Vibranivo ®
Series
VN 4000

Mononivo ®
Series
MN 4000

Instruction manual
Scope of this instruction manual:

| Types       | VN 4020 4030  
|            | MN 4020 4030  |
| Approval    | CE / TR-CU    
|            | ATEX 1/2D     
|            | IEC-Ex t IIIC |
| Electronic modules | Relais (DPDT)  
<p>|            | PNP           |</p>
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Safety /warning notes

Installation, maintenance and commissioning may be accomplished only by qualified technical personnel.
For terminal connection of the device, the local regulations or VDE 0100 (Regulations of German electrotechnical Engineers) must be observed. All field wirings must have insulation suitable for at least 250V AC. The temperature rating must be at least 90°C (194°F).

In the case of handling by untrained personnel or handling malpractice, the safety of the device cannot be guaranteed.

Fields of application

Level limit switch for level limit detection in powder and bulk materials.
VN 4020

- R 1 1/2"
- NPT 1 1/4"
- NPT 1 1/2"
- 1.4541 (321)
- 1.4581 (316)
- 1.4404 (316L)

Technical Data

<table>
<thead>
<tr>
<th>°C</th>
<th>1 → 9</th>
<th>2 → 9</th>
</tr>
</thead>
<tbody>
<tr>
<td>-1 .. +16bar</td>
<td>-1 .. +16bar (-14.5 .. +232psi)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>~ 1,7kg (3.7 lbs)</td>
<td>~ 2,4kg (5.3 lbs)</td>
</tr>
</tbody>
</table>
VN 4030

R 1 1/2"
NPT 1 1/4"
NPT 1 1/2"

1.4541 (321)
1.4571 (316TI)
1.4404 (316L)

125mm (4.92")

-1 .. +16bar
(-14.5 .. +232psi)

-2,4kg (5.3lbs)
+1,9kg/m
(+5.5 lbs per 39.9") (L)

~1,7kg (3.7lbs)
+1,9kg/m
(+4.2 lbs per 39.9") (L)
MN 4020

G 1"
G 1 1/4"
G 1 1/2"
NPT 1"
NPT 1 1/4"
NPT 1 1/2"

160mm (6.3"
130mm (5.12"
122mm (4.8"

1.4301 (304)
1.4541 (321)/
1.4404 (316L)

-1 .. +16bar
(-14.5 .. +232psi)

~ 1,3kg (2.9 lbs)

~ 2,0kg (4.5 lbs)
MN 4030

- G 1"
- G 1 1/4"
- G 1 1/2"
- NPT 1"
- NPT 1 1/4"
- NPT 1 1/2"

130mm (5.12“)
L<4.000mm (157.5“)

1.4301 (304)
1.4541 (321)/
1.4404 (316L)

-1 .. +16bar
(-14.5 .. +232psi)

-1,3kg (2.9lbs)
+1,3kg/m
(+2.9 lbs per 39.9“) (L)

~2.0kg (4.5lbs)
+1,3kg/m
(+2.9 lbs per 39.9“) (L)
### Sensitivity

#### VN 4000

<table>
<thead>
<tr>
<th>Concentration (g/l)</th>
<th>Sensitivity</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;30 g/l</td>
<td>B</td>
</tr>
<tr>
<td>&gt;150 g/l</td>
<td>A</td>
</tr>
</tbody>
</table>

1g/l = 0.06 lb/ft³

#### MN 4000

<table>
<thead>
<tr>
<th>Concentration (g/l)</th>
<th>Sensitivity</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;20 g/l</td>
<td></td>
</tr>
<tr>
<td>&gt;80 g/l</td>
<td></td>
</tr>
<tr>
<td>&gt;150 g/l</td>
<td></td>
</tr>
<tr>
<td>&gt;300 g/l</td>
<td></td>
</tr>
</tbody>
</table>

1g/l = 0.06 lb/ft³

### Bulk material

VN 4000:
- d < 8mm (0.31“)

MN 4000:
- d < 20mm (0.79“)
Application

VN 4020
MN 4020

(1) Mech. load of the sensor
(2) Protective angle (canopy) in case of high mechanical load
VN 4030
MN 4030

(1) Mech. load of the sensor
(2) Sliding sleeve: Tighten straining screws with 20Nm

