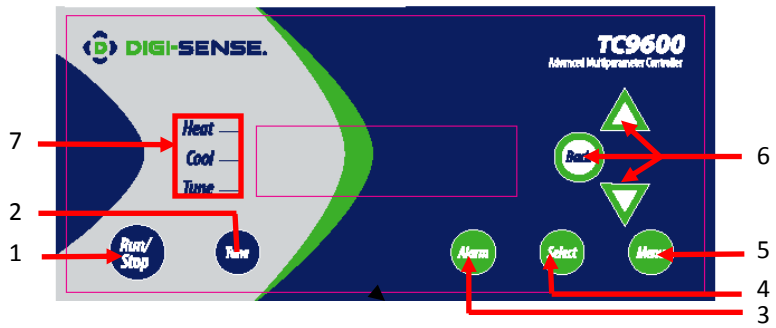
Quick Start Guide

Digi-Sense TC9600 Advanced Multiparameter Temperature Controller With Thermocouple, Thermistor and RTD Inputs

Models: 89800-13 & 89800-14

Controller Description - Front Panel



1. RUN/STOP Button
Pressing RUN/STOP once will start the control process if the Temperature Controller is stopped, or stop the control process if the Temperature Controller is running. If the Temperature Controller is running, "Heat" and "Cool" on-screen indicators will illuminate appropriately in the "Alarm/Action Display".

2. TUNE Button
Pressing TUNE once will start the AUTO TUNE cycle. AUTO TUNING must be enabled in the setup mode for this key to function. (See page 14, Screen 16)

3. ALARM Button
In an ALARM situation, the screen will display either "WARNING" or "ERROR" with the corresponding message. A "WARNING" will not stop the control process. An "ERROR" will stop the control process.

A. MANUAL RESET mode: Pressing ALARM once will silence the audible alarm and clear the on-screen alarm message. If the alarm situation is still presents the "Alarm/Action Display" will remain illuminated. The alarm and on-screen message will not clear automatically, even if the system is no longer in an alarm situation.

B. AUTO RESET mode: Pressing ALARM once will silence the audible alarm and clear the on-screen alarm message. If the alarm situation is still present, the "Alarm/Action Display" will remain illuminated. If the system leaves an alarm situation, the system will automatically silence the alarm and clear the on-screen alarm message.

4. SELECT Button
Pressing SELECT once will cycle through user-configurable control set points. All user-configurable set points will be **underlined** with a greyed out line. The selected Set Point will be underlined. Change the set point with the UP and DOWN arrow buttons.

5. MENU Button
The MENU button provides access to all user-configurable setup parameters of the controller. Pressing this key once will scroll through parameter options. Pressing and holding this key will exit to the home screen, saving any changes made up to that point.

6. UP, DOWN, BACK Buttons
The UP and DOWN arrow buttons will increase or decrease the value of the set point selected (underlined). Pressing the UP or DOWN arrow keys will increase or decrease *numerical* entries by the least significant digit. The rate of acceleration will increase as shown in the table below, starting from the least significant digit. Pressing and holding the UP or DOWN arrow key will increase or decrease *text* entries without an acceleration factor. The back button moves backwards through the General and Advanced Setup Menus. To exit to the main screen from either menu, press and hold the MENU button.

Numbers…	Increase/Decrease by…
0.0 – 0.9	0.1
0 – 9	1
10 – 100	10
100 +	50

Table 1. Acceleration Factor Table

7. HEAT, COOL, AND TUNE Indicators

When any of these modes are active they will have a block indicator on the display showing they are active. **Example:** When the control is in the heat mode and it is applying power to the heater output there will be an indicator block on the display to show the heater output is active.

