QuadraTherm 640i/780i Quick Start Guide

This document is for use with Sierra's QuadraTherm® 640i/780i Thermal Mass Flow Meter with Serial Numbers 339590 and greater. The purpose of this document is to give easy set up and installation instructions. For complete simplified instructions, please download the QuadraTherm Instuction Manual.

⚠ **Note:** For QuadraTherm flow meters with serial numbers 339589 or lower, please visit Sierra Instruments Documents & Download Archive page to access the activation guide applicable for your device.

IMPORTANT: Before installing meter, follow the steps below:

Step 1. Download Instruction Manual: To get technical information, download to the QuadraTherm 640i/780i Instruction Manual and the Smart Interface Portal (SIP) Software Manual at sierrainstruments.com/quadratherm-manual.

Step 2. Download FREE Software—Get Apps: Download the most current Smart Interface Portal (SIP) product software at sierrainstruments.com/640i-780i-SIP. Use either the 9-pin, RS-232 cable with fly leads or USB cable (if ordered) to connect to the meter to your computer.

IMPORTANT: If you do not have an internet connection, you must download the software to a USB stick or other storage device.

Safety

1. Apply power only after following the wiring instructions and diagrams in the "Installation and Wiring" section below or in Chapter 2 of the Instruction Manual. Apply gas flow only after checking plumbing connections for leaks.

Installation and Wiring

1. Install the meter in the pipe. Make sure you have enough straight run pipe for your installation. See Figure 2-1 in Chapter 2 of the Instruction Manual for the straight run requirements.

2. Connect AC or DC power per the meter configuration received. See the diagrams below or Figures 2-5, 2-6, and 2-7 in Chapter 2 in the Instruction Manual for more information.
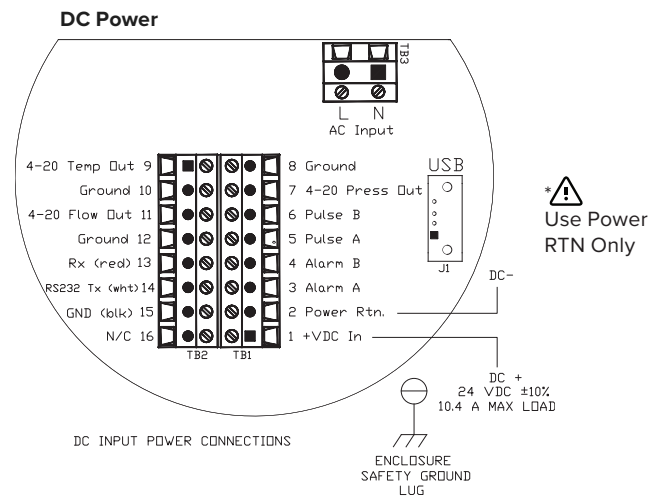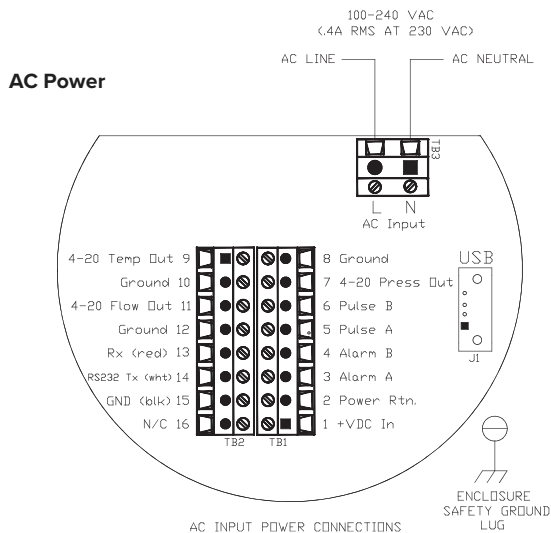
⚠ **Note:** There must be an earth ground wire attached to either the internal or external ground lug to protect against EMI/RFI/ESD interference or damage, and to assure proper operation.

⚠ **Note:** Probe to pipe is NOT a reliable earth ground.

⚠ **Note:** This is not a Loop powered device. • Do not apply power to 4-20 mA Loops. • 4-20 mA Loops are active (non-isolated)

3. Connect the analog outputs (if you are going to use them). The meter comes with three 4-20mA non-isolated outputs for flow, temperature, and pressure. These are self-powered outputs.

4. After a short start-up routine, the meter will begin displaying measured variables using the setup as supplied to the factory from your Application Data Sheet (ADS). You will access this data via the display or the Smart Interface Program (SIP) if connected and installed on your computer. The meter display will scroll through four screens: flow and temperature, pressure, totalizer and alarm. See Chapter 3: Operating & Programming in your Instruction Manual.

