KOBOLD Instruments Inc.
1801 Parkway View Drive
Pittsburgh, PA 15205
PH: 412-788-2830
FAX: 412-788-4890
www.koboldusa.com

NEK Series

Conductive Level Switch

Precautions

- **User's Responsibility for Safety:** KOBOLD manufactures a wide range of process sensors and technologies. While each of these technologies are designed to operate in a wide variety of applications, it is the user's responsibility to select a technology that is appropriate for the application, to install it properly, to perform tests of the installed system, and to maintain all components. The failure to do so could result in property damage or serious injury.
- **Proper Installation and Handling:** Use a proper sealant with all installations. Never overtighten the sensor within its fittings. Always check for leaks prior to system start-up.
- **Wiring and Electrical:** Because this is an electrically operated device, only properly trained personnel should install and maintain this product. Be sure that the power supplied to the flow sensor is appropriate for the electronics version supplied. Electrical wiring of the sensor should be performed in accordance with all applicable national, state and local codes.
- **Temperature and Pressure:** The NEK is designed for use in application temperatures as indicated below. Operation outside these limitations will cause damage to the unit.
- **Material Compatibility:** The wetted parts for the various body materials are stated below. Make sure that the NEK is chemically compatible with the application liquids. While the sensor’s outer housing is liquid resistant when installed properly, it is not designed to be totally immersed. It should be mounted in such a way that the wiring does not normally come into contact with fluid.
- **Flammable, Explosive and Hazardous Applications:** The NEK is not an explosion-proof design. It should not be used in applications where an explosion-proof design is required.
- **Make a Fail-Safe System:** Design a fail-safe system that accommodates the possibility of sensor or power failure. In critical applications, KOBOLD recommends the use of redundant backup systems and alarms in addition to the primary system.

Specifications

Wetted Parts:

Housing:	PPS or Polypropylene
Electrodes:	316-Ti SS

Fitting Size:	3/4” NPT male

Max. Pressure:

PPS Body:	290 PSIG
Polypropylene Body:	87 PSIG

Temperature Range:

PPS Body:	-10°F to +185°F
Polypropylene Body:	-10°F to +140°F

Electrical:

Power Requirements:	18-29 VDC
Minimum Liquid Conductivity:	100 µs/cm
Switching Delay:	0.5 sec.

Switch Characteristics:

Open Collector:	N/O Dry, PNP or NPN depending upon model number 32 VDC, 100 mA maximum Short circuit protected
SPDT relay:	1 Amp max. @ 30 VDC
Cable:	6 Ft. PVC Jacketed
Electrical Protection:	NEMA 6 / IP68

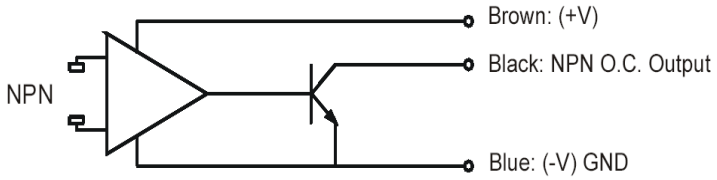
FM Rev. 12/13

Manual: NEK_manual_1213

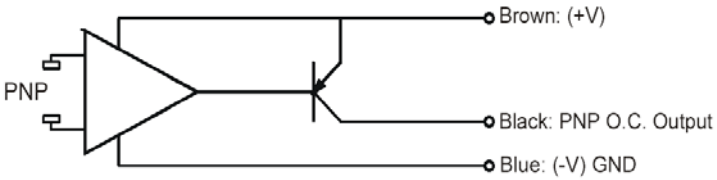
Part Number Decoding

Immersion Length	Switch Type	Body Material		Fitting	Cable
		PPS	Polypropylene		
1-1/2”	NPN Open Collector	NEK-1136	NEK-1236	N20 = 3/4” NPT	C = 6’ PVC Jacket
	PNP Open Collector	NEK-2136	NEK-2236		
	SPDT Relay	NEK-3136	NEK-3236		
3”	NPN Open Collector	NEK-1173	NEK-1273		
	PNP Open Collector	NEK-2173	NEK-2273		
	SPDT Relay	NEK-3173	NEK-3273		

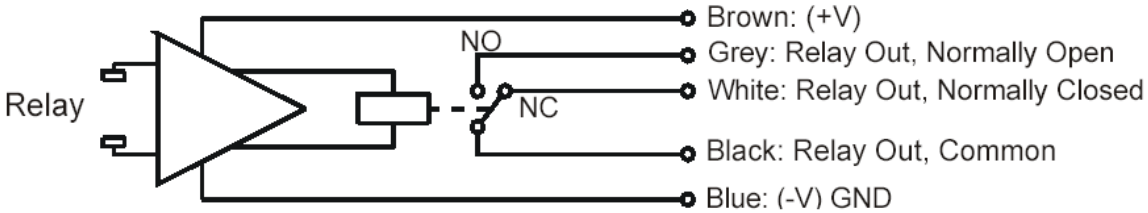
Electrical Connection for NPN Switch Output (NEK-1)



Electrical Connection for PNP Switch Output (NEK-2)



Electrical Connection for Relay Output (NEK-3)



Electrical and Mechanical Installation

Verify Service Conditions: Before installing, verify that the unit selected is chemically compatible with your process. Verify the maximum operating pressures and temperatures will not be exceeded. Ensure that the media is sufficiently conductive (>100 µs) for proper operation.

Mechanical Installation: The unit may be installed either from the tank top or side. Avoid any side loads, such as unsupported conduit boxes or conduit runs. Always use a proper thread sealant (PTFE tape is recommended). Do not overtighten the switch, as you may damage or crack the body. Verify that the installation is leak free and correct as necessary.

Electrical Installation: Verify that the correct voltage will be applied to the unit. Verify that the specified output is compatible with your control system or control device. De-energize any supply wires. Connect the wiring as shown in the appropriate diagram above.

CAUTION: THE SENSOR ELECTRONICS MAY BE DAMAGED IF THE WIRING IS INCORRECT OR VOLTAGE OR CURRENT LIMITS ARE EXCEEDED!

Operation: There are no adjustments possible, thus the devices are fully operational once installed and powered up. The LED signals the state of the level switch as follows:

<u>LED “Off”:</u>

No power to device

<u>LED “OFF” with short “ON” pulses:</u>

Power “ON”, switch inactive (i.e. electrodes “Dry”)

<u>LED “ON”</u>

Power “ON”, switch active (i.e. electrodes “Wet”)

Maintenance: There are no moving parts inside the device and thus is generally maintenance free. However, should the electrodes become contaminated with a non-conductive coating (such as oil or grease), the electrodes should be wiped with a clean cloth. Do not use any tools or chemicals that could damage the plastic housing.