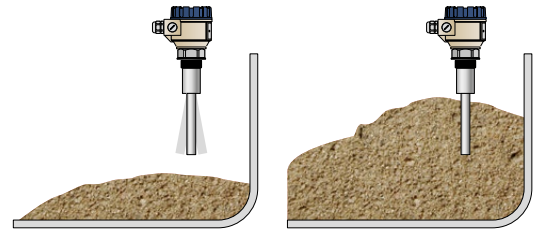


GENERAL DESCRIPTION

The **NIVOCONT R** series of vibrating rod level switches are robust instruments designed for low and high level indication of granules and powders with a minimum of 50 oz/ft³ (0.05 kg/dm³) density. Mounted on tanks, silos or hopper bins it can control filling / emptying, or give fail-safe alarm signals. The highly polished version is recommended to use for abrasive mediums. The operation principle is based on that the electronic circuit excites a vibration in the rod probe. When the medium reaches and covers the rod, its vibration stops, when the medium leaves the rod it returns to vibrate freely. The electronics senses the change of vibration and gives output signal after a selected delay.



MAIN FEATURES

- Extension up to 65.5 feet
- Adjustable sensitivity
- Max. medium temperature: 320 °F
- Universal supply voltage
- Dust explosion protection
- Fine polished probe
- IP67 protection

APPLICATIONS

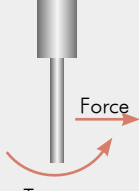
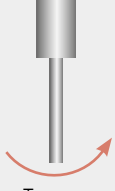

- Powders, pellets, granulates
- Grains
- Ground products
- Stone-powder, chippings
- Cement, sand
- Coal, slag

CERTIFICATIONS

- ATEX approved (Dust Ex)
- IEC approved (Dust Ex)

TYPE SELECTION

Position of the switching point (high, low) and the mounting (side, bottom, top) determines the selection of the appropriate type.

Version		Standard	Rod extended	Cable extended
High limit switch		Side mounted	Top mounted	Top mounted
Low limit switch		Side or bottom mounted		
Loadability				
Max. load	Force	500 N	–	45 kN
	Torque	100 Nm	100 Nm	–



RKH-502-5 Ex



RKR-500/600



RKK-500/600

TECHNICAL DATA

Version	Standard	Rod extended	Cable extended
Insertion length	8.15 inch (207 mm)	1 ... 33 feet (0.3 ... 3 m)	3.3 ... 65.5 feet (1 ... 20 m)
Material of wetted parts	316 Ti (1.4571) stainless steel		vibrating part: 316 Ti (1.4571) cable: PE cover
Process connection	1 1/2" NPT; 1 1/2" BSP as per order code		
Output	See: output data		
Temperature range	Standard: -22 °F...+230 °F; High temp. version ⁽²⁾ : -22 °F...+320 °F		-22 °F...+176 °F
	Ex version: see temperature data		
Medium pressure	max. 363 psig		max. 87 psig
Max. load	Force	500 N	45 kN
	Torque	100 Nm	100 Nm
Medium density ⁽¹⁾	min. 0.05 S.G. (granular size 0.4 inch)		
Response time (selectable)	< 2 sec or 5 sec ±1.5 sec		
Power supply	20...255 V AC/DC, Ex: 20...250 V AC, 20...50 V DC		
Power consumption	≤ 2.5 VA / 2 W		
Housing material	Paint coated aluminum or plastic (PBT)		
Electrical connection	2 x M20x1.5 plastic cable glands, for Ø 0.25...0.5 inch cable + 2 x NPT 1/2" internal thread for cable protective pipe 2 pcs. terminal blocks for AWG16 wire cross section		
Electrical protection	Class I.		
Ingress protection	IP67		
Mass	Metal housing	4.15 lb	4.15 lb + 1lb/ft
	Plastic housing	3.3 lb	3.3 lb + 1lb/ft

⁽¹⁾ Depends on the internal friction and the granular size of the medium

OUTPUT DATA

Output	Relay	Electronic
Output type and rating	SPDT 250 V AC, 8 A, AC1	SPST 50 V, 350 mA
Output protection	-	Overvoltage, overcurrent and overload
Voltage drop (switched on)	-	< 2.7 V 350 mA
Residual current (switched off)	-	< 10 µA

