Conductive Level Switch

for Liquids

measuring • monitoring • analyzing

NE-Series

- Multiple Setpoints Available
- Compatible with Corrosive Media
- Compatible with Dirty Media
- Highly Reliable
- Rigid Probe or Cable Versions
- Discrete Alarms or Latching Pump or Valve Control

Order from: C A Briggs Company
622 Mary Street; Suite 101; Warminster, PA 18974
Phone: 267-673-8117 - Fax: 267-673-8118
Sales@cabriggs.com - www.cabriggs.com

KOBOLD Instruments, Inc.
1801 Parkway View Drive
Pittsburgh, PA 15205

05/11-12-2020

Description

The KOBOLD NE-Series can be used to monitor the level of liquids with a minimum conductivity of 20 µS/cm. The device works by measuring the electrical resistance between a sensing electrode and a ground reference. Because the design has no moving parts, it handles difficult media; such as low density liquids, high viscosity liquids, or liquids with large quantities of particulates. It is available in a wide range of materials with electrodes in 316-Ti stainless steel, Hastelloy®C, or titanium. With compatible wetted parts, even concentrated acids may be measured. Up to six electrodes are available on the NE-Series, making a total of six set-points possible. A complete NE-Series level switch system consists of a ground reference, a sensing electrode, and a relay/power supply.

Ground Referencing Electrode

The basic NE can monitor a single set-point by utilizing a single sensing electrode, if an electrically conductive container is used as a ground reference. The system is grounded via the stainless steel process fitting or by using a direct wire connection from the tank wall to the power supply relay. If the container is not conductive or uses a polypropylene or PTFE fitting, the second electrode is necessary for a ground reference. For all applications, a grounding reference electrode is recommended.

Sensing Electrode

One electrode is required per sensing point. The length of the electrode or cable depends on the desired sensing point. To avoid electrical bridging, most of the electrode options are fully coated with a non-conductive cladding. The cladding is a complete coating which only leaves the last 1/4 inch exposed. Completely coated electrodes assure proper monitoring, even in the presence of mist formation and impure media.

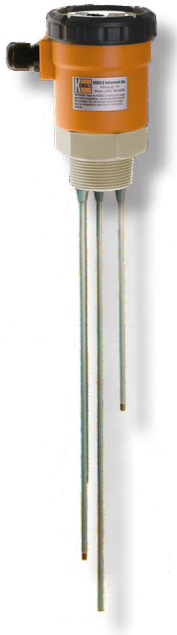
Electrode Relay/Power Supply

Operation requires one relay channel per function, alarm, or latch control. Two setpoint electrodes and a ground electrode must be connected to the relay unit to provide automatic control, such as latching tank fill and empty. The relay/power supply is available in either single or dual channel versions.

Single Rigid Electrode

Single Suspended Electrode

Multipoint Rigid Electrodes

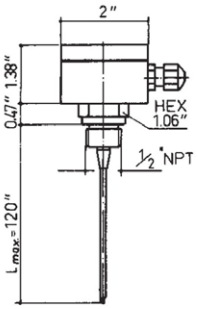


Multipoint Suspended Electrodes

Single Rigid Electrode Models

Housing Materials: Polycarbonate or Aluminum
Fitting: 1/2" NPT
Max. Temperature
Polyolefin Cladding: 190 °F
PTFE Cladding: 300 °F
With PP Fittings: 190 °F
Protection: IP 65

Max. Rod Length
SS: 120"
Titanium: 118"
Hastelloy®: 60"
Max. Pressure
PP Fitting: 220 PSIG
PTFE Fitting: 90 PSIG
SS Fitting: 440 PSIG



Order Details: (Example: **NEL-1EAP L=24"**)

