



TRACENOTE #8 920 HTC TempBus™ Wiring

The TempBus™ feature of the DigiTrace 920 Series Heat Tracing Controller allows multiple controllers (within the same panel) to share the temperature information from one or two ambient sensing RTD(s). This feature, included in all 920 Series controllers with firmware versions of v3.11 or greater, is used for “ambient” temperature control (and is not intended for “line sensing” control, unless you want to share the temperature reading from one line with multiple controllers).

One control point of a 920 Series controller (the “Master”), reads its temperature from one (or both) of its temperature sensor inputs. It then transmits its temperature reading along the “bus”, to any controller that has been configured for TempBus™ operation (the “Slave” controllers). Controllers not programmed to use the TempBus™ feature will use their own local temperature sensor input(s) for temperature measurement. Note that a panel of 920 Series Controllers may be populated with both “ambient” and “line sensing” controllers.

Wiring

If the panel has not been factory wired for TempBus™ operation, ensure the following wiring is added (see Figure 1):

- 1) On the terminal board of the “Master” controller (typically HTC01A/B), jumper terminals 4 to 20, and 5 to 21.
- 2) Daisy chain terminal 20 to terminal 20 of all the other boards within the same panel.
- 3) Daisy chain terminal 21 to terminal 21 of all the other boards within the same panel.

Note: The TempBus™ signal is polarity sensitive, so be sure not to cross the wires.

Note: Even though a controller is wired into the TempBus™ signal, it may be programmed for “line sensing” control, using its own RTD.

Terminal board of “Master” 920 Controller

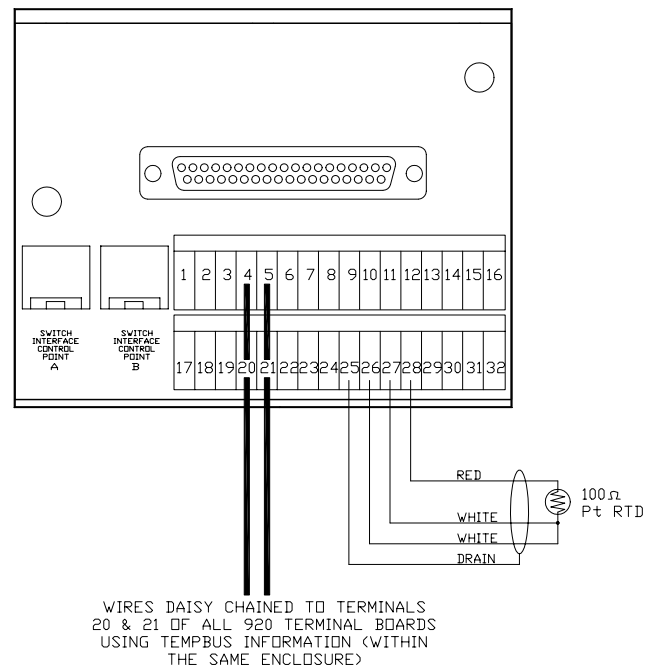


Figure 1

- 4) Connect the Ambient RTD to terminals 25–28 of the “Master’s” terminal board. If a second ambient RTD is used to average two temperature readings, connect to terminals 9-12 of the “Master’s” terminal board.

Programming

One control point within the panel must be programmed as the “Master”, and the rest of the points designated for ambient control need to be programmed as “Slaves”. The “Master” (typically point HTC01A) is programmed as usual (similar to a line sense application) but in addition, the external output contacts are also programmed to transmit the temperature information to any controller wired into the TempBus™.



Master Controller

Common Parameters (remember changing for Pt A will automatically change Pt B)

- Ext. Output (in Common Setup) programmed to **TEMPBUS™**
- Ext. Input (in Common Setup) programmed to **TEMPBUS™** (if control point B of the 920 controller designated as the “Master” is to be used as a “Slave”)

Point A

- Control Setpoint programmed to the customer’s requirements
- Program TS CTL Mode to TS1, TS2, Average or Lowest depending on # of RTDs.
- TS Fail alarm for each RTD used should be **ENABLED**
- Lo TS1 programmed to **DISABLE**

Point B (if using as a “Slave”)

- Control Setpoint programmed to the customer’s requirements (typically the same as the “Master”)
- Low TS1 programmed to **DISABLE**
- TS1/TS2 Failure alarms are programmed to **DISABLE**
- TS CTL Mode (in Point Setup) programmed to **EXT. INPUT** (see section 3-5-11 of the 920 Series User Manual V3.14)

Slave Controllers

One or both control points of a 920 Series controller may be programmed as a “Slave” to use the ambient temperature reading from the “Master”.

Common Parameters (remember changing for Pt A will automatically change Pt B)

- Ext. Input programmed to **TEMPBUS™**
- Ext. Output programmed to **NOT USED**

Point Parameters

- Control Setpoint programmed to the customer’s requirements (typically same as the “Master”)
- Low TS1 programmed to **DISABLE**
- TS1/TS2 Failure alarms are programmed to **DISABLE**
- TS CTL Mode programmed to **EXT. INPUT** (see section 3-5-11 of the 920 Series User Manual V3.14).

Once the controllers are programmed, and the system is activated, the temperature reading of each “Slave” control point should match that of the “Master”.

Since each “Slave” receives temperature information (instead of an on-off signal), it can be programmed for its particular application, including proportional ambient control or power limiting (for SSR applications), or proportional ambient contactor control where contactors are used as the switching device. Each may also have its own set point, deadband, and proportional values, to accommodate situations where heat losses vary between heating circuits.