lateral installation) **Y** = special				
NIR-95... **NIR-E95... (ATEX)** (flexible cable)	**0** = without extension **F** [3] = flexible cable max. 10 m	**V** = foldable **X** = cruciform (only with F2 connection)			
NIR-93... **NIR-E93... (ATEX)** (reinforced)	**0** = without	**0** = without **R** = reinforced **A** = aggregate **Y** = special	**G8** = G 1½ **F3** = flange 110 mm reinforced 1½" GF **YY** = special		

[1] Only for top installation. Rigid extension without protection pipe max. 1,5 m. Please specify length »L«.
[2] Only for top installation. Rigid extension with protection pipe max. 4 m. Not available with mechanical connection G6 and G7. Please specify length »L«.
[3] Only for top installation. Flexible stainless steel cable extension max. 10 m, (max. pull force of the cable 4 kN). Please specify length »L«.
[4] Please check mechanical connection in order to ensure a perfect match between mechanical connection and vane size.
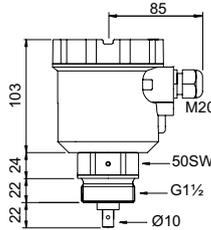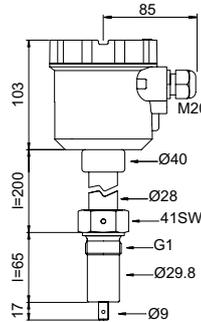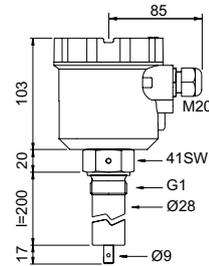
Dimensions [mm]
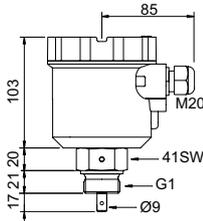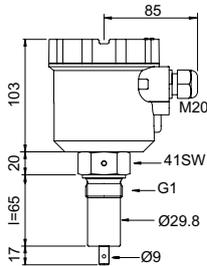
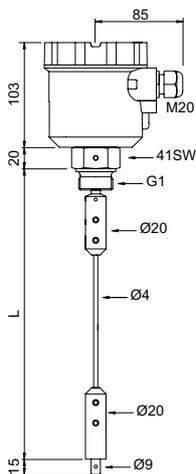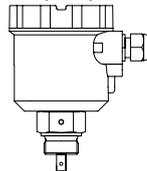NIR-94(E94)...   NIR-91(E91)...   NIR-93(E93)...   NIR-92(E92)...   NIR-96(E96)...

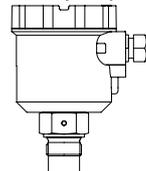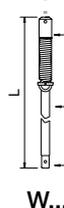## Maximum Level Switch
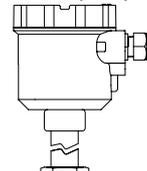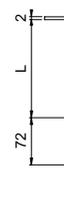
(Vertical Mounting)

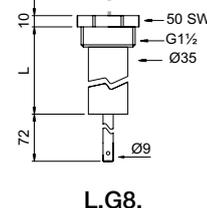

NIR-95F(E95F)...

NIR-94(E94)...   NIR-91(E91)...   NIR-92(E92)...

W...   L.F1.   L.F2.   L.G8.
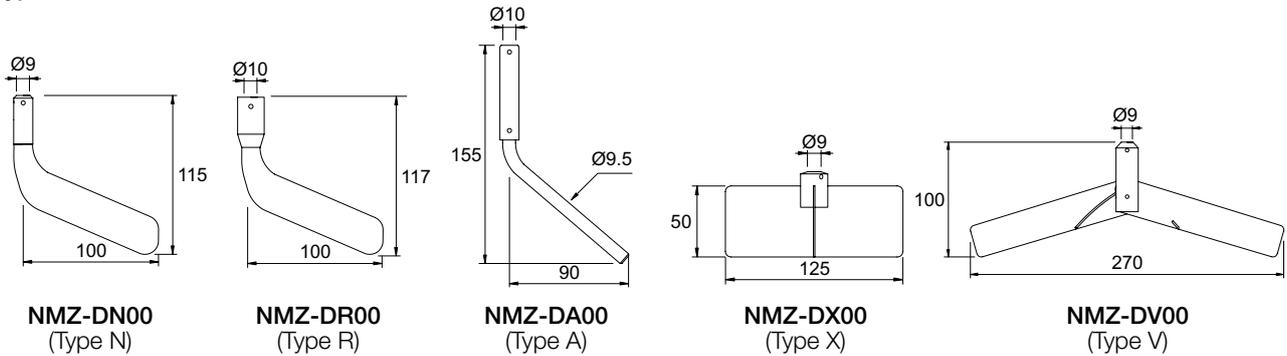
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Accessories / Spare parts (Example: **NMZ-A G8 0**)

	Model		Option
NMZ-	**A** = process connections	**G7** = thread adapter stainless steel 1.4305, 1¼" GM-1"GF **G8** = thread adapter stainless steel 1.4305, 1½" GM-1"GF **F1** = flange stainless steel 1.4305, Ø110 mm, 1"GF **F2** = flange stainless steel 1.4305, Ø200 mm, 1"GF **F3** = reinforced flange stainless steel 1.4301, Ø110 mm, 1½"GF **S6** = welding sleeve stainless steel 1.4404, 1"G **YY** = special	**0** = without **Y** = special
	D = type of vanes	**N0** = standard stainless steel 1.4305 **V0** = foldable stainless steel 1.4305 **X0** = cruciform stainless steel 1.4305 **R0** = reinforced stainless steel 1.4305 **A0** = aggregate stainless steel 1.4305 **YY** = special	
	E[1] = extensions	**L8** = protection pipe stainless steel 1.4301, G1½ **L1** = protection pipe with F1 flange stainless steel 1.4301 **L2** = protection pipe with F2 flange stainless steel 1.4301 **W1** = without protection pipe and flexible union stainless steel 1.4301 **F1** = flexible cable Ø4 mm stainless steel 1.4305 **YY** = special	

[1] Please specify length "L"

Dimensions [mm]

Type of vane

NMZ-DN00 (Type N) NMZ-DR00 (Type R) NMZ-DA00 (Type A) NMZ-DX00 (Type X) NMZ-DV00 (Type V)

Process connections

NMZ-AF10 (Type F1) NMZ-AF20 (Type F2) NMZ-AF30 (Type F3) NMZ-AG80 (Type G8) NMZ-AG70 (Type G7) NMZ-AS60