SPECIAL DATA FOR Ex CERTIFIED MODELS

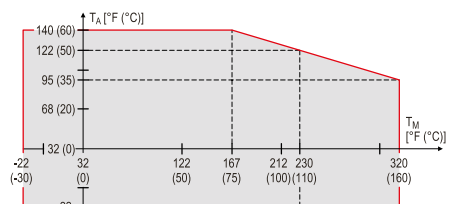
Type	R□□-5□□-5 Ex	
Protection type	Dust Ex	
Ex marking ⁽²⁾	ATEX	see: www.nivelco.com
	IEC Ex ⁽³⁾	
Electrical connection	2 pcs. metal M20x1.5 cable glands for Ø 0.315 ... 0.5 inch cable	

⁽²⁾ Only with metal housing
⁽³⁾ Need of IEC is to be specified with order

Temperature limit values for Ex versions:

Temperature data	Cable extended			Standard and rod extended			High temp.
	T90°C	T100°C	T115°C	T90°C	T100°C	T170°C	
Medium temp. (T _M) Min.: -22°F	+140°F	+158°F	+176°F ⁽⁴⁾	+140°F	+158°F	+203°F	+230°F
Ambient temp. (T _A) Min.: -22°F	+140°F	+122°F	+140°F	+140°F	+122°F	+140°F	+122°F
Max. surface temp. of process connection	+185°F	+185°F	+203°F	+185°F	+185°F	+203°F	+203°F
Max. surface temp.	+185°F	+185°F	+203°F	+185°F	+185°F	+203°F	+230°F

Temperature diagram



Ambient temperature (T_A) versus
Medium temperature (T_M)

⁽⁴⁾ Medium temperature for max. 1 hour: + 203 °F

NIVOCONT R-500/R-600 with standard probe

Vibrating rod level switch for powders and granular solids
Standard probe length: 8.14" (207 mm)

Versions

R	□	-	□	0	2	-	□
K							Standard version (110°C)
H							High temperature version (160°C)
S							Standard version (110°C) with fine polished probe
T							High temperature version (160°C) with fine polished probe

Process connection

R	□	-	□	0	2	-	□
H							1 1/2" BSP
N							1 1/2" NPT

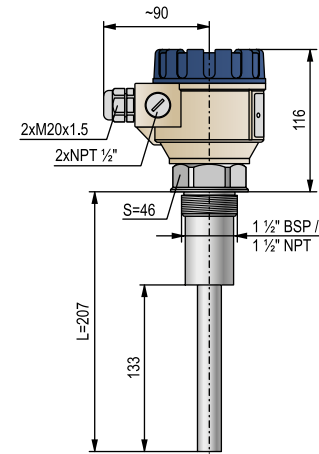
Housing

R	□	-	□	0	2	-	□
5							Aluminium (paint coated)
6							Plastic, PBT, glass fibre reinforced (High temperature and Ex version is not available)

Output / Approval

R	□	-	□	0	2	-	□
1							SPDT, potential free relay; 250 V AC, 8 A
3							SPST, solid state output
5							SPDT, potential free relay; 250 V AC, 8 A / Ex tD

Need of IEC is to be specified with order



RKH / RKN-500 / 600

LEVEL SWITCHES

NIVOCONT R-500/R-600 with rod extended probe

Vibrating rod level switch for powders and granular solids with stainless steel rod extended probe up to 10 ft (3 m)

Versions

R	□	-	□	□	□	□	□	□
K	Standard version (110°C)							
H	High temperature version (160°C)							
S	Standard version (110°C) with fine polished probe							
T	High temperature version (160°C) with fine polished probe							

Process connection

R	□	-	□	□	□	□	□	□
R	1 1/2" BSP							
L	1 1/2" NPT							

Housing

R	□	□	-	□	□	□	□	□
5	Aluminium (paint coated)							
6	Plastic, PBT, glass fibre reinforced (not available in Ex version)							

Probe length

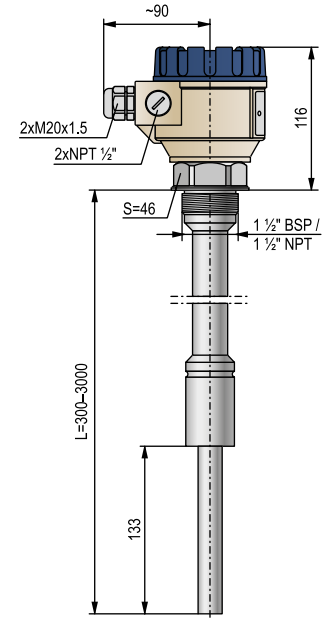
R	□	□	-	□	□	□	□	□
nn	0.3-0.5 m							
oo	0.6-3 m; each started 0.1 m							

nn = 03-05 : 0.3-0.5 m
oo = 06-30 : 0.6-3 m

Output / Approval

R	□	□	-	□	□	□	□	□
1	SPDT, potential free relay; 250 V AC, 8 A							
3	SPST, solid state output							
5	SPDT, potential free relay; 250 V AC, 8 A / Ex tD							

