FTC200 & FTA/FTX Quick Installation & Jumper Setting Guide

Accuthermo Technology Corp.

Safety Note	• Please read this entire document before you begin connecting cables and assembling your system • Failure to follow these instructions may cause injury or electric shock. • Failure to follow these instructions may damage the components • Make sure that your assembly area is free from electrical hazard. • Use extra care and verify all of your connections.

Notice: In no event shall Accuthermo Technology Corp. be liable for any damages whatsoever (including without limitation, damage for loss of business profits, business interruption, loss of business information, or any other pecuniary loss) arising out of the use or inability to use this product, even if Accuthermo has been advised of the possibility of such damages.

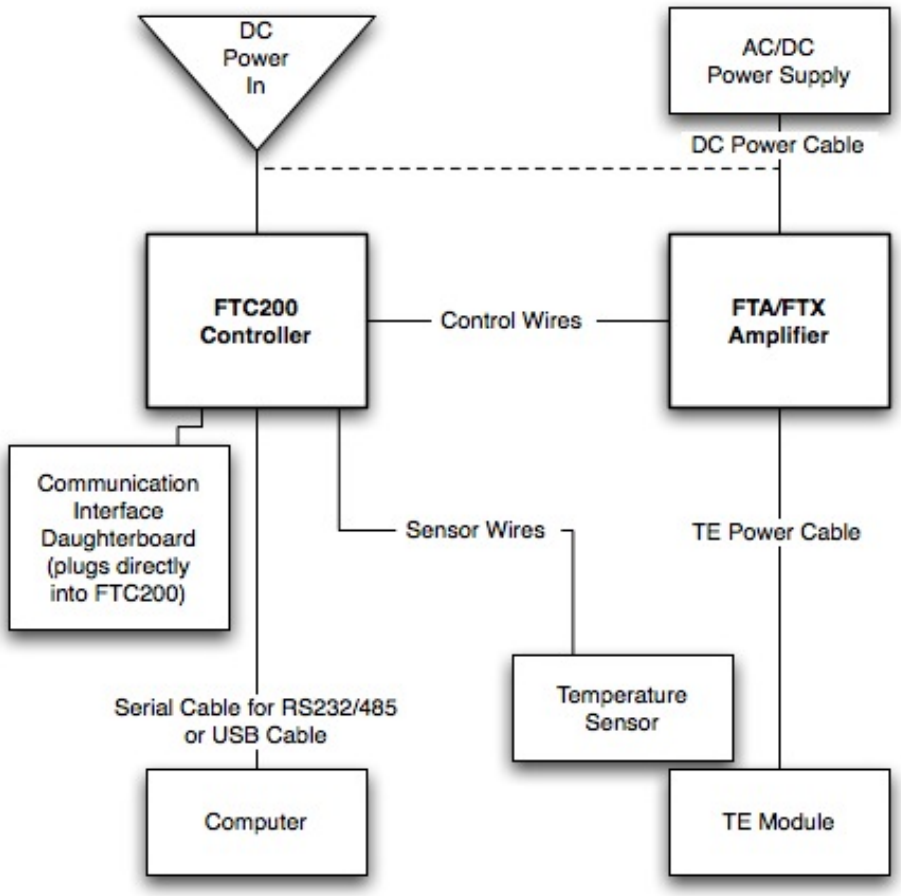
Thank you for purchasing the FTC200 Thermoelectric Temperature Controller. This Quick Install Guide is designed to take you through the steps involved is the set-up and initial operation of the FTC200.

Preparation

Please make sure you have the following tools/parts/document ready:

1. Instruction manual
2. FTC200 Controller
3. FTA or FTX TE Amplifier
4. TE Module Assembly
5. Temperature sensor
6. AD/DC power supply or DC power source
7. Computer/software
8. Screw drivers
9. Cables
   a. Control signal cable
   b. DC power cable
   c. TE power cable
   d. RS232 or USB data cable