<table>
<thead>
<tr>
<th>$\alpha$</th>
<th>max. L / mm (&quot;)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 5°</td>
<td>4.000 (157.5)</td>
</tr>
<tr>
<td>&lt; 45°</td>
<td>1.200 (47.2)</td>
</tr>
<tr>
<td>&gt; 45°</td>
<td>600 (23.6)</td>
</tr>
</tbody>
</table>
Assembly

Fixing Threads

Teflon tape or flat gasket

80Nm

Fixing Flanges

Gasket
(1) Certified flush welding socket must be used
(2) Metal-metal support without any gap
(3) Sealing ring
(4) Welding (observe hygiene requirements)
Alignment

(1) Ingress protection IP 66
Option: Weather protection cover

for Ex only approved for Zone 22
Spare parts

VN 4000

19...230V 50/60 Hz
19...40V DC

<table>
<thead>
<tr>
<th>18...50V DC  PNP</th>
<th>pl408265</th>
</tr>
</thead>
</table>

MN 4000

21...230V 50/60 Hz
22...45V DC

<table>
<thead>
<tr>
<th>18...50V DC  PNP</th>
<th>pl405266</th>
</tr>
</thead>
</table>
### Electrical connection

All electronic modules: Over voltage category II

#### Relay DPDT

**VN 4000**

**MN 4000**

- **Power supply**
- **Isolating voltage**
- **Including 10% from EN 61010**

---

(1) Power supply

(2) Isolating voltage

(3) Including 10% from EN 61010
VN 4000
MN 4000

max. 4mm²
(AWG12)

(1) Power supply, including 10% from EN 61010
Switching logic

VN 4000

FSL

FSH

MN 4000

FSL

FSH

<table>
<thead>
<tr>
<th>FSL</th>
<th>FSH</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Diagram" /></td>
<td><img src="image2.png" alt="Diagram" /></td>
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<tr>
<td><img src="image3.png" alt="Diagram" /></td>
<td><img src="image4.png" alt="Diagram" /></td>
</tr>
<tr>
<td><img src="image5.png" alt="Diagram" /></td>
<td><img src="image6.png" alt="Diagram" /></td>
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</tbody>
</table>

(1) = Relay DPDT
(2) = PNP
Maintenance

Cleaning

VN 4000

MN 4000

[Diagram showing VN 4000 and MN 4000 models with a cleaning tool]
Notes

Permitted relative pressure

-0,2...+0,1bar
(-2.9...+1.45psi)

Zone borders

<table>
<thead>
<tr>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2D</td>
<td>Db</td>
<td>21</td>
</tr>
<tr>
<td>1D</td>
<td>Da</td>
<td>20</td>
</tr>
</tbody>
</table>

(1) Category  (2) EPL (IEC-Ex)  (3) Zone
**Ambient temperature** max. **Surface temperature**

<table>
<thead>
<tr>
<th>60°C (140°F)</th>
<th>110°C (230°F)</th>
<th>115°C (239°F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>120°C (248°F)</td>
<td>120°C (248°F)</td>
<td></td>
</tr>
<tr>
<td>130°C (266°F)</td>
<td>130°C (266°F)</td>
<td></td>
</tr>
<tr>
<td>140°C (284°F)</td>
<td>140°C (284°F)</td>
<td></td>
</tr>
<tr>
<td>150°C (302°F)</td>
<td>150°C (302°F)</td>
<td></td>
</tr>
</tbody>
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**Installation**

(1) A pull relief must be provided
(2) Connect with equipotential bonding of the plant
ATEX / IEC-Ex: Further Remarks

For installation and field wiring the respectively valid installation regulations of the respective country must be observed.

Commissioning only with closed lid.

Do not remove the lid (cover) while circuits are alive.

Before opening the lid take care, that no dust deposits or whirlings are present.

The installation has to be carried out in a way, that mechanical friction or impact does not cause sparks between the aluminium enclosure and steel.

Cable glands:
Installation according to the regulations of the country, where the product is installed.
Not used entries have to be closed with blanking elements certified for this purpose.
Where applicable the factory provided parts must be used.
A strain relief must be provided for the field wiring cables, when the device is installed with the factory provided cable glands.
The diameter of the field wiring cable must match to the clamping range of the cable clamp.
If other than the factory provided parts are used, following must be ensured:
The parts must have an approval adequate to the approval of the level sensor (certificate and type of protection).
The approved temperature range must be from the min. ambient temperature of the level sensor to the max. ambient temperature of the level sensor increased by 10 Kelvin.
The parts must be mounted according to the instructions of the supplier.