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K183 DEHUMIDIFICATION RELAY KIT

K183 DEHUMIDIFICATION RELAY KIT (26W62 [LB-113801A]) INSTALLATION INSTRUCTIONS USED WITH CB27UH & CBX27UH UNITS

General Product Description

This relay kit is used with the CB27UH and CBX27UH units to obtain dehumidification mode using the *SignatureStat*™ thermostat.

When the system is calling for cooling and for dehumidification at the same time, the K183 relay causes the indoor blower to operate at a lower-than-normal speed. Effectively, the **decrease** in blower speed results in an **increase** in the amount of moisture being removed from the air.

Shipping and Packing List

The following items are included in the kit:

Relay (43G4901) - includes wires connected to relay

(2) #6-32 x 3/8” mounting screws (P-8-6984)

Dehumidification Operation

Operation Sequence

1. If there is no dehumidification demand when 24 volts is applied to the system, the *SignatureStat*™ thermostat will send 24 volts to the K183 dehumidification relay coil. The normally-open relay contacts 5 and 9 will close and contacts 1 and 9 will open.
2. If the total system static is higher than 0.49 in. w.g., a higher indoor blower speed may be needed to satisfy supply air requirements.
3. The lower the indoor blower speed during dehumidification demands, without freezing the indoor coil, the better moisture removal. In Humiditrol® applications, this lower speed will increase the temperature rise on the Humiditrol® coil.
4. When more than one motor tap is energized, built in logic gives the highest speed tap precedence.
5. On a dehumidification call, the *SignatureStat*™ thermostat will remove 24 volt output from the “D” terminal; the “Y2” terminal (if available) becomes activated with 24 volts. This will de-energize K183 dehumidification relay and output 24 volts from Y2.

NOTE - For any of the following configurations, refer to figure 1 for proper system indoor blower fan speed tap selection.

Single Stage Systems

Y1 cooling demand from the room thermostat with no dehumidification demand—24 volts passes to the Y1 terminal on the coil blower. The factory jumper from Y1 and Y2 will direct the 24 volt signal through the closed set of contacts to the selected indoor blower cooling speed (factory set on Tap # 3 - white wire). Systems with total system statics between 0.50 and 0.80 in. w.g. may require a motor speed change.

Y1 cooling demand with dehumidification demand—K183 relay de-energizes. Contacts 5 and 9 open and isolate the cooling tap speed on the motor from the system. The room thermostat will still be calling for a Y1 demand, so 24 volts will still output from the Y1 and G terminals. The Y1 signal (factory jumpered to Y2 on the indoor unit's 24 volt terminal strip) will be isolated from the indoor blower motor by the opening of contacts 5 to 9 but the G signal will still be able to provide 24 volt power to the continuous indoor blower speed (factory set on Tap # 1 - green wire). Systems with total system statics between 0.50 and 0.80 in. w.g. may require a motor speed change.

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Two Stage Systems

NOTE - Factory jumper wire between Y1 and Y2 on the indoor unit 24 volt terminal strip must be removed for two-stage systems.

Y1 cooling demand from the room thermostat with no dehumidification demand—24 volts passes to the Y1 terminal on the coil blower. The Y1 demand will be isolated from the cooling tap speed on the indoor blower motor by removal of the jumper between Y1 and Y2 on the indoor unit's terminal strip on systems where the total system static is less than 0.50 in. w.g. The room thermostat outputs Y1 and G on a Y1 demand. The G signal from the room thermostat will still provide 24 volt power to the continuous indoor blower speed (factory set on Tap # 1 - green wire).

Systems with total system statics between 0.50 and 0.80 in. w.g. will require the yellow wires from the K183 relay terminal 1 to be connected to Y1 on the unit's indoor terminal strip and Tap # 2 (yellow from the indoor blower motor). The Y1 input from the indoor unit will allow the indoor blower motor to run on Tap # 2 - yellow wire.

The G signal from the room thermostat will still provide 24 volt power to the continuous indoor blower speed (factory set on Tap # 1 - green wire).

Y2 cooling demand from the room thermostat with no dehumidification demand—24 volts passes to the Y2 terminal on the coil blower. The Y2 demand will pass through closed relay contacts 5 and 9 to the selected indoor blower cooling speed (factory set on Tap # 3 - white wire). Systems with total system statics between 0.50 and 0.80 in. w.g. may require a motor speed change.

Y1 or Y1/Y2 cooling demand with dehumidification demand—K183 relay de-energizes and the room thermostat Y2 energizes. K183 relay contacts 5 and 9 will open and isolate the cooling blower speed on the motor from the system. The room thermostat will still be calling for a Y1, Y2, and G demand, so 24 volts will still be output to the terminal strip in the indoor coil blower. Y1 is not wired to the K183 relay, Y2 will send 24 volts through the K183 relay 9 to1 closed contacts to the yellow wire that is not connected to the motor in systems where the total system static is less than 0.50 in. w.g. The G signal will still provide 24 volt power to motor Tap # 1 - Green wire. Indoor blower motor will run on Tap # 1 - Green wire. Systems with total system statics between 0.50 and 0.80 in. w.g. may require a motor speed change.

Systems with total system statics between 0.50 and 0.80 in. w.g. will require the yellow wires from the K183 relay terminal 1 to be connected to Y1 on the unit's indoor terminal strip and Tap # 2 - yellow from the indoor blower motor. The Y1 input from the indoor unit will allow the indoor blower motor to run on Tap # 2 - Yellow wire. The Y2 demand will go through K183 relay contacts 9 to 1 to indoor blower motor speed Tap # 2 - Yellow wire. The G signal will still provide 24 volt power to motor Tap # 1 - Green wire. The indoor blower motor will run on Tap # 2 - Yellow wire.