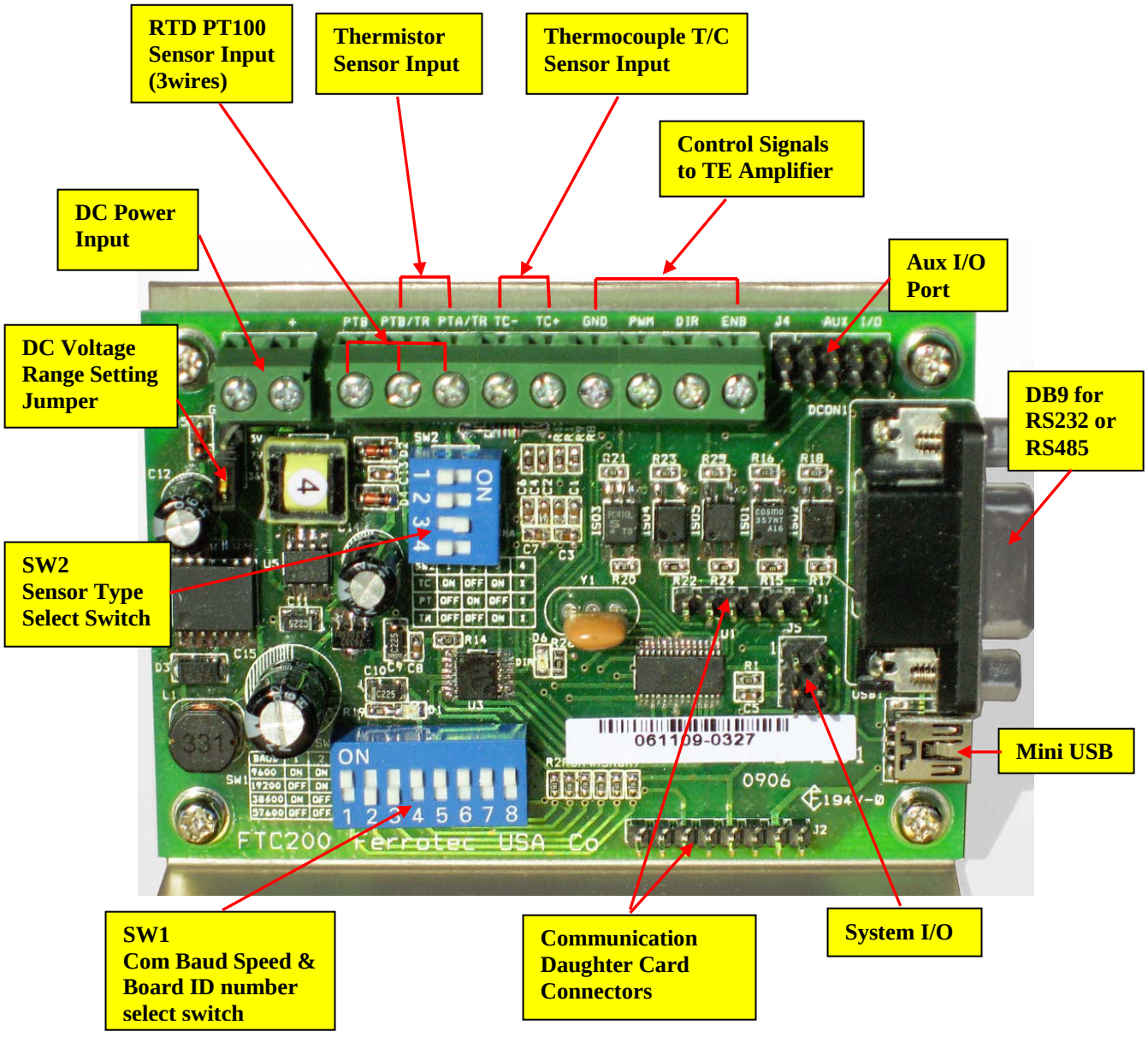
System connection diagram



FTC200 Jumper and Connector Description

Caution:

Make sure all configurations are correct before applying power to the board!

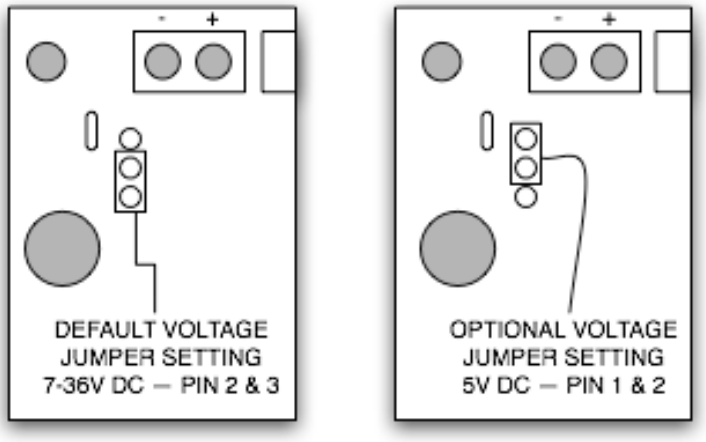


Configuring the Connectors:

The FTC200 temperature controller is very powerful and very flexible. Your controller configuration will vary depending on your system design. For best results, you should review the entire document and follow the steps in each section to properly configure your FTC200 for your system.

1. **DC Input Power Selection — DC Voltage Range Setting Jumper**
   The FTC200 can be operated using either 5V DC or 7~36V DC. It cannot be powered using AC voltage.

   To configure the Voltage Range input setting, use the following procedure:



   Check the DC Voltage Range Setting Jumper.
   1. The default is at bottom two pins, which is the 7~36Vdc range.
   2. If you want to use 5V DC directly, set the jumper to the upper two pins position.

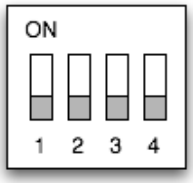
   WARNING: Improper voltage settings may damage your system and components.