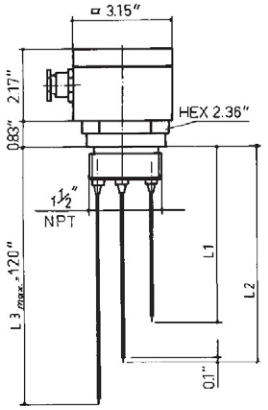
Model	Housing	Electrode Quantity	Electrode Material	Electrode Cladding	Fitting Material	Electrode Length
NE..	**..K-** = Polycarbonate 1.38" x 2.05" x 1.97" **..L-** = Aluminum 1.38" x 2.05" x 1.97"	**1..** = One	**..E..** = Stainless Steel **..H**[2]**..** = Hastelloy®C **..T**[2]**..** = Titanium	**..A..** = Polyolefin **..T..** = PTFE Partially-Clad (to 12") **..V..** = PTFE Fully-Clad	**..P**[1)3)] = PP **..E** = Stainless Steel **..F**[2] = PTFE	When Ordering Please Specify Length: **L =** _____"

1) Only with Stainless Steel Electrodes 2) Not with Polyolefin Cladding 3) Only with Polyolefin Cladding

Multipoint Rigid Electrode Models

Housing Materials: Polyamide or Aluminum
Fitting: 1-1/2" NPT
Max. Temperature
Polyolefin Cladding: 190 °F
PTFE Cladding: 300 °F
With PP Fittings: 190 °F
Protection: IP 65

Max. Rod Length
SS: 120"
Titanium: 118"
Hastelloy®: 60"
Max. Pressure
PP Fitting: 220 PSIG
PTFE Fitting: 90 PSIG
SS Fitting: 440 PSIG

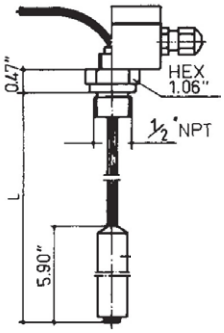


Order Details: (Example: **NEL-2EAP L=24" L2=36"**)

Model	Housing	Electrode Quantity	Electrode Material	Electrode Cladding	Fitting Material	Electrode Lengths
NE..	**..L-** = Aluminum 2.17" x 3.15" x 2.95" **..K-** = Polyamide 1.38" x 2.05" x 1.97"	**2..** = Two **3..** = Three **4..** = Four **5..** = Five **6..** = Six	**..E..** = Stainless Steel **..H**[2]**..** = Hastelloy®C **..T**[2]**..** = Titanium	**..A..** = Polyolefin **..T..** = PTFE Partially-Clad (to 12") **..V..** = PTFE Fully-Clad	**..P**[1)3)] = PP **..E** = Stainless Steel **..F**[2] = PTFE	When Ordering: Please Specify Length **L1 =** _____" (shortest) **L2 =** _____"...etc (to longest)

1) Only with Stainless Steel Electrodes 2) Not with Polyolefin Cladding 3) Only with Polyolefin Cladding

Single Suspended Electrode Models



Housing Materials: Polycarbonate, Aluminum
Fitting: 1/2" NPT
Max. Temperature
Neoprene* Cable: 140 °F
PTFE Cable: 300 °F

Max. Cable Length
Neoprene*: 100 feet
PTFE: 30 feet
Max. Pressure: 90 PSIG
Protection with Housing: IP 65

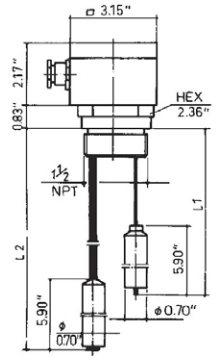
Order Details: (Example: **NEH-1HVFK L=24"**)

Model	Electrode Quantity	Electrode Material	Cable Cladding	Fitting Material	Housing Type	Electrode Length
NEH-	**1..** = One	**..E..** = Stainless Steel **..H**[2]**..** = Hastelloy®C **..T**[2]**..** = Titanium	**..N..** = Neoprene* Ø 0.23" **..V..** = PTFE Ø 0.08"	**..P**[1)3)]**..** = PP **..F**[2]**..** = PTFE	**..K** = Polycarbonate 1.38" x 2.05" x 1.97" **..L** = Aluminum 1.38" x 2.05" x 1.97" **..0** = Without (With 2 m Cable)	When Ordering: Please Specify Length **L =** _____"

1) Only with Stainless Steel Electrodes 2) Only with PTFE Cladding 3) Only with Neoprene* Cladding

* Material specification: rubber cladding according to HARH07RN-F standard, approval according to EN-50525-2-21

