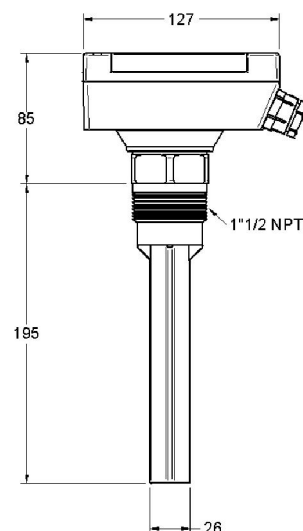


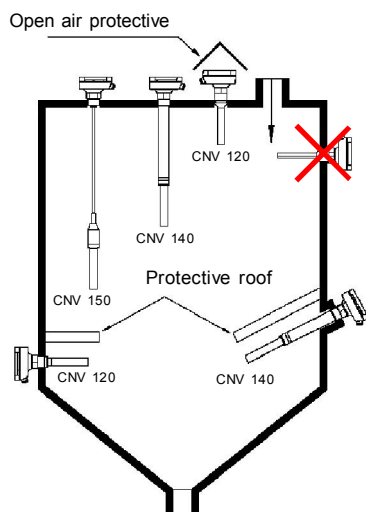
## CNV 120 / CNV 120 Ex

### FINE SOLIDS VIBRATING LEVEL SENSOR

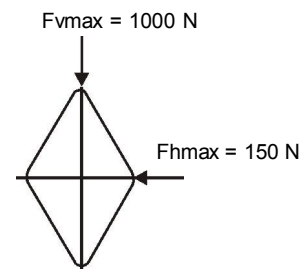


Function	Detection of the level in solids, grained or powdered. Sensible to extremely light products (>20 g/l).
Operating principle	In the lowest end of the probe is located a piezoelectric crystal at a vibrating frequency of 285 Hz when in the free air. When a product reaches the probe, the oscillation changes and the electronic circuit switches the output signal. The lowest end of the probe is maximally sensitive. The fact that the top end of the probe detects the minimum sensitivity reduces the problem of false signals caused by build-up or draining out of the tank. The vibrating effect produces to shed off the clinging material when in the free air.
Process connection	Top screw 1"1/2 NPT (DIN2999).
Output	Relay SPDT 5A / 250 VAC
Power supply	20..250 VAC/DC
Consumption	3 VA
Timing	Detecting: 1 second. Undetecting: 2..5 seconds
Material	<i>Housing:</i> Aluminium protected RAL7001. <i>Probe:</i> Stainless steel AISI304 (1.4301)
Temperature	<i>Housing:</i> -20..+60°C. <i>Probe:</i> -20..+80°C
Pressure	10 bar
Sensitivity	Position A: Light products, with density lower than 20 g/l. Position B: Standard adjustment, suitable for most products. Position C: Heavy products with high density (very low sensitivity).
Protection	<i>Housing:</i> IP66. <i>Probe:</i> IP67
Operation mode	Must be selected before to turn the unit on: Position H: Relay operates when the probe does not detects the product. Position L: Relay operates when the probe detects the product.

#### Installation exemple



#### Maximum load on the probe



#### ATEX Version



Reference: CNV 120 Ex  
Certificate for Group II,  
Category 1/2 D (dust),  
Zones 20, 21 and 22.

Installation	<p>The sensor CNV-120 can be installed in the silo lateral or vertically.</p> <p>Do not thread rotating by the body, use a tool of 36 mm.</p> <p>Normally thread to the sidewall of the silo to the height desired for detecting the product. It is recommended to place the probe with an inclination between 20° and 30° towards the exit of the silo to facilitate the material to flow more easily and do not deposit itself on the probe.</p> <p>When choosing the detection point, must be considered the angle of the filling slope and the draining cone so that the controllers can have time enough for the action on the transport mechanisms or signaling.</p>
Protection in the installation	<p>In a necessary case a protective cover must be used and it has to be located at 150 mm over the probe. This cover also must be used when minimum or intermediate levels in silos with a probable danger of formation of vaults or, when by the draining system and the nature of the product, a strong overload could exist on the probe.</p> <p>(To see installation example, page 1).</p>
Position of the cable glands	<p>They must be pointing downwards downwards to avoid the humidity enter inside the housing. If the housing is not in the right position after having screwed the probe firmly in the silo wall, as follows:</p> <ol style="list-style-type: none"> <li>1. Take out the cover</li> <li>2. Unscrew half turn the positioning screw in the center</li> <li>3. Rotate the housing right or left (never a complete turn) until the cable glands be pointing downwards.</li> <li>4. Screw Tightly the positioning screw and close the cover back.</li> </ol>
Operation mode	<p><u>High level:</u> With the probe in the air, place the link "Detection type" at "H" position: the relay is operated (LED lites fixed). When the probe detects the product the relay releases and the LED starts blinking.</p> <p><u>Low level:</u> With the probe in the air, place the link "Detection type" at "L" position: the relay is released (LED blinks). When the probe is covered with the product the relay operates (LED lites fixed). It releases when the probe does not detect the product anymore.</p> <div data-bbox="474 985 1407 1520" data-label="Diagram"> <p>The diagram illustrates the sensor's operation in two modes: High Level Alarm and Low Level Alarm. For High Level Alarm, the tank is shown filling from empty to full. In the 'Full' state, the relay is in the NC position and the LED is lit. For Low Level Alarm, the tank is shown emptying from full to empty. In the 'Empty' state, the relay is in the NC position and the LED is lit. The internal wiring diagram shows the sensor housing with terminals for Probe (T-Red, R-Red, L-Black), Sensibility adjustment (link), Detection type (link) with positions H, L, and A, B, C, a Positioning screw, an LED (Red), and a Relay. The relay has terminals L, N, NA, COM, and NC. Supply voltage terminals and Output relay terminals are also indicated. A note states: 'Maximum section of the cables is 1,5mm²'.</p> </div>
Sensibility	<p><u>Position A:</u> Use this adjustment only for light materials, with low densities until 20g/l.</p> <p><u>Position B:</u> Standard adjustment, enough for a large number of materials.</p> <p><u>Position C:</u> For heavy materials with high densities. In this position the sensitivity of the controller is low, the light materials cannot be detected with this adjustment.</p>
Safety indications	<ul style="list-style-type: none"> <li>· Do not manipulate the sensor without disconnecting the supply voltage previously.</li> <li>· Before carrying out the electrical connection compares the data of the plate of characteristics that agree with the one of the connection.</li> <li>· If the supply voltage and the relay signal do not come from the same source, the cables of the supply voltage must be separated of the cables of the relay signal by means of cable locking devices, so that it is avoided that the cables of connection of the supply voltage can be in contact with the terminals of the relay and vice versa (what it could be possible in case of error, for example, breakage of a cable).</li> <li>· The power supply must be protected with a fuse (max. 4A).</li> <li>· Protect the contacts of the main switch of the inductive loads.</li> <li>· The ground connection must be carried out with complete safety.</li> </ul>

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