Using The Push Buttons and Display

1. In general terms, the display menu system consists of a Main Menu, the Set-Up Menu, and a Sub-Menu used to program each item in the Set-Up Menu. There is also a series of data entry or pull-down screens to enter your set-up data for each parameter. Menus may be adjusted using the six buttons on the front of the unit: up ▲, down ▼, left ◄, right ►, enter ◄┘ , and escape/cancel ⊗.

2. If you're updating a value, and that value is currently set to "0", pressing the up ▲ key will increase the value to "1" while pressing the left ◄ button will move the menu selection to the left or the data entry field to the left if updating a menu value. Pressing the enter ◄┘ key accepts the current value.

3. While editing information, the screen data "flashes" to show that you are actively editing. Pressing the enter ◄┘ key after you are done editing will permanently write the data to the meter's memory while pressing the escape/cancel ⊗ key returns to the last previous menu value. For more detailed information about operating your push button display, see Chapter 3: Operating & Programming in your Instruction Manual.

Changing Application Information
In The Field Using qTherm Dial-A-Gas® & Dial-A-Pipe™

The meter comes programmed from the factory with your application information, but it is easy to change this information using Sierra's unique qTherm Dial-A-Gas® and Dial-A-Pipe™ feature. You can access both features using either the push buttons on the display or a USB or RS-232 connection between your computer and the meter using the provided Smart Interface Program (SIP) Software.
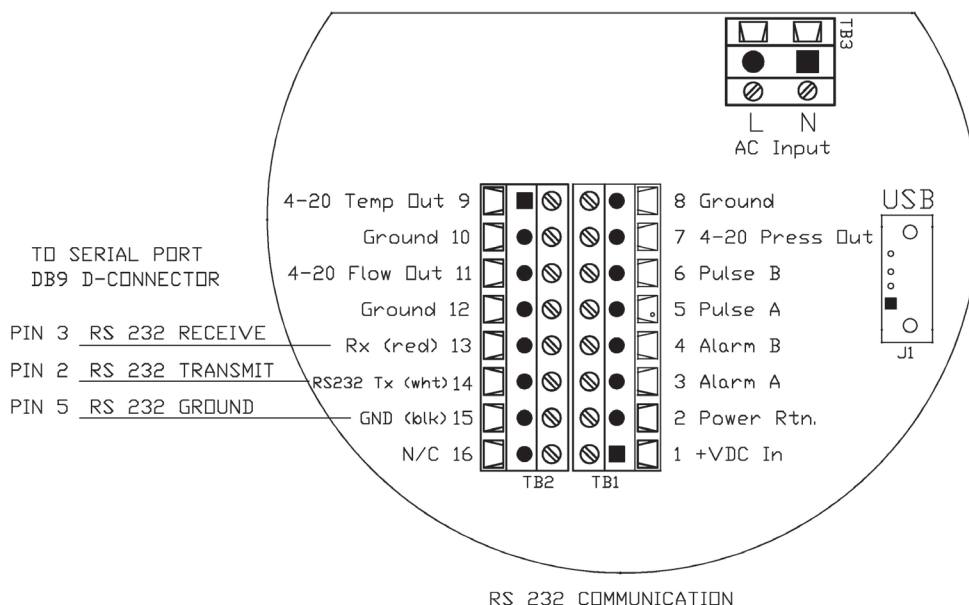
Using Your Display to Change Gas and Pipe Size:
qTherm Dial-A-Gas & Dial-A-Pipe

1. To access this Dial-A-Gas and Dial-A-Pipe information in the Sub-Menu of the display, enter the meter's password. From the scrolling menu, press the enter ◄┘ key, and you will be asked for a password. Enter 0000 for the password (it is already there by default and can be changed later); then press the enter ◄┘ key. You will arrive at the Calibration Sub-Menu. From here, press the enter ◄┘ key. See menu navigation diagram below or in Chapter 3 the Instruction Manual for more information.

2. qTherm Dial-A-Gas: Change Gas
   To change and select your gas, the display will show "Dial-A-Gas" with the principal gas listed from your application datasheet (ADS), hit the enter ◄┘ key, and it will begin to flash; use the ▲ ▼ buttons to scroll through the other gases. Hit enter ◄┘ to select another gas. See sub-menu diagram below or Chapter 3 in the Instruction Manual for more information about using the Dial-A-Gas feature.

