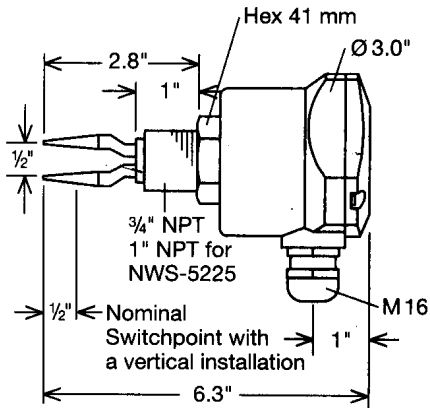


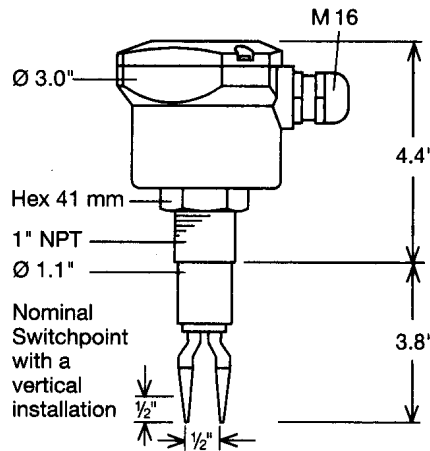


Series NWS Fork Level switch Installation/Operation Instructions

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



Insertion depth is 2 inches from the bottom of the threads



Insertion depth is 4 inches from the bottom of the threads

Description

KOBOLD's Series NWS is a compact, vibrating fork level switch which is suited for use with non-viscous and viscous liquids as well as many types of fine granular solids. The switch employs a forked probe which vibrates at a resonant frequency. When the probe is immersed in a medium, the resonant frequency is dampened. This frequency shift is sensed by a detecting circuit and results in activation of a solid state switch or SPDT relay depending on the model. The Series NWS can be configured either as a two wire or three wire controller and is switchable from a normally open to normally closed (wet-on or dry-on) switch function. Its solid state design uses no moving parts in the sensor or switch portions, making the switch exceptionally reliable.

Specifications

Power Requirements:

Two Wire Switching:	24 to 240 VAC/VDC 50-60 Hz.
Three Wire Switching:	24 VDC
SPDT Relay:	24 VDC or 110 VAC depending on model number

Solid State Switch Characteristics:

Max. Current:	500 mA.
Min. Current:	7.5 mA.
Leakage Current:	3 mA.
Voltage Drop:	2.5 Volts @ 500 mA. 5.0 Volts @ 20 mA. 10 Volts @ 7.5 mA.

SPDT Relay Characteristics: 10A @ 110 VAC,
5A resistive/2A inductive
@ 24 VDC

Switching Delay:

Wet to Dry:	500 mSec.
Dry to Wet:	50 mSec.

Fluid Temperature Range: -40 to 270°F

Max. Ambient Temp: 160°F with 200°F Fluid
120°F with 270°F Fluid

Max. Operating Pressure: 1000 PSIG @ -40 to 120°F
760 PSIG @ 120 to 270°F

Electrical Protection: NEMA 4/IP 65

Installation

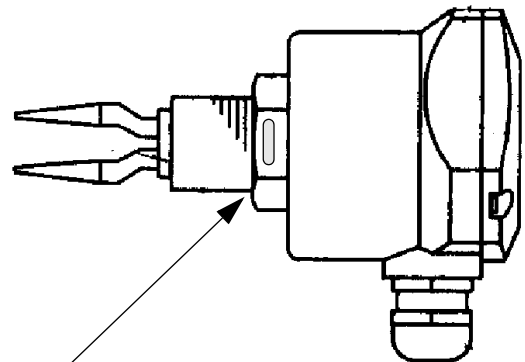
In order to ensure a leak tight seal, a thread sealant such as Teflon tape should be used on the probe threads prior to installation.

The NWS should be installed with the cable penetration facing downward. This will prevent water from settling into the cable gland thereby minimizing leakage into the electronics. After the unit is installed in its fitting the housing can be rotated to achieve the proper cable gland orientation

Special Note:

To ensure reliable operation, the series NWS should be installed in the vessel with the forks of the sensing probe in the three o'clock and nine o'clock position. The Installation nut on the NWS has a slotted positioning guide which can be used to ensure that the probe is installed in the proper position (See Fig. 2).

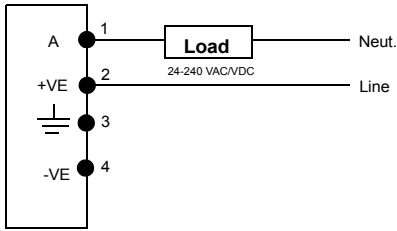
Fig. 2: Probe Orientation



The guide slot on the probe installation nut should be in the 12 O'clock or 6 O'clock position to ensure that the probe is properly oriented inside the tank

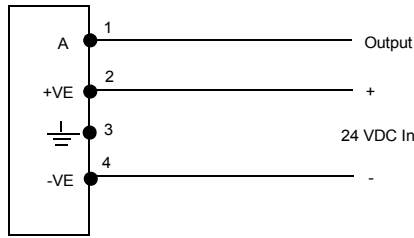
Electrical Connections

Fig. 3 Two Wire Connection



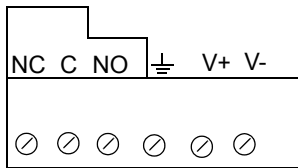
The two wire connection switches line voltage to the load device when switch is activated. The load device is connected in series with the NWS.

Fig. 4 Three Wire Connection



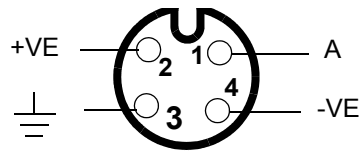
The three wire configuration switches 24 VDC to the output when the NWS is activated

Fig. 5 Wiring for Relay Output (R01 & R03)



NO = Normally Open Contact
 NC = Normally Closed Contact
 ⏏ = Safety Ground
 V+ = Power, 110 VAC or 24 VDC
 V- depending on model

Fig. 6 Plug Connector Pinout (option -M12) 24 VDC only



Color Codes on Mating Connector

White = 1 = A
 Blue = 2 = +VE
 Black = 3 = Ground
 Brown = 4 = -VE

Operation

Status Indicator
Flashing: Switch not activated (open switch)
Steady: Switch activated (closed switch)

Logic Selector Switch
 for normally open or
 normally closed operation