Multipoint Suspended Electrodes Models



Housing Materials: Polyamide, Aluminum
Fitting: 1-1/2" NPT
Max. Temperature
Neoprene* Cable: 140 °F
PTFE Cable: 300 °F

Max. Cable Length
Neoprene*: 100 feet
PTFE: 30 feet
Max. Pressure: 90 PSIG
Protection with Housing: IP 65

Order Details: (Example: **NEH-3ENPK L1=24", L2=48"**...etc)

Model	Electrode Quantity	Electrode Material	Cable Cladding	Fitting Material	Housing Type	Electrode Lengths
NEH-	**2..** = Two **3..** = Three **4..** = Four **5..** = Five **6..** = Six	**..E..** = Stainless Steel **..H**[2]**..** = Hastelloy®C **..T**[2]**..** = Titanium	**..N..** = Neoprene* Ø 0.23" **..V..** = PTFE Ø 0.08"	**..P**[1)3)]**..** = PP **..F**[2]**..** = PTFE	**..K** = Polycarbonate 1.38" x 2.05" x 1.97" **..L** = Aluminum 1.38" x 2.05" x 1.97" **..0** = Without (With 2 m Cable)	When Ordering: Please Specify Length **L1 =** ____" (shortest) **L2 =** ____"...etc (to longest)

1) Only with Stainless Steel Electrodes 2) Only with PTFE Cladding 3) Only with Neoprene* Cladding

* Material specification: rubber cladding according to HARH07RN-F standard, approval according to EN-50525-2-21

Electrode Relay/Power Supply

The NE level switch is powered by the NE-104x/304x relay/power supply. These provide a maximum or minimum set-point signal for use in controlling liquid levels. The NE-104 is a single channel controller and the NE-304 has two independent control channels.

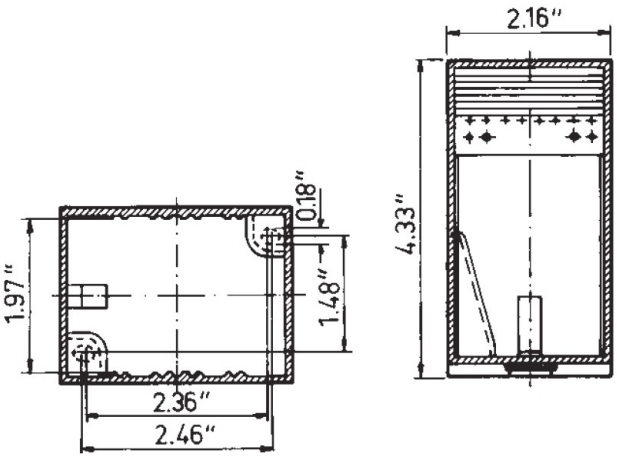
Technical Details: NE-104x, Single Control Channel

Power Supply:	230 V_{AC}, 110 V_{AC}, 24 V_{AC} ±15%, 50-60 Hz
Power Consumption:	2 VA
Max. Electrode Voltage:	10 V_{AC}
Max. Electrode Current:	0.5 mA
Sensitivity (Adjustable):	0-50 kΩ
Response Time:	Approx. 1 Second
Ambient Op. Temp:	-4...140 °F
Output:	1 SPDT Relay Max. 250 V_{AC} @ 5 A, 600 VA
Enclosure:	IP40, Makrolon®
Terminals:	IP 20
Installation:	Rail Mountability for DIN 46121 Rail

Technical Details: NE-304x, Dual Control Channels

Power Supply:	230 V_{AC}, 110 V_{AC}, 24 V_{AC} ±15%, 50-60 Hz
Power Consumption:	4 VA
Max. Electrode Voltage:	10 V_{AC}
Max. Electrode Current:	0.5 mA
Sensitivity (Adjustable):	0-50 kΩ
Response Time:	Approx. 1 Second
Ambient Op. Temp:	-4...140 °F
Output:	2 SPDT Relay Max. 250 V_{AC} @ 5 A, 600 VA
Enclosure:	IP40, Makrolon®
Terminals:	IP 20
Installation:	Rail Mountability for DIN 46121 Rail

