

# Copeland ZX\*E & ZXDI refrigeration units

## PS1 Low-pressure switch – Kit assembly instructions

### 1 Safety statements

- Only qualified and authorized HVACR or refrigeration personnel are permitted to install this equipment.
- Electrical connections must be made by qualified electrical personnel.
- It must be ensured that the system is not pressurized during installation.
- The main switch must be turned off during installation.

### 2 Introduction

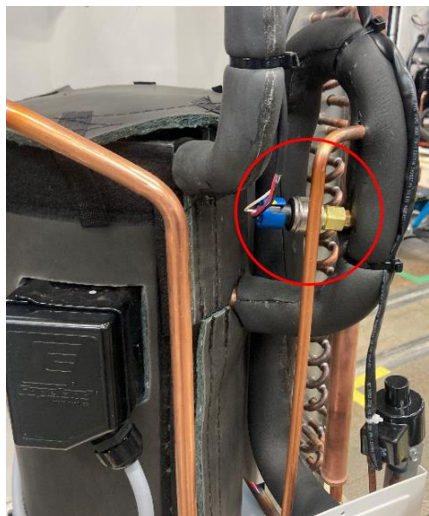
This document describes how to mount the PS1 low-pressure switch kits with ident numbers 3302567, 3302578 and 3302589 on a ZX\*E or ZXDI refrigeration unit. The PS1 protects the system against low-pressure operation. The parts included in the PS1 kits are listed in **Table 1** below.

Item	Part	Quantity
1	Gasket flare 5x9.3 cu	3
2	Flex line	1
3	Elbow fitting flex line	2
4	Cable strap	4
5	T-adapter	1
6	Cable for PS1	1
7	Low-pressure switch PS1	1
8	Bracket	1
9	Screw-self tapping	2
10	Screw-panhead w/l washer	2
11	Depressor-Schraeder valve	1
12	Assembly instructions	1

**Table 1: Parts of the PS1 kits**

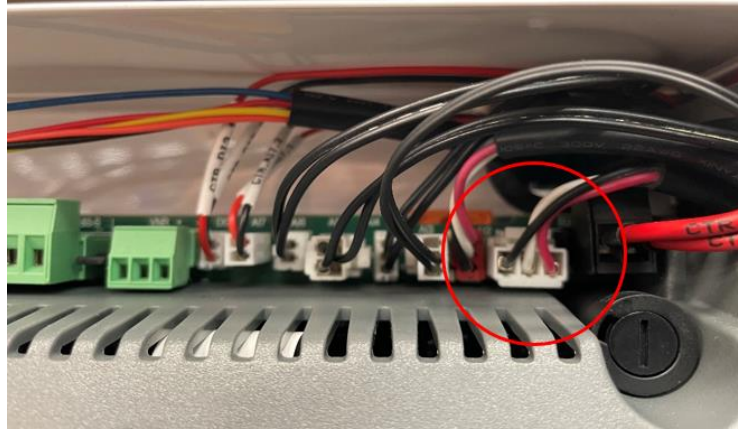
### 3 Assembly instructions

- 1) Disassemble the low-pressure transducer (shown in **Figure 1** below) from the suction line.



**Figure 1: Low-pressure transducer on the suction line**

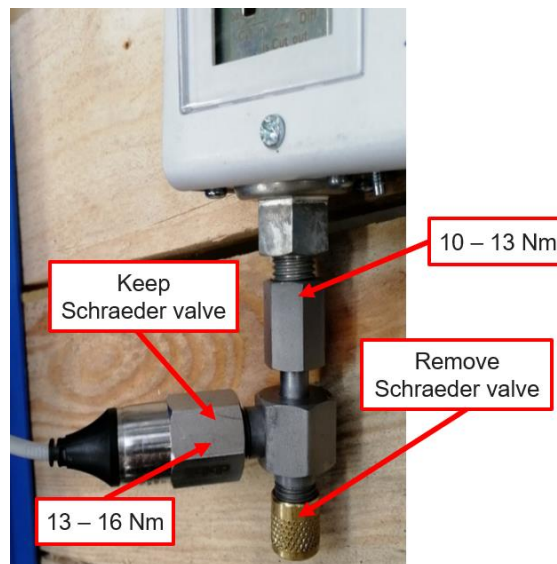
- 2) Disconnect also the low-pressure transducer from the unit controller (**Figure 2**). This is recommended in order to facilitate the mounting of the low-pressure transducer to the low-pressure switch.



