

# BULLETIN 454

## INSTALLATION & OPERATION

### Model PAC-30U/PDC-30 Proximity Switches



The models PAC-30U and PDC-30 proximity switches are solid state point level devices used to detect the absence or presence of bulk solids. The compact configuration makes this product ideal for tight spaces or low cost level detection. As material comes in contact with, or in close proximity to, the PAC-30U or PDC-30, an internal solid state switch is activated. The PAC-30U is AC operated (20-265 VAC) and is universal in that it is switch selectable for either normally open or normally closed operation. The PDC-30 is DC operated (10-40 VDC) and is available in either PNP or NPN configuration, each of which can be wired in either a normally open or normally closed operation mode.

#### PRINCIPLE OF OPERATION

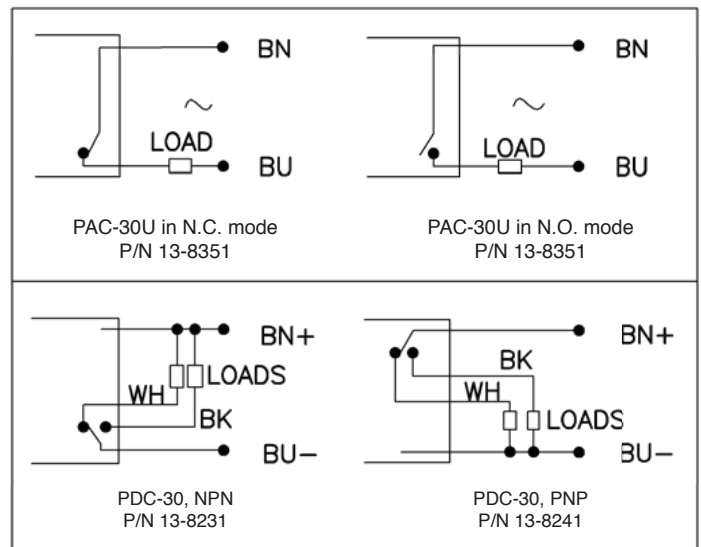
The PAC-30U and PDC-30 are RF capacitance-type level controls, which operate by detecting the electrical effect of the surrounding material such as air, plastic pellets or powders. A radio frequency is applied to the proximity switch sensing region and is continually analyzed to determine the influence of the surrounding environment. Since all materials have dielectric constants and conductance values that are different from that of air, the resultant impedance seen by the radio frequency changes whenever material approaches or contacts the sensing region. This influence is measured within the circuitry and compared with the reference point set by the sensitivity adjustment, which determines how much influence must be present before the output changes.

#### MECHANICAL INSTALLATION

All PAC-30U and PDC-30 proximity switches have the industry standard 30mm threaded housing. Mount switch in 31mm hole and secure in place with the two (2) lock nuts provided. See "Mechanicals" section.

#### ELECTRICAL INSTALLATION

Electrical installation should be performed utilizing the following diagrams. Incorrect wiring will prevent proper operation and could result in damage to the unit.



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## CALIBRATION

The following calibration techniques should be utilized. Be sure to utilize the procedure that corresponds to the particular proximity switch model.

### PAC-30U, Normally Open Mode:

- 1) With the sensor face exposed to air (no target material), turn the adjustment screw clockwise until the LED = ON.
- 2) Turn the adjustment screw CCW just until the LED = OFF, note position.
- 3) Place target material in front of sensor, LED = ON.
- 4) Rotate the adjustment in a counter-clockwise (CCW) direction just until the LED = OFF, note position.
- 5) Re-adjust the setting to the midpoint. The LED = ON.

### PAC-30U, Normally Closed Mode:

- 1) With the sensor face exposed to air (no target material), turn the adjustment screw clockwise until the LED = OFF.
- 2) Turn the adjustment screw CCW just until the LED = ON, note position.
- 3) Place target material in front of sensor, LED = OFF.
- 4) Rotate the adjustment in a CCW direction just until the LED = ON, note position.
- 5) Re-adjust the setting to the midpoint. The LED = OFF.