Need of IEC is to be specified with order



RKR / RKL-500 / 600

NIVOCONT R-500/R-600 with cable extended probe

Vibrating rod level switch for powders and granular solids
with PE coated stainless steel cable extended probe up to 65 ft (20 m)

Process connection

R K - -

K	1 1/2" BSP
C	1 1/2" NPT

Housing

R K - -

5	Aluminium (paint coated)
6	Plastic, PBT, glass fibre reinforced (not available in Ex version)

Probe length

R K - -

0 1	1 m
n n	2-20 m; each started 1 m

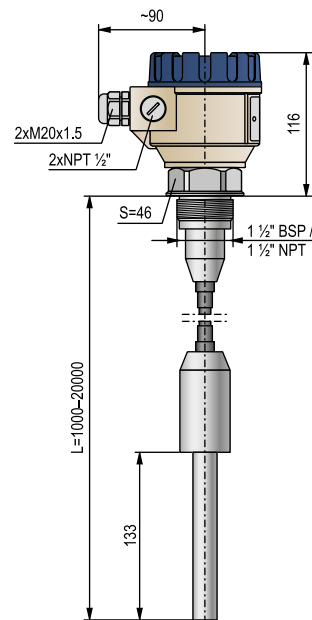
nn = 02-20 : 2-20 m

Output / Approval

R K - -

1	SPDT, potential free relay; 250 V AC, 8 A
3	SPST, solid state output
5	SPDT, potential free relay; 250 V AC, 8 A / Ex tD

Need of IEC is to be specified with order



RKK / RKC-500 / 600

NIVOCONT R-500/R-600 with custom extended probe

Vibrating rod level switch for powders and granular solids with custom rod extended probe up to 6.5 ft (2 m)

Versions

R	□	-	□	0	2	-	□
K	Standard version (110°C)						
H	High temperature version (160°C)						

Process connection

R	□	-	□	0	2	-	□
E	1 1/2" BSP						
F	1 1/2" NPT						

Housing

R	□	-	□	0	2	-	□
5	Aluminium (paint coated)						
6	Plastic, PBT, glass fibre reinforced						

Output

R	□	-	□	0	2	-	□
1	SPDT, potential free relay; 250 V AC, 8 A						
3	SPST, solid state output						

NIVOCONT R-500/R-600 with remote-mounted electronics

Vibrating rod level switch with electronics separated from the probe
Use the order code extension below after the standard order code of the device:

Special versions

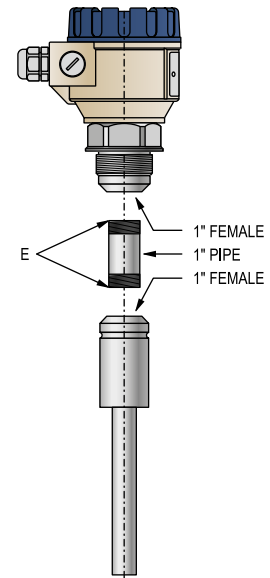
X09 5 seconds

Cable extension

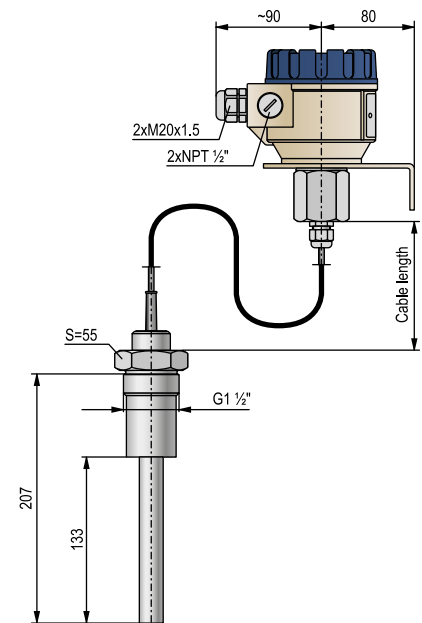
Max. 10 m; each started 1 m

Order example:

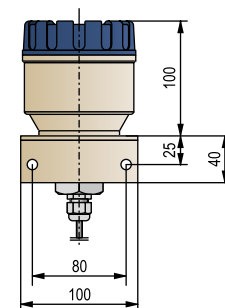
Remote-mounted version with standard probe and 3 m cable extension: RKH-502-1-X09/3m



RKE / RKF-500 / 600



RKH-500/600-X09



RKH-500/600-X09