**Figure 2: Connector of low-pressure transducer on ZX\* unit controller**

- 3) Connect the low-pressure transducer to the low-pressure switch (PS1) using the T-piece included in the kit. The Schraeder valve must be kept inside the T-piece. Use a gasket and oil for the connection between low-pressure transducer and T-piece.
- 4) Remove the cap and the Schraeder valve at the bottom of the T-piece. Do not keep the Schraeder valve on this connection.

**Figures 3 & 4** below show a close-up of the connection between the low-pressure transducer and the PS1.



**Figure 3: Connection between low-pressure transducer and PS1**

A 45° angle is recommended between the low-pressure transducer and the PS1 to allow the assembly to fit inside the ZX\* unit – see **Figure 4**.



**Figure 4: Angle of 45° between low-pressure transducer and PS1**

- 5) Mount the bracket to the base plate of the ZX\* unit using the screws included in the kit. Use the two pre-drilled holes in the front right corner of the base plate to fasten the bracket – see **Figure 5**.



**Figure 5: Bracket on the base plate of the ZX\* unit**

- 6) Connect the PS1 to the bracket as per **Figures 6 & 7** below.



**Figure 6: PS1 connected to the bracket**

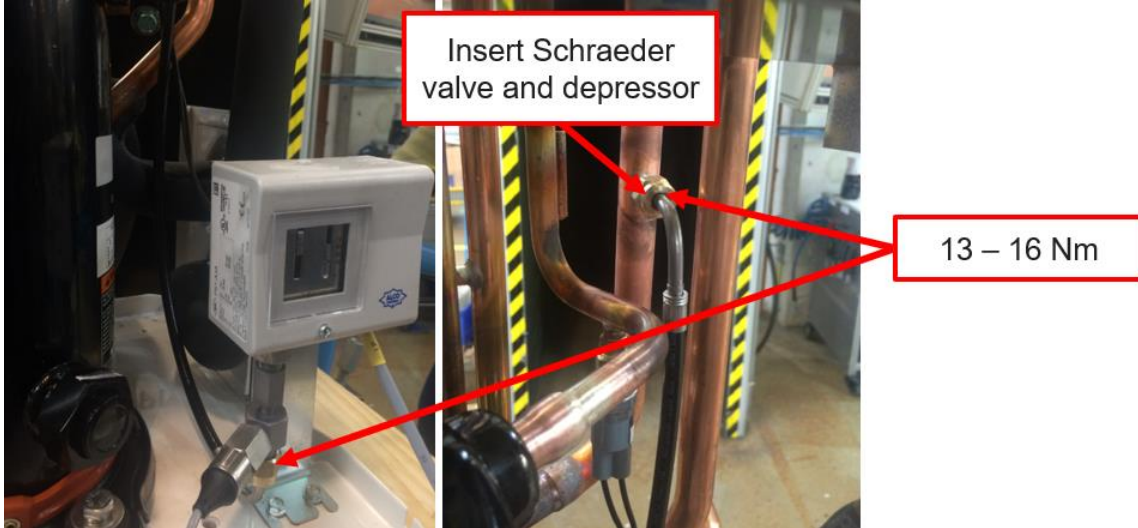


**Figure 7: Assembly (front view)**

- 7) Connect the T-piece on the PS1 to the suction line with the supplied flex line. Use gaskets and oil for each connection.
- 8) Insert and tighten a Schraeder valve for the connection on the suction line.
- 9) Insert a depressor into the flex line as well.

**NOTE: The tightness of all the connections must be checked prior to starting the unit.**

Figure 8 below shows the complete assembly.

