

# Installation Instructions for the Enclosed Basic Series Limit Switches

**Honeywell**

Issue 5  
**88173**

## **⚠ WARNING** **PERSONAL INJURY**

DO NOT USE these products as safety or emergency stop devices or in any other application where failure of the product could result in personal injury.

**Failure to comply with these instructions could result in death or serious injury.**

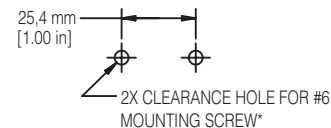
## GENERAL INFORMATION

- Honeywell's Enclosed Basic Series of Limit Switches are usable in many applications. The wide variety of actuators offered and their robust diecast housing make them ideal for applications that require reliable switching and performance. There are several styles of enclosed basic switches, including side and flange mounting switches as well high capacity and double pole type.
- Refer to switch labeling for applicable electrical ratings and certifications
- For technical product support, engineering drawings, technical data, and additional information for products from Honeywell's Enclosed Basic Series of Limit Switches please visit [sensing.honeywell.com](http://sensing.honeywell.com), or call the support numbers on the last page of this document.

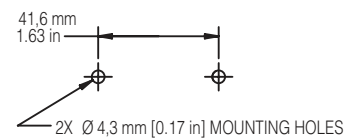
## MOUNTING

1. Mount switches on flat, rigid surface.

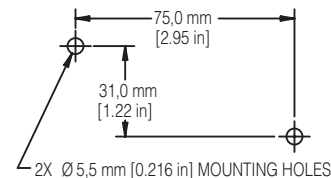
### E6 Side Mounting Pattern



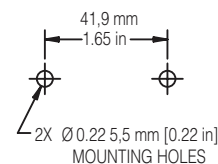
### V6 Flange Mounting Pattern



### G1 Side Mounting Pattern



### H1 Flange Mounting Pattern



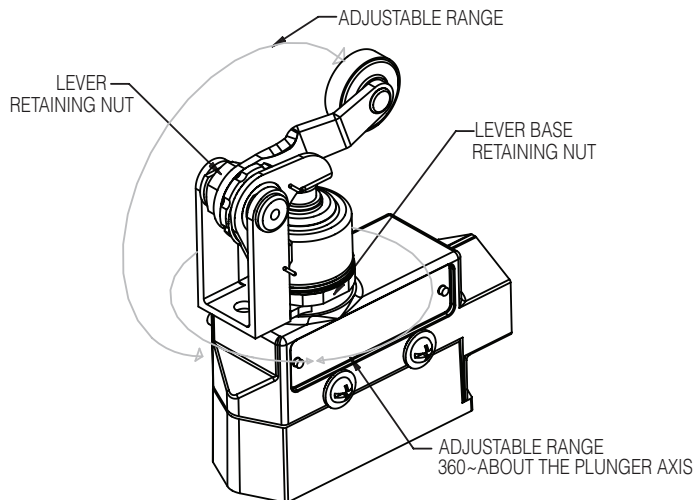
2. Boot-sealed and side-mounting switches use sealing washers under screw heads on the sides between switch and mounting surface on other side to maintain seal.
3. Unsealed, side mounting switches: Use lockwashers under screw heads on one side; under nut on other side.
4. Connect conduit to conduit opening. Apply conduit sealing if required by application.

## INSTALLATION TIPS

1. **Do not lubricate any internal part of the switch.** The internal switch does not require any additional lubrication
2. When installing the switch, ensure **that it is not the low point in the conduit run**. Doing so will ensure that condensation created in the conduit will not flow into the switch housing.
3. **Do not enlarge the mounting holes on side mounting switch.** Doing so will compromise the internal switching element's seal integrity.

## FIELD ADJUSTABLE ACTUATOR MODELS

Some enclosed basic switches are field adjustable. This includes models with the nomenclature "2RN2", "2RQ2", "2RN28", "2RQ28", "2RN62", "2RQ62", "RQ2X2", "RN2X1".



The lever can be adjusted in two ways. The following process details how to perform the adjustments.

### Adjusting the horizontal position of the lever.

1. Loosen the lever base retaining nut, so that the lever assembly is free to rotate about the axis of the plunger.
2. Rotate the lever to the desired position. The lever is adjustable 360 degrees about the axis.
3. Once the desired position is reached re-tighten the lever base retaining nut. The lever base should not be able to rotate when properly tightened.

### Adjusting the vertical position of the lever.

1. Loosen the lever retaining nut, so that the lever freely rotates.
2. Set the position of the lever to the desired position. Roller levers should be positioned so that they are able to actuate the plunger.
3. Once the desired position is reached re-tighten the lever retaining nut. When pushed the lever should act upon the lever mechanism to actuate the switch.

## N18 TYPES

If actuator or basic switch is replaced, the actuator may need adjustment to duplicate original switch operating point. To adjust operating point, remove lower seal band from base of seal boot. "Peel back" seal boot to expose bushing. With basic switch **unoperated**, slowly turn bushing clockwise until basic switch operates. **Do not turn further after operating click is heard.** Turn bushing back 1/2 turn. Tighten jam nut on bushing.