Installation

The K183 dehumidification relay may be installed in one of four possible configurations shown in figure 1. The following steps are keyed to circled numbers in figure 1.

1. ALL configurations – Mount the relay onto the plate next to the terminal strip (TB1) with the two provided screws.
2. Configure Y1-Y2 Jumper in one of two ways:
   Single-stage configuration – leave Y1-Y2 Jumper IN;
   Two-stage configuration – remove Y1-Y2 jumper.
3. ALL configurations – Disconnect speed Tap #3 wire (white) from the Y2 terminal on the TB1 terminal block.
4. Connect white lead from relay terminal 5 to one of the speed taps:
   0.10 - 0.49 in w.g: motor speed Tap #3 white lead OR,
   0.50 - 0.80 in w.g: motor speed Tap #5 brown lead.
5. ALL configurations – Connect the blue lead from relay terminal 9 to Y2 terminal on the TB1 terminal block.
6. ALL configurations – Connect the purple lead from the relay coil terminal 13 to DS on the TB1 terminal block.
7. ALL configurations – Connect the black lead from the relay coil terminal 14 to the common terminal on the TB1 terminal block.
8. 0.50 - 0.80 in w.g ONLY: – Connect the yellow lead from relay terminal 1 to the speed Tap #2 yellow lead from the motor.
9. 0.50 - 0.80 in w.g two-stage ONLY: – Connect second yellow lead from relay terminal 1 to Y1 on the TB1 terminal block.

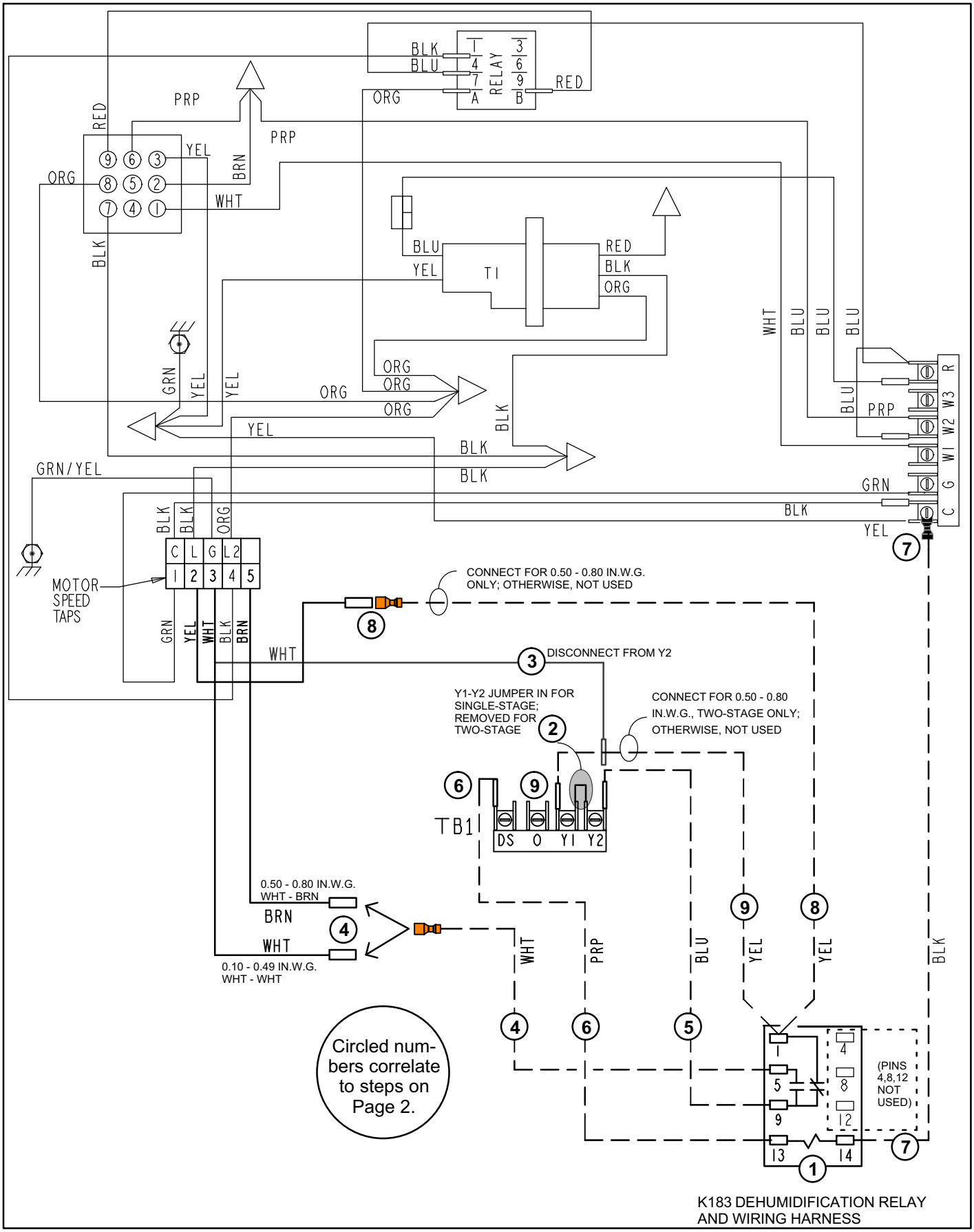

Figure 1. Connecting K183 Dehumidification Relay to CB27UH & CBX27UH Air Handler