### PDC-30, NPN or PNP:

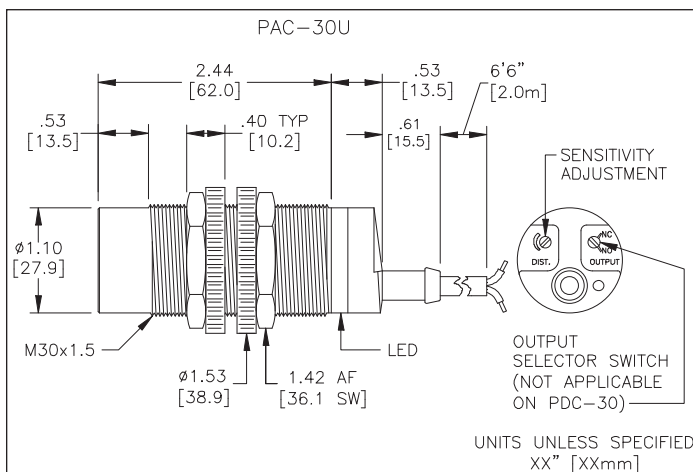
- 1) With the sensor face exposed to air (no target material), turn the adjustment screw clockwise just until both the OUTPUT & STABLE LED's are lit.
- 2) Turn the adjustment screw back CCW just until the OUTPUT LED goes out, note position.
- 3) Place target material in front of the sensor, the OUTPUT LED = ON.
- 4) Rotate the adjustment in a CCW direction just until the OUTPUT LED = OFF & STABLE LED = ON, note position.
- 5) Re-adjust the setting to the midpoint. The OUTPUT & STABLE LED = ON.

## WARRANTY

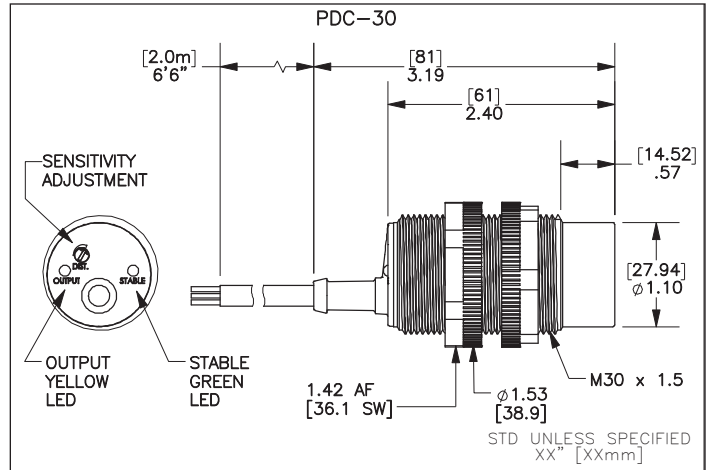
Monitor Technologies warrants each proximity switch it manufactures to be free from defects in material and workmanship under normal use and service within two (2) years from the date of purchase. The purchaser must notify Monitor of any defects within the warranty period, return the product intact, and pre-pay transportation charges. The obligation of Monitor Technologies LLC under this warranty is limited to repair or replacement at its factory. This warranty does not apply to any product which is repaired or altered outside of Monitor Technologies' factory, or which has been subject to misuse, negligence, accident, incorrect wiring by others, or improper installation.

## MECHANICALS

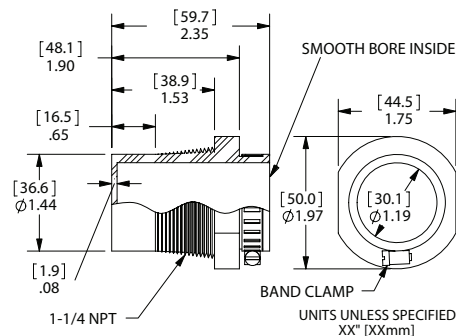
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### Mounting Well (Optional)



## SPECIFICATIONS

### Model PAC-30U

Housing:	Thermoplastic Polyester
Enclosure Protection:	IP67 (NEMA 4 equivalent)
Power Requirement:	20-265 VAC, 45-65 Hz
Mounting Thread Size:	M30 x 1.5
Sensing Distance:	4 to 25 mm adjustable
Indicator:	LED, yellow
Output:	Normally Closed or Normally Open, Switch Selectable
Leakage Current:	< 2.5 mA
Load Current:	10-500 mA
Frequency of Operating Cycle:	25 Hz
Operating Temperature:	-13° to 176° F (-25° to 80° C)
Max. Pressure:	1.4 psi
Max. Pressure (with mounting well):	125 psi
Electrical Connections:	Cable, 6ft (1.8m), 18-20 AWG
Approvals:	UL/CSA General Purpose; CE Mark

### Model PDC-30

Housing:	Thermoplastic Polyester
Enclosure Protection:	IP67 (NEMA 4 equivalent)
Power Requirement:	10-40 VDC
Mounting Thread Size:	M30 x 1.5
Sensing Distance:	0 to 25 mm adjustable
Output Indicator:	LED, yellow
Stable Indicator:	LED, green
Output:	13-8231, NPN (sinking) 13-8241, PNP (sourcing)
Consumption:	< 12.0 mA
Load Current:	0-200 mA
Frequency of Operating Cycle:	50 Hz
Operating Temperature:	-22° to 185° F (-30° to 85° C)
Max. Pressure:	1.4 psi
Max. Pressure (with mounting well):	125 psi
Electrical Connections:	Cable, 6ft (1.8m), 18-20 AWG
Approvals:	CE Mark

Both Models:



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