

# SmartTrak® 100HP Ultra-High Pressure

This Quick Start Guide for SmartTrak® 100HP Ultra High-Pressure Mass Flow Meters and Controllers gives easy set up and installation instructions. For complete instructions, please download and read the SmartTrak 100 Series Instruction Manual. Before installing the meter, follow the steps below.

## Step 1. Download Instruction Manual

To get technical information, download the SmartTrak 100HP Series Instruction Manual at [sierrainstruments.com/smarttrak-manual](http://sierrainstruments.com/smarttrak-manual).




## Step 2. Download FREE Software

Download the most current SmartTrak High-Pressure Safety Guide at [sierrainstruments.com/100hp-safety](http://sierrainstruments.com/100hp-safety). Use the included cable (if ordered) to connect the meter to your computer.

**IMPORTANT!** Operating equipment under very high pressure involves safety risks of which you should be aware. Its important that you read the SmartTrak 100 High Pressure Safety Guide and Chapter 2 of the SmartTrak Instruction Manual before installing your 100HP.



## Safety (Pre-Installation Procedure)

1. Please read all instructions and cautionary markings on the instrument, as well as all appropriate sections of the SmartTrak 100 Series Instruction Manual, Chapter 2 and Appendix D before using this product.
2. General operation, display interface, PC software and electrical installation are the same as a standard SmartTrak 100 Series mass flow meter and controller.
3. Verify proper connection of all pressure sources and electrical signals prior to applying pressure or power to the 100HP. See Chapter 2 SmartTrak 100 Series Instruction Manual for complete installation and operating instructions.
4. **Pressurization Procedure**
  -  **Warning!** Always bleed your pressure line down to atmospheric pressure before installation.
    - Slowly apply pressure to the system. Open process valves slowly to avoid flow surges. When applying pressure to the system, take care to avoid unnecessary pressure shocks in the system.
    - Check for leaks around the meter inlet and outlet connections. If no leaks are present, bring the system up to operating pressure.
  -  **Warning!** Never test for leaks with a liquid leak detector. If liquid seeps into the electronics or the sensor compartment, the instrument may be damaged. Instead, use a pressure--decay test (if liquid must be used at all, limit it to the fittings and keep it off the body of the instrument).
    - Increase pressure gradually up to the level of actual operating conditions. Follow standard practice for pressurized systems.
  -  **Warning!** Do not operate this instrument in excess of the specifications listed on the data label, in this addendum, or in the SmartTrak 100 Series instructional manual. Failure to heed this warning can result in equipment damage, failure, serious injury or death.
5. Apply power only after reviewing wiring diagrams printed on page 2 and Chapter 2 in the SmartTrak 100 Series Instruction Manual.
6. Do not apply power to the output loop. This is **not** a loop-powered device.
7. Apply gas flow only after checking plumbing connections for leaks.

## Installation and Wiring

1. Consult the SmartTrak 100HP's data label (on the rear of the instrument) for all proper operating parameters. If the information on the data label does not match your process conditions, contact Sierra customer service.
2. Install a 10-micron inline filter upstream of your instrument. If the gas contains any moisture, use an appropriate dryer or desiccant.

**Note** Particles larger than 10 micron and moisture may damage your instrument.

3. Mount according to data label orientation. Horizontal flow is preferable and is the factory default unless the factory calibration was performed specifically for vertical flow upward or downward, as listed on the application data sheet. Orientation is listed on the data label and on the calibration certificate.
4. Apply power only after reviewing wiring diagrams on Figure 1 and Chapter 2 in the SmartTrak 100 Series Instruction Manual. Power is applied via the HD DB-15 connector. The CAT-5 RJ45 connector is for the Sierra Remote Pilot Module or provided CRN cable.

**Warning!** Do not use the CAT-5 RJ45 port for Ethernet—damage to your computer system or the instrument may occur.

## Operation

1. First, power the unit. If you are using the Sierra provided power supply, it is recommended you attach the D-sub connector to the SmartTrak before plugging the adapter into the wall. If you do not do this step, the unit may take longer to start than normal. This will not damage the unit.
2. The green LED above the RJ45 connector will light when the unit is powered.
3. Our mass flow controllers are shipped with a zero setpoint in automatic valve operation mode. For safety considerations, it is recommended you confirm this prior to applying gas to the unit.
4. Apply the gas listed on the data label to the inlet at the recommended pressure (listed on the data label/calibration certificate). Your SmartTrak meter and/or controller will begin to measure or control mass flow. This will be displayed on your user software or display module.
5. Mass flow controllers will need a setpoint input in order to control flow. Do so carefully! You can digitally input a setpoint using the provided user software or Pilot Module, or you can control flow directly with your analog setpoint source.

**Note** You can change the setpoint source type using the software or Pilot Module. The unit ships in the configuration initially chosen or default configuration if none specified. See the Instruction Manual for details.

**Warning!** Do not leave a setpoint applied for an extended period of time to a controller when the gas supply is off or blocked. Damage may result from excessive heating, and the unit will become hot enough to burn you. Alternatively, you can maintain your setpoint value but close the valve by switching valve operation to “closed” digitally with either the user software, the product display module, or with an analog ground to the appropriate pin (see below).

### High Density DB-15 Connector Pin Configuration

Wiring Functions and Color Codes for Optional Communication Cable		
PIN	Wire Color in Cable	Function
1	Brown	Analog ground/output
2	Red	0-5 VDC output (or 0-10, 1-5 VDC)
3	Orange	Analog ground/RS-232
4	Pink	Valve override purge
5	Yellow	Power return (-)
6	Green	Power input (+)
7	Green/white	RS-232 transmit (out)
8	Blue	Setpoint
9	Purple	Not used
10	Gray	Analog ground/setpoint
11	White	Reference voltage
12	Black	Valve override close
13	Brown/white	RS-232 receive (in)
14	Red/white	0/4-20 mA rg (output)
15	Red/Black	Not used
	Shield Wire (no insulation)	Chassis (earth) ground

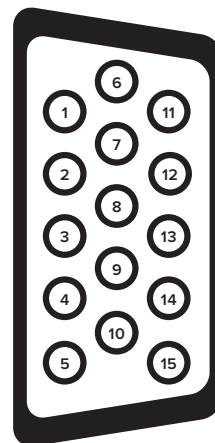


Figure 1: Pin Locations on Instrument

### **Important Notes Regarding Wiring Pins**

1. Pins 1, 3, and 10 are connected together inside the instrument. Do not tie these grounds together outside the instrument. Must have one connection per analog ground.
2. Unused cable wires should be isolated and insulated from one another or damage could occur.

### **Limited Warranty Policy – Register Online**

All Sierra products are warranted to be free from defects in material and workmanship and will be repaired or replaced at no charge to Buyer, provided return or rejection of product is made within a reasonable period but no longer than one (1) year for calibration and non-calibration defects, from date of delivery. To assure warranty service, customers must register their products online on Sierra's website. Online registration of all of your Sierra products is required for our warranty process. Register now at [sierrainstruments.com/register](https://sierrainstruments.com/register). Learn more about Sierra's warranty policy at [sierrainstruments.com/warranty](https://sierrainstruments.com/warranty).

### **Contact Us**

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We Understand Flow is Tough.  
We can solve this together.



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