## MAINTAINED CONTACT (RESET) MODELS

Listings with an "X" in their part number are maintained contact switches. These switches remain actuated after the operating force on either plunger has been applied. The actuated plunger will "reset" when the opposing plunger is actuated.

NOTE: The top plungers (the plungers on the stationary portion of the housing) provide more accurate and uniform operation than the "reset" plungers and should be used when closely held operating characteristics are required.

### Vertical Adjustment Range

N2 & Q2 - Roller lever	225°	To adjust: loosen hex nut, adjust arm to desired position, tighten hexnut.
N4 & Q4 - Hand op.	180°	
N62 & Q62 - Rod lever	225°	
N28 & Q28 - One way	180°	

1. One lever arm serration: 8.18°.
2. One serration of lever arm and fluted washer as a unit: 8°.
3. One serration of lever arm with one serration of fluted washer in opposite direction: 0.18°.

## LUBRICATING INSTRUCTIONS for Roller Plunger Switches only (N80, N81, Q8, Q9, Q81)

For maximum life, periodically put a drop or two of lightweight oil on the roller. Specific application conditions will determine lubricating frequency.

## WIRING

- Honeywell's Enclosed Basic Switches have internal terminals that allow for easy wiring and integration.
- If a side mounting switch is being wired it is possible for the switch to be mounted in place before wiring takes place. If a flange mounting switch is being used it is likely that the switching and actuator assembly will need to be wired before mounting switch.

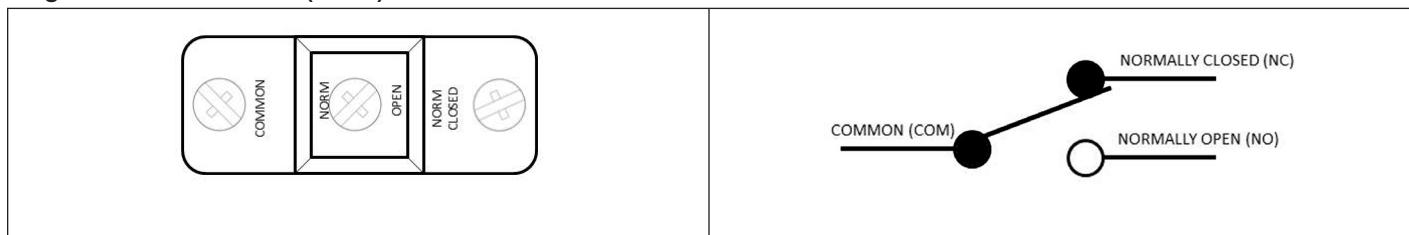
The enclosed basic series switch will have one of two contact forms available. They will either have a single pole double throw (SPDT) or a double pole double throw (DPDT) arrangement. The SPDT uses three terminals to wire a set of Common (C), Normally Open (NO), and Normally Close (NC) contacts.

- Remove the cover or the flange base by loosening the two screws that secure it.

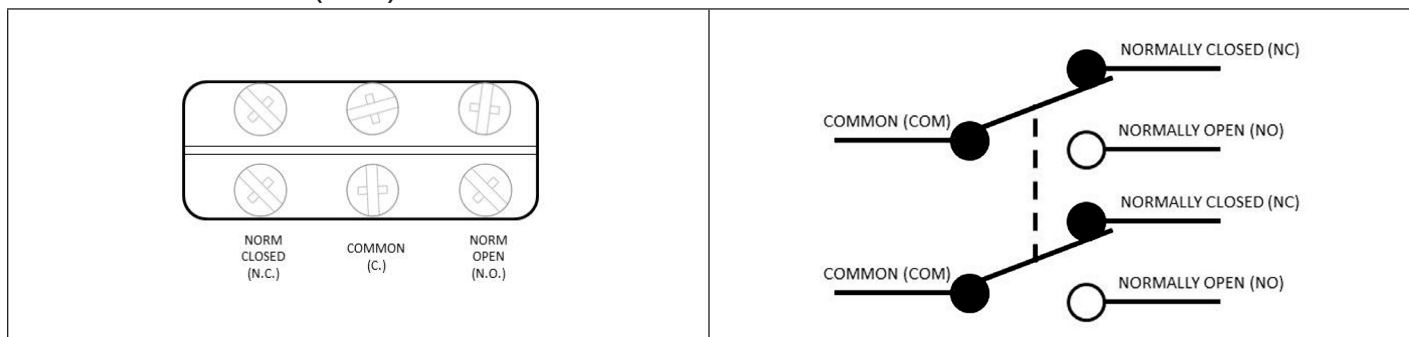
- Once the cover of the flange base is removed the switch terminals will be exposed. Switch terminals will be labeled according to the contact they connect to. Please refer the terminal layout section for more information on circuit diagrams and terminal screw layout.
- Connect wire to terminals by loosening terminal screws, looping wire around the terminal screw shaft, and inside of the cup washer on SPDT models or looping wire around the terminal screw shaft and underneath locking washer on DPDT models. Then retighten terminal screws ensuring wires and connections are made.
- Grounding Terminal, enclosed basic switches have an internal grounding screw mounted inside the removable cover or flange base.
- Replace cover or flange base and retighten cover screws