2. Setting the Sensor Type Switch — (SW2)

The FTC200 can accept three major types of sensors:

RTD	PT100	3-wire sensor (if a two-wire sensor is used, use a small wire to short two PTB connectors, then connect the 2-wire sensor to PTA & PTB)
Thermistor	2252 ohm and 10K ohm;	Two-wire sensor, no polarity.
Thermocouple (T/C)	J, K, T type;	Two-wire sensor, check polarity for connections.

Configuring the Sensor Type Switch



1 (SW2.1) 2 (SW2.2) 3 (SW2.3)	USED FOR SELECTING SENSOR TYPE
4	RESERVED

Sensor Type Selection Dip Switch Settings

	SW2.1	**SW2.2**	**SW2.3**
TC	ON	OFF	ON
PT	OFF	ON	OFF
TR	OFF	OFF	ON

3. Communication Daughter Card Connections

The FTC200 is configured and managed by communications from other devices (for example, a PC or a microprocessor).

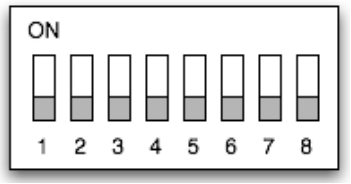
The FTC200 supports three communication protocols: RS232, RS485 and USB. Which communications protocol is supported depends on the Communication Daughter Card that is connected to the FTC200 (note: only one daughter card can be connected at a time).

The default card is an RS232 card (the FTC200 ships with the RS232 board already plugged into the FTC200 main board). The application software that ships with the FTC200 can communicate with either RS232 or USB.

Note: If you use USB, there is a device driver that must be installed on the PC.

If you need a different communication card, please contact the Accuthermo customer service department.

SW1 Switch Configuration and Options:



1 2	COM BAUD RATE SELECTION
3 4 5 6	BOARD ID NUMBER (ONLY USED FOR RS485)
7 8	RESERVED INTERNAL USE ONLY

4. **Com Baud Rate Selection — Switch 1, Selector 1 and 2 (SW1.1~2)**
The dip switch selections are for serial communication, like RS232 or RS485 ports. The default setting is 38400; you can use the following table to select other options.

Serial Baud

	SW1.1	**SW1.2**
9600	ON	ON
19200	OFF	ON
38400	ON	OFF
57600	OFF	OFF

Default Setting

5. **Board ID number Selection (SW1.3~6)**
The dip switch selections are for configuring multiple controllers when using the RS485 communication protocol. The number sets the board ID. The default board ID number is 1.

NOTE: Do not change the setting unless you are using multiple FTC200 units with one master port.

Serial ID

	SW1.3	SW1.4	SW1.5	SW1.6
0	ON	ON	ON	ON
1	OFF	ON	ON	ON
2	ON	OFF	ON	ON
3	OFF	OFF	ON	ON
4	ON	ON	OFF	ON
5	OFF	ON	OFF	ON
6	ON	OFF	OFF	ON
7	OFF	OFF	OFF	ON
8	ON	ON	ON	OFF
9	OFF	ON	ON	OFF
10	ON	OFF	ON	OFF
11	OFF	OFF	ON	OFF
12	ON	ON	OFF	OFF
13	OFF	ON	OFF	OFF
14	ON	OFF	OFF	OFF
15	OFF	OFF	OFF	OFF

6. **DIP SW1-7,8**
These switches are RESERVED and may create operational problems if not configured correctly.

Please verify that both switches are set to the ON position to ensure that the FTC200 will operate properly.

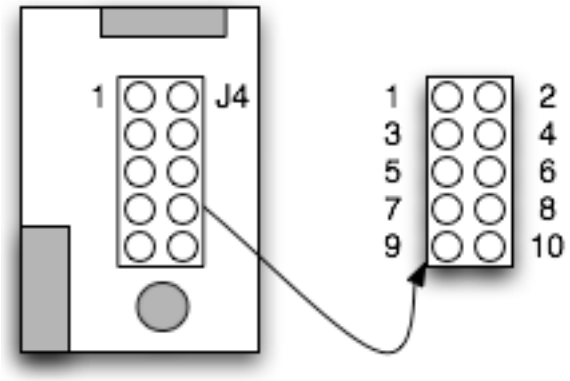
7. **Control Signal to TE amplifier**
There are four signal lines that are used for communications between the FTC200 and FTX H-bridge Amplifier. The FTC200 kit includes a 4-wire cable for you to connect these 4 signals.

NOTE: When connecting the system, please make sure the connection names are matched.

PWM	pulse width modulation,
DIR	hot/cold direction,
ENB	enable,
GND	ground)

8. AUX I/O Port

The 10-pin connector is for two alarm I/Os and for future function expansion use such as I2C communication.



J4 pin1 ~ pin10

pin1	3.3	pin2	ground(digital)
pin3	I2C SDA	pin4	ground(digital)
pin5	I2C SDL	pin6	ground(digital)
pin7	Alarm1 (High)	pin8	ground(power)
pin9	Alarm2 (Low)	pin10	ground(power)

9. System I/O Port

The 6-pin connector is RESERVED and may create operational problems if configured incorrectly. Do not attach anything to this connector.