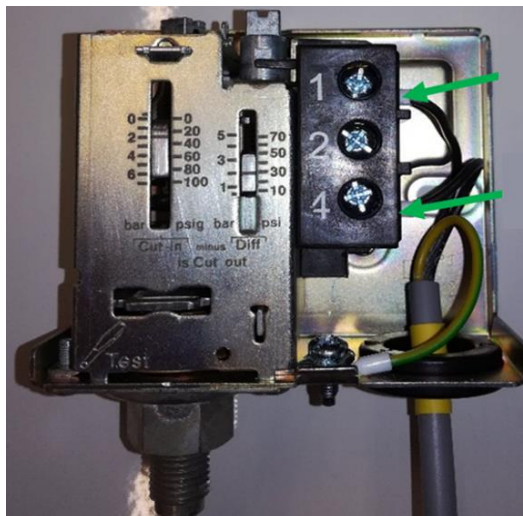


**Figure 8: Assembly between PS1 and suction line**



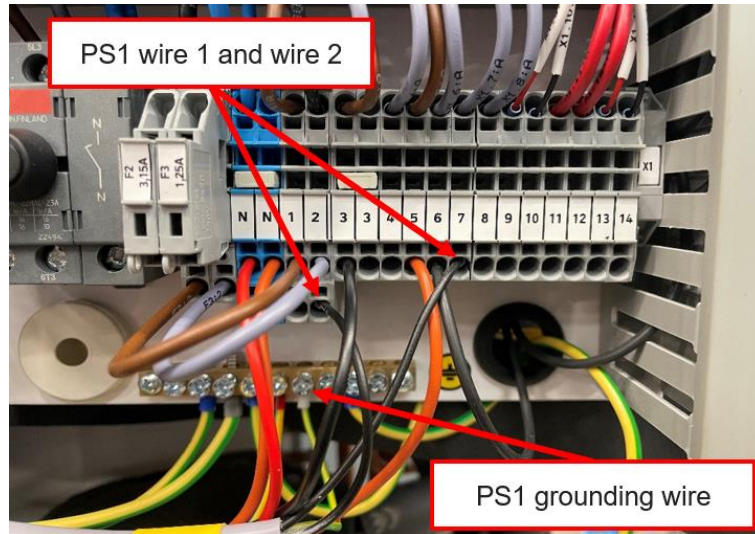
**Figure 9: Depressor for the flex line**

- 10) The electrical connection between the PS1 and the controller is made via a three-wire cable as shown in **Figure 10**. Connect one wire to terminal 1 on the PS1, the second wire to terminal 4.
- 11) Connect the PE wire to the PS1 as per **Figure 10**.



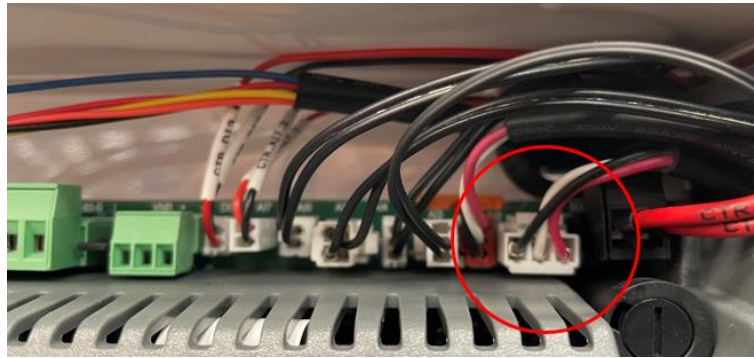
**Figure 10: Electrical connections on the PS1**

- 12) Connect the three-wire cable from the PS1 to terminals X1.2 and X1.7 and to the PE terminal on the ZX\* unit as shown in **Figure 11**.



**Figure 11: Terminals on the ZX\* unit**

- 13) Re-connect the low-pressure transducer to the ZX\* unit controller. Ensure the low-pressure transducer cable and the PS1 cable do not touch hot surfaces under any circumstances.



**Figure 12: Connector of low-pressure transducer on ZX\* unit controller**

- 14) Set parameters R01 and R02 on the unit controller to integrate the PS1 function:
- R01 → "4 - Low pressure safety input"
  - R02 → "0-oP"

**NOTE:** The PS1 low-pressure switch is an adjustable device. The cut-out and cut-in pressures must be adjusted based on running conditions and potential special requirements like pumpdown. A separate gauge must be used for exact adjustment of the setpoints. The integrated display scale of the PS1 can only be used for obtaining approximate settings. When changing the upper setpoint, the lower setpoint must be re-checked. The compressor envelopes published in Copeland Select software must be respected at all times.

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