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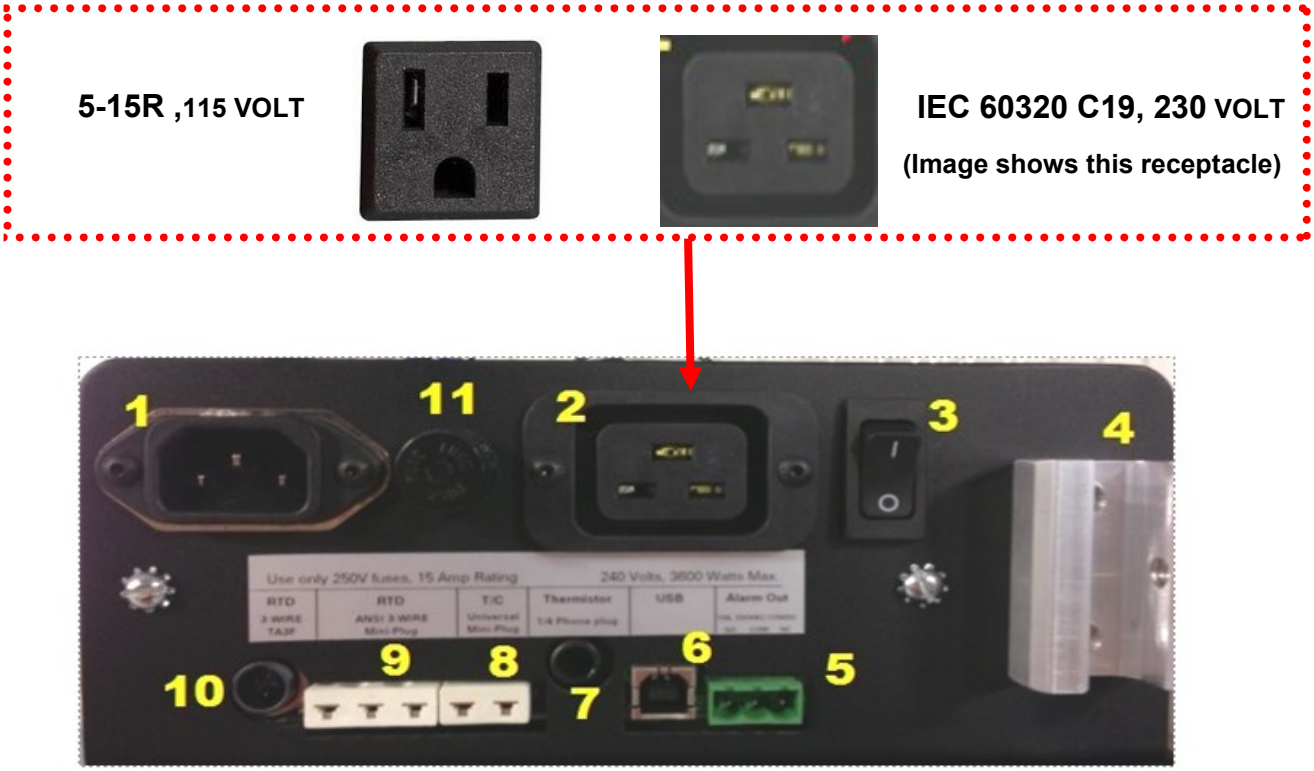

Back

1. IEC power cord connection **(see page 45 in the user manual for additional cords)**
2. Heater/Cooler output **(see page 46-47 in the user manual for optional cord adapters.)**
3. Power switch
4. Grid support bracket
5. External alarm output
6. USB port
7. Thermistor input - Type: 400 and 700 with a Digi-Sense phone plug connector.
8. Thermocouple input—Type: J, K, N, R, S, T, B, and E with mini-connector
9. RTD input— Type: Alpha 0.003850 and Alpha 0.003916 with ANSI 3 blade connector. (Cole-Parmer RTD probes with ANSI connectors made before May of 2013 will need the wiring in the probe connector modified. See page 21 for wiring instructions.)
10. RTD input - Digi-Sense 3 pin round connector
11. Fuse
12. RTD input (3 pin round connector)
13. Fuse

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Initial Setup

- Install controller in a safe operating area.
- Plug the heating or cooling device (sold separately) into the output connector, located on the back of the control.
- Connect input sensor into the proper connection input on the back of the controller.
- Place the ferrite clip over the lead wire of the sensor, for reference picture of installation see page 41 in manual
- Connect external alarm output to the control. (optional)
- Connect USB cable to the USB connector, located on the back of the control. (optional)
- Plug supplied AC cord into the IEC input connector, located on the back of the controller.

Basic Operation Setup

- Turn power switch ON, located on the back of controller.
- Follow the instructions on the welcome screen.
  - Press select key to read a brief description of each key on the front of controller.
  - Press the MENU key to skip the instructions and enter into the main operation screen.
- Press the select key to make a user editable field active. A line will appear under the field when the field is active for editing.
- Use the UP / DOWN arrow keys to adjust the value that is active in a user editable field.
- Enter the user-configurable setup by pressing the MENU key from the system status screen.
- Use the MENU key to advance through each menu setting.
- TC9600 control mode is set at the factory for PID operation with a type J thermocouple input sensor. If different control mode and input sensor is desired reference the TC9600 manual for setup instructions
- All changed settings will be retained in memory when returning to the System Status screen.
- Use the flow chart (appendix pages 39-40 in the manual) to have a visual of the controls menu layout.

Auto Tune Operation

- Set up your process as noted in the initial setup.
- Verify that the Auto Tune feature is enabled in the menu settings.
- From the main operation screen set the Set Point temperature.
- Press the Tune button and the indicators showing Tune and Heat will be illuminated on display.
- The Set Point value isn't changeable after the Tune process has started. The value is locked until the Tune process is complete or aborted by the user.
- Stopping the Tune operation prior to it finishing will cause the PID settings to be returned to factory default values.
- PID values will be saved in non-volatile memory.

Communication/Data Logging:

- Install data logging software on computer system.
- Connect USB Type B connector into the connector located on the back of TC9600 controller.
- Connect the Type A connector into the USB port on the computer.
- Start the data logging software on the computer.
- Select correct COM port in the software and then press the connect button.
- Control is now communicating to the logging software.
- Set all logging preferences in the software and begin logging the process.

For more information reference the user manual.