3. qTherm Dial-A-Pipe: Change Pipe Size
   Go to the Dial-A-Pipe menu to set the internal diameter (ID). Hit enter (◄┘) to enter a new pipe ID using the ◄ ▲ ► ▼ buttons to enter the desired value and to select your engineering units, hit the enter key (◄┘) to save the value. Use a similar process to enter the pipe type (ex: stainless steel-smooth). See table below or Chapter 3 in the Instruction Manual for more information.
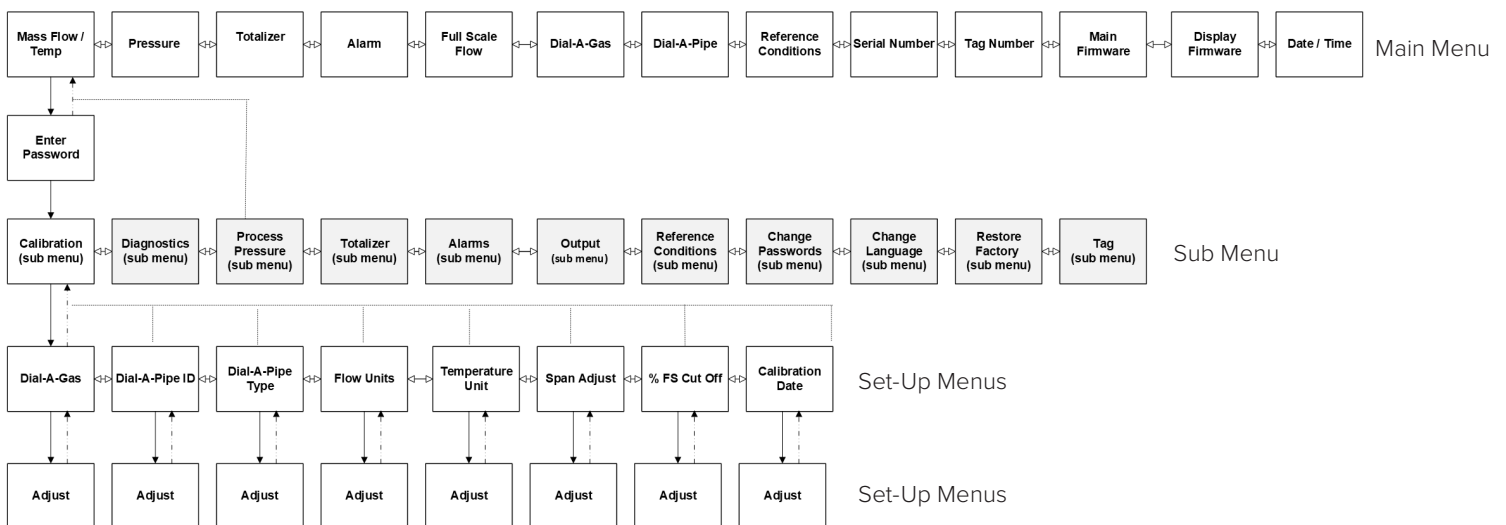
Using USB or RS-232 & Smart Interface Program (SIP) Software to Change Gas and Pipe Size: Dial-A-Gas & Dial-A-Pipe

1. First, install the USB or RS-232 cable (if ordered) using the diagram below.


```
                                                                    TB3
                                                          ┌──┬──┐
                                                          │ ● │ ■ │
                                                          ├──┼──┤
                                                          │ ⊘ │ ⊘ │
                                                          └──┴──┘
                                                           L   N
                                                         AC Input

   4-20 Temp Out  9  ┌──┐ ■ ⊘   ⊘ ●  ┌──┐  8 Ground          USB
        Ground   10  │  │ ● ⊘   ⊘ ●  │  │  7 4-20 Press Out  ┌──┐
   4-20 Flow Out 11  │  │ ● ⊘   ⊘ ●  │  │  6 Pulse B         │ O│
        Ground   12  │  │ ● ⊘   ⊘ ●  │  │  5 Pulse A         │ o│
   TO SERIAL PORT                                            │ o│
   DB9 D-CONNECTOR      Rx (red) 13  │  │ ● ⊘   ⊘ ●  │  │  4 Alarm B  │ ■│
                                                            │ O│
 PIN 3  RS 232 RECEIVE   RS232 Tx (wht) 14 ● ⊘  ⊘ ●   3 Alarm A  └──┘
 PIN 2  RS 232 TRANSMIT                                     J1
 PIN 5  RS 232 GROUND    GND (blk) 15  ● ⊘   ⊘ ●  2 Power Rtn.
                         N/C 16  ● ⊘   ⊘ ■  1 +VDC In
                                TB2      TB1

                        RS 232 COMMUNICATION
```

2. Next, install the SIP program (see p.66 in Instruction Manual):

    - Click on the file (640i & 780i Smart Interface Program). This file is self-extracting.
    - Follow instructions for installing the files.
    - The process takes 1 to 10 minutes total, depending on speed of your computer.

