MaxTrak® 180 Series

This Quick Start Guide for MaxTrak® 180 Mass Flow Meters and Controllers gives easy set up and installation instructions. For complete instructions, please download and read the MaxTrak 180 Series Instruction Manual. Before installing meter, follow the steps below.

Step 1. Download Instruction Manual

To get technical information, download the MaxTrak 180 Series Instruction Manual at sierrainstruments.com/maxtrak-manual.

Step 2. Download FREE Software

Download the most current SmartTrak product software at sierrainstruments.com/smarttrak-software. Use the included cable (if ordered) to connect 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 checking the wiring diagrams on page 2 and Chapter 2 in the Instruction Manual.

2. Apply gas flow only after checking plumbing connections for leaks. Sierra recommends checking for leaks with a pressure-decay test. As these instruments are NEMA 6 / IP67 rated, a liquid leak detector may also be used.

Installation and Wiring

1. Consult the instrument's data label (on the rear of the instrument) for all proper operating parameters.

   ⚠️ **Note** Please note the orientation and install the instrument in this position. If the information on the data label does not match your process conditions, contact Sierra Instruments customer service.

2. Install a 10-micron in-line filter upstream of your instrument. If the gas contains any moisture, the moisture must be removed. Particles larger than 60 microns and moisture may damage your instrument.

3. For mechanical mounting, flow direction is indicated on the large front label. The weight of the instrument is 10 lbs (4.5 kg)—be certain it is properly supported. Four mounting screw holes are supplied on the bottom of the instrument. Two are metric (M6), two are SAE 8-32. See drawing in technical data sheet for details.

   🔴 **Warning!** Do not apply power to the output loop on units equipped and calibrated for a 4-20 mA output signal. This is not a loop-powered device. Damage will occur.

4. If your instrument has the WT option, attach the water-tight cable to the electrical connector on the inlet side. Connect the wires in this cable per the diagram on reverse. You do not need to open the instrument, if you have ordered the WT option.

5. If your instrument does not have the WT option, all electrical connections, including power, are applied via the terminal strip which is located inside the waterproof enclosure. You may run your wiring into the instrument via standard conduit (attach to our 1/2-inch FNPT port) or through our cable gland (option gland). Both are located on the inlet side of the enclosure.

   a) Remove the top section of the enclosure by unscrewing the four mounting bolts on the top of the instrument (bolt size SAE 7/16 inch). Gently pry the top section off the instrument (not the complete cover, just the top section). Do not remove the O-ring seal around the perimeter of the enclosure.

b) If using conduit, run your wires through the conduit, connect the conduit to our 1/2-inch FNPT port on the inlet side of the instrument, then pass your wires into the instrument toward the terminal strip (at the top). If using the cable gland, run your shielded cable with a diameter of 0.20-0.35 inch (5-9 mm) through the special gland on the side of the enclosure (cable with a smaller ID may allow liquid to enter the instrument and cause permanent damage).

c) Separate your individual wires (16-28 gauge required) and connect to the terminal strip on the top of the upper circuit board. Wire per the diagrams below.

⚠ **Note** This terminal strip is unique to the MaxTrak 180 Series instruments and different than the description in the SmartTrak 100 Series Instruction Manual.

d) When wiring is completed, secure the conduit to the enclosure in a watertight fashion or tighten the cable gland fitting so that it grasps your cable securely.

🔴 **Warning!** Failure to seal the conduit to the enclosure or to tighten the fitting, can permit liquid to enter the electronic compartment and damage the instrument.

e) Install the top section of the enclosure taking care not to pinch the O-ring seal or any of your wires. Insert and tighten the four mounting bolts.

🔴 **Warning!** Failure to install these bolts correctly can permit liquid to enter the electronic compartment and damage the instrument.

Operation

1. Apply the gas listed on the data label to the inlet at the recommended pressure (listed on the data label/calibration certificate). Note that all flow controllers are shipped with a zero set point so the valve will not open until commanded to do so.

2. Apply power per the instructions: 24 vdc, 600 mA, regulated (500 mA minimum).

3. Apply the control setpoint correctly. Your controller (C180) has been factory configured to receive a control signal (setpoint) in the form defined per your original order. This may be digital (RS-232) or analog (one of four choices). You may change the setpoint signal at your facility using the supplied SmartTrak software. Your setpoint and output choices include 0-5, 0-10 or 1-5 vdc, 4-20 mA or digital control (RS-232). See the instruction manual for details. Electric connections for RS-232 are on the terminal strip.

4. Do not leave a setpoint applied for an extended period of time to a controller when the gas supply is shut down or blocked. The instrument will become hot to the touch and damage may result. Instead, consult the instruction manual for use of the "Valve Close" feature which allows you to disable the valve while maintaining the setpoint signal. This may be set using the SmartTrak software or an external analog signal. See Chapters 3 and 5 in the Instruction Manual for details.

5. An annual factory evaluation and calibration is recommended.

Wiring Funtions and Color Codes for Optional Communication Cable

| Wiring Funtions and Locations		
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	Not	Valve override purge
5	Yellow	Power return (-)
6	Green	Power input (+)
7	Purple	RS-232 transmit (out)
8	Blue	Setpoint
9	NotConnected	Not used
10	Gray	Analog ground
11	Not Connected	Not Used
12	Black	Valve override close
13	Pink	RS-232 receive (in)
14	White	4-20 mA output
15	Tan (light Brown)	Chassis (Earth) Ground
16	Not Connected	Not Used
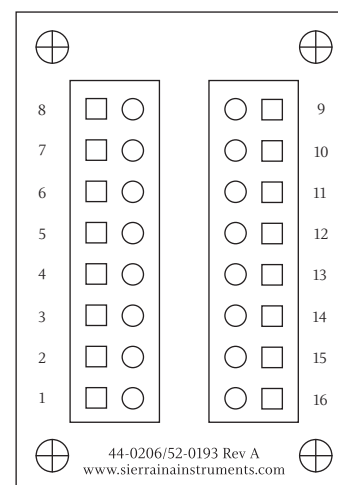
Figure 1: Terminal Strip PCA Pin Configuration (inside the enclosure)

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Important Notes: Preparing Wiring Pin

1. Pins 1, 3, 5, and 10 are connected together inside the instrument. Sierra recommends individual wires.

2. In the MaxTrak 180 instrument with WT option only, the two pins for valve purge are not connected at the factory. To activate this feature, open the top of the enclosure and move any two wires you are not using to the proper terminal strip location.

    Valve Purge   Terminal Pin # 4
    5Vdc ref voltage   Terminal Pin # 11 (useful to activate Valve Purge function)

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. Learn more about Sierra's warranty policy at sierrainstruments.com/warranty.

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We Understand Flow is Tough.

We can solve this together.

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