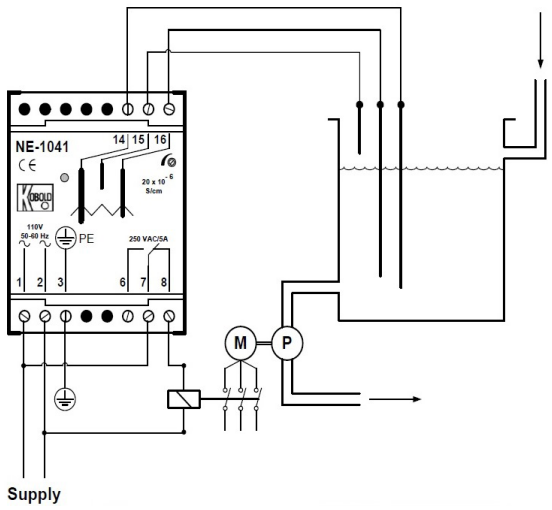
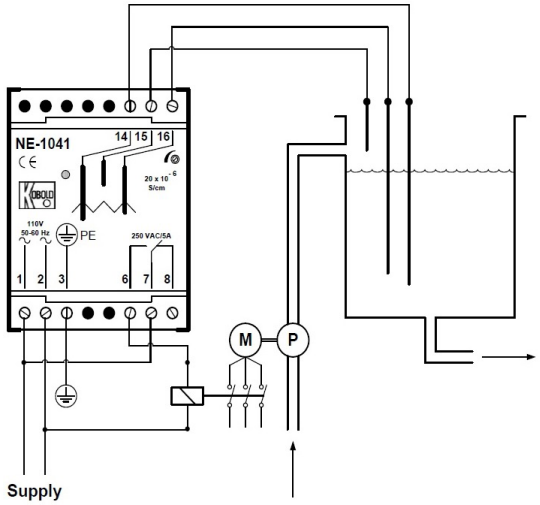
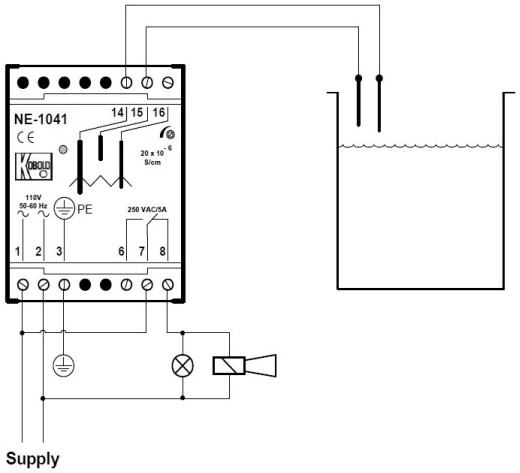
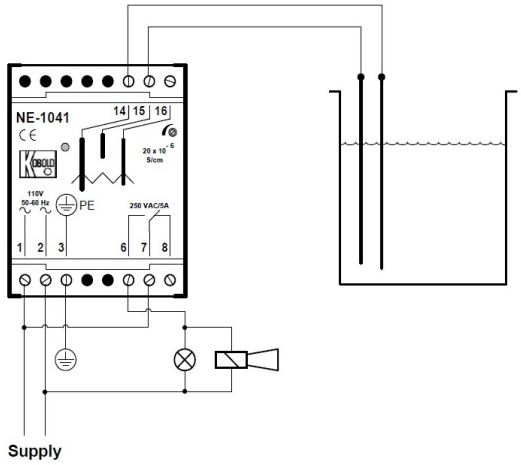
Dimensions



Order Details: (Example: **NE-1041**)

Power Supply	Number of Control Channels	
	1 Channel	2 Channels
230 VAC	**NE-1040**	**NE-3040**
110 VAC	**NE-1041**	**NE-3041**
24 VAC	**NE-1042**	**NE-3042**

Functionality Diagrams

Empty Container: Pump Down or Auto-Drain	Fill Container: Pump Up or Auto-Fill
	
Overflow Protection: High Level	**Minimum Level Protection: Low Level**
	

Note

The ground electrode at terminal 14 may be omitted if the container wall is conductive. Terminal 14 may then be connected directly to the container wall.