3. Run the program (note meter must be powered on to run the SIP program). The main home page interface. (see Figure: 1 below).

4. From the home page, select the appropriate Com Port, and the SIP will read the meter's parameters as defined by your application datasheet. See Figure 1.

5. qTherm Dial-A-Gas & Units
    To change your gas and units, select the Dial-A-Gas & Units button on the home page under the meter control section. Use the pull down menus on the Dial-A-Gas screen (see Figure: 2 below) to select your gas and units. Select Save and Exit to return to the main menu screen. See Appendex B in the Instruction Manual.
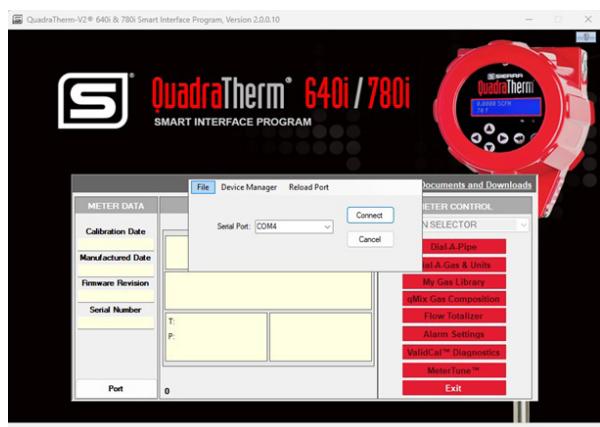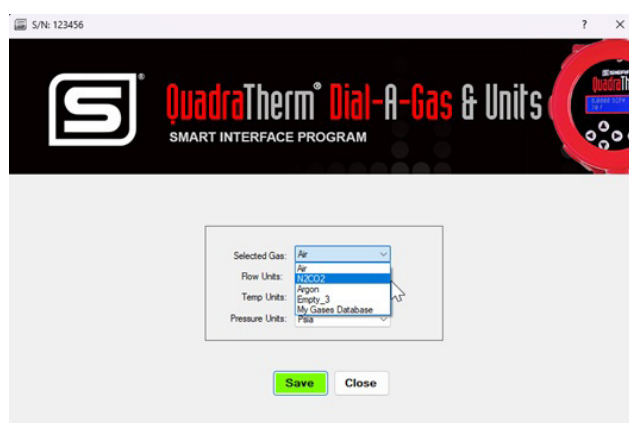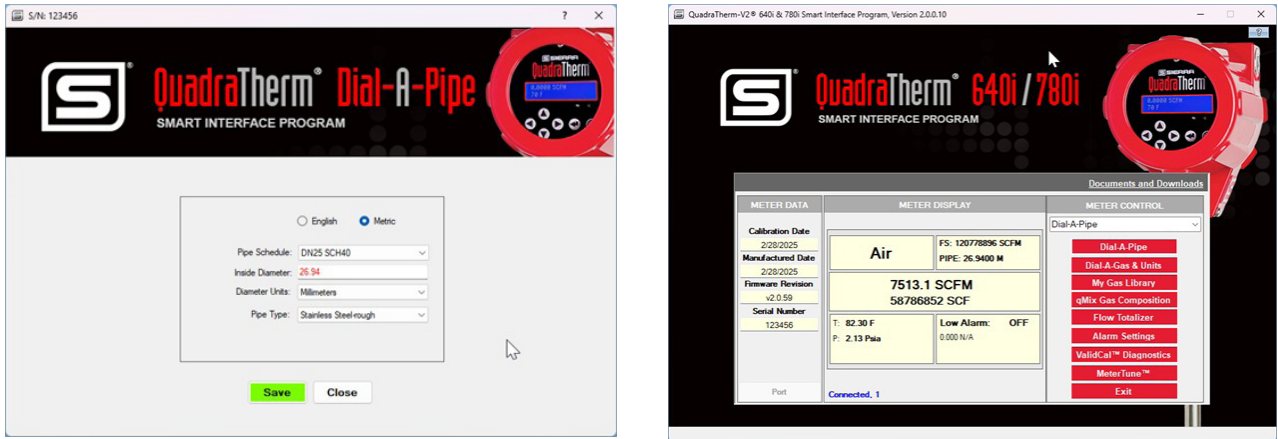
Figure: 1

Figure: 2

6. qTherm Dial-A-Pipe

   To change your pipe properties select the Dial-A-Pipe button on the home screen (Figure: 1). Use the pull down menus in the qTherm Dial-A-Pipe screen (see Figure: 3 below) to select your pipe properties. Select Save and Exit to return to the home screen. Appendex B in the Instruction Manual.

7. Your meter set-up is now complete. Your updated meter parameters can be viewed from the SIP main screen.

Figure: 3

Measurably Different.™