## Standard Enclosed Basic Switch Terminal Layout

### Single Pole Double Throw (SPDT)



### Double Pole Double Throw (DPDT)



## REPLACEMENT PARTS AND ACCESSORIES

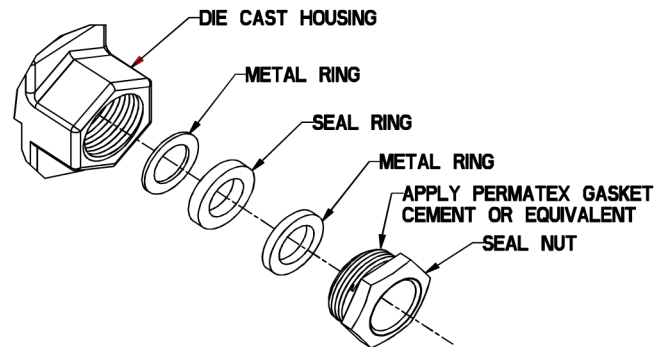
Basic switch: order according to catalog listing on basic switch being replaced. Replacement packet includes basic switch, mounting hardware, seal boot and bands where required.

### Actuators or Accessories

Part	Listing
N2 actuator (roller lever)	6PA2
Q2 actuator (roller lever)	6PA1
N28 actuator (one-way roller lever)	6PA16
Q28 actuator (one-way roller lever)	6PA41
N62 actuators (rod lever)	6PA140-E6
Q62 actuators (rod lever)	6PA62
N4 actuators (manual button)	6PA9
Q4 actuators (manual button)	6PA7
N18 actuators (spring)	6PA195
N18 actuators (spring and bushing)	6PA187-E6
Conduit seal	2PA1 2PA6 2PA16
Seal boot (black elastomer)	10PA2
Seal boot (orange silicon)	10PA1
Bottom cover E6	3PA13-E6
Bottom cover V6	3PA14-V6
Pilot light for BZG/H	15LT1

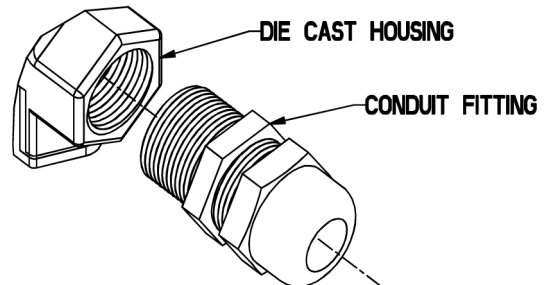
### Conduit Sealing Packets

Packet Listing	Cable O.D.
2PA6	10,2 mm to 11,1 mm [0.400 in to 0.435 in]
2PA16	11,1 mm to 12,0 mm [0.435 in to 0.470 in]
2PA1	13,5 mm to 14,5 mm [0.530 in to 0.570 in]

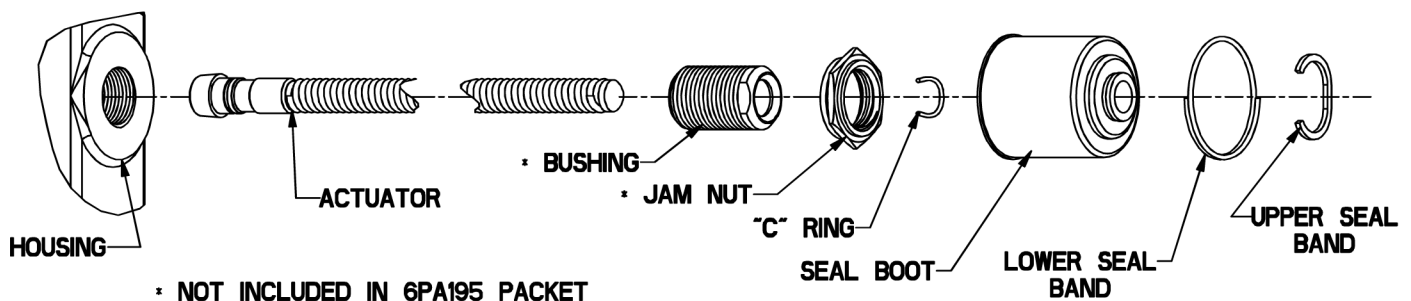


### Liquid Tight Conduit Fitting

Packet Listing	Cable O.D.
2PA17	4,3 mm to 12,0 mm [0.170 in to 0.470 in] 1/2 NPT



### 6PA187-E6 ACTUATOR PACKET



## WARRANTY/REMEDY

Honeywell warrants goods of its manufacture as being free of defective materials and faulty workmanship. Honeywell's standard product warranty applies unless agreed to otherwise by Honeywell in writing; please refer to your order acknowledgement or consult your local sales office for specific warranty details. If warranted goods are returned to Honeywell during the period of coverage, Honeywell will repair or replace, at its option, without charge those items it finds defective. **The foregoing is buyer's sole remedy and is in lieu of all other warranties, expressed or implied, including those of merchantability and fitness for a particular purpose. In no event shall Honeywell be liable for consequential, special, or indirect damages.**

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