

## Technical Service Bulletin:

# Heat Pump - Flow Proving Switch / Differential Pressure Switch (DPS)

Models: All Water Source Heat Pumps



# BOSCH

## Introduction

The Flow Proving Switch/Differential Pressure Switch (DPS) is an adjustable switch found on the water source heat pump that allows for various flow conditions. The switch functions by preventing or stopping compressor operation should the water supply fail. This will prevent the unit from locking out on a safety requiring a manual reset or restart of the unit. The switch is internally mounted and is piped in between the water entering and leaving connections. Should the pressure drop across the water to refrigerant heat exchanger and fall below the set value, the switch will open de-energizing the compressor. The blower operation is not affected by the switch opening.



Figure 1 Flow Proving Switch/Differential Pressure Switch (DPS)

## Operation

The adjustable switch is set to close at  $1.5 \pm 0.2$  PSID on increasing differential pressure. The switch can be re-adjusted by loosening the two adjustment screws and sliding the switch assembly.

When facing the device with the high port to the left, sliding the switch to the left will decrease the DP set point. Re-tighten the switch adjust locking screws while applying light pressure to the assembly and keep it from rotating/shifting.

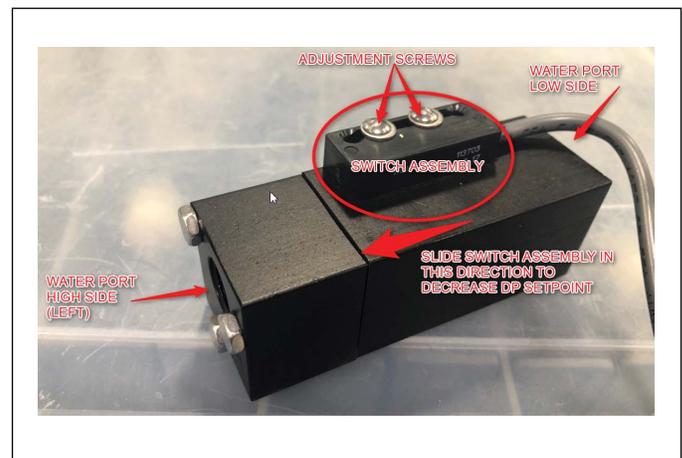


Figure 2 Decreasing DP Setpoint

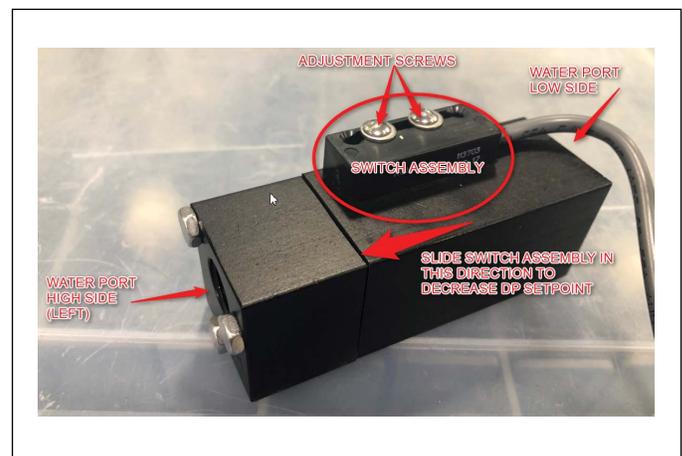


Figure 3 Increasing DP Setpoint

The 1.5 PSID on increasing set point is near the minimum set. If you try to reduce the setpoint on increasing too much, then there is risk that the switch may never deactivate on decreasing pressure.

The spring is specified to have a range of 3.5 PSID. There should be enough adjustment to increase the set point to near 3.5 PSID (nominal). The spring has about a 10% rate tolerance, therefore the max set point could be roughly 3.2 to 3.8 PSID from unit to unit.

The slots on the switch are long enough to adjust beyond the full travel of the internal magnet. Therefore if you slide the switch to increase the setpoint (away from the hi port) too far, it may not activate.



Always verify the operation of the DP several times after adjustment to make sure that the device is activating and deactivating accordingly to the submitted water pressure drop.



For applications where the DP falls outside the 1.5-3.5 PSI adjustment range it is permitted to use a different DPS with an adjustment range that better fits the application if required.

**NOTICE:**

- ▶ For units where the total DP for the rated water flow exceeds the max 3.5 DP setpoint, the device will only recognize when there is a loss of water flow that translates into a DP that is below the selected DP setpoint causing the contact on the switch to open.

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