



## Capacitive Level Limit Switches for Bulk Goods



measuring  
•  
monitoring  
•  
analysing

NTS



- Switching accuracy:  
 $\pm 3$  mm (6 mm)
- $p_{\max}$ : 25 bar;  $t_{\max}$ : 120 °C
- Connection: R 1  
option: adapter R 1 ½  
or G 1 ½
- Material: PPS
- Maintenance-free
- Deposit compensation

N1



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**Description**

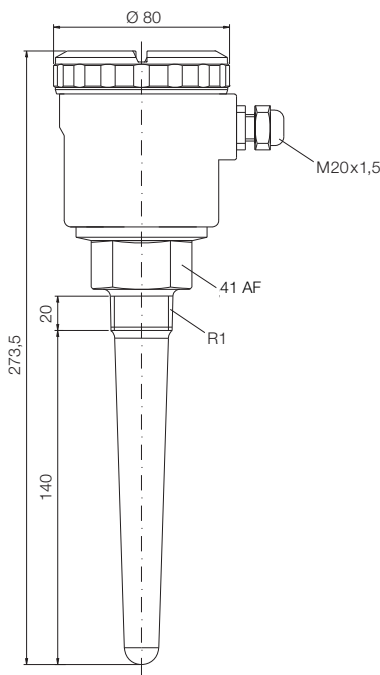
The KOBOLD NTS level limit switch for bulk goods operates on the capacitive measuring technique. The measuring probe, tank or vessel wall form a capacitor. The capacitance depends on the medium between probe and wall. If air is present (tank empty), the capacitance is low. As soon as product touches the probe, the capacitance increases. This change in capacitance is detected electronically and converted to a switching signal when the capacitance rises above or drops below the limit. The instrument has a changeover feature for minimum/maximum safety. The switch point is always accurately maintained by the "deposit compensation" even with deposit formation. The effect of deposit compensation depends on the density of the coating on the probe, the conductance of the coating as well as the adjustable sensitivity. The NTS is adjusted at the factory; the sensitivity can be re-adjusted however. For non-conductive vessels the earth connection must be attached to nearby conductive and earthed objects.

**Applications**

NTS are suitable for level monitoring in powdery and finegrained bulk materials, for example:

- Chalk, gypsum
- Cement
- Grain
- Flour, milk powder
- Mixed animal feed

**Dimensions**



**Technical Details**

Housing: plastic  
 Probe: PPS (polyphenylene sulphide)  
 Medium: DK value  $\epsilon_r \geq 1.6$   
 bulk materials up to grain size 30 mm  
 Connection: R 1 male DIN 2999/ISO 7  
 option: installation coupling R 1 ½ or G 1 ½  
 Auxiliary power: **DC version**  
 10.8... 45 V<sub>DC</sub>/max. 30 mA  
**AC/DC version**  
 0... 253 V<sub>AC</sub> or  
 20... 55 V<sub>DC</sub> max. 130 mA  
 Output: **DC version**  
 PNP/I<sub>max</sub> 200 mA  
 overload and short-circuit proof  
**AC/DC version**  
 relay:  
 I<sub>max</sub> 4 A ; I<sub>min</sub> 1 mA; U<sub>max</sub> 253 V  
 U<sub>min</sub> 6 V; P<sub>max</sub> 1000 VA  
 Failure signal: DC-PNP < 100 µA  
 AC/DC relay dropped out  
 Switch delay: 0.5 s becoming uncovered/  
 becoming covered  
 Error of measurement: horizontal ± 3 mm  
 vertical ± 6 mm  
 Hysteresis: horizontal 4 mm  
 vertical 7 mm  
 Schaltpunkt: horizontal middle of probe -5 mm  
 vertical 40 mm  
 Electrical connection: terminal connection  
 Protection: IP 66  
 Medium temperature: -40 ... +120 °C  
 Ambient temperature: -40 ... +70 °C  
 Operating pressure: -1 ... +25 bar

**Order Details** (Example: NTS-1000 R25)

Connection male thread	Order number	
	20... 55 V <sub>DC</sub> 20... 253 V <sub>AC</sub>	10.8... 45 V <sub>DC</sub>
Standard R 1 male	NTS-1000 R25	NTS-1001 R25
Option: with installation coupling R 1 ½	NTS-1000 R40	NTS-1001 R40
Option: with installation coupling G 1 ½	NTS-1000 G40	NTS-1001 G40