Pump Station

Model Number: ST140

Version: 1.1

User's Manual

Revised May 1, 2019

altrac

20885 Redwood Road, Box 218
Castro Valley, CA 94546
(510) 248-4141 | altrac.io

Features

The ST140 Pump Station allows you to remotely monitor and control VFD, SoftStarter, and Relay controllers on pumps. With the Altrac web app you can control your pump from anywhere with an internet connection.

The Pump Station monitors pump state, switch position, and line pressure. Most VFDs and Soft Starters can output a run signal when they are operating. If your controller does not allow for this, you can purchase a current sensor to monitor electrical power consumed by your pump (*Part Number SN300*). The Altrac Pump Station can only start the pump when the switch is in the AUTO position. The switch position is monitored to know when the pump is in the AUTO position and not OFF or MANUAL. Optionally, irrigation line pressure is measured with a pressure transducer mounted to your irrigation line.

The Altrac Flow Meter Station updates every 10 minutes while connected to a power source. During pump operation, the Station updates every 3 minutes or less. If a sensor value changes dramatically, the Station will update immediately.

Please contact us if you have any questions.

Phone: (510) 248-4141
Email: support@altrac.io

General Specifications

Operating Temperature
-40°C to 80°C (-40°F to 176°F).

Cellular Network
Altrac equipment uses 2G/3G networks on AT&T and T-Mobile. The Altrac will automatically pick the strongest signal for its connection.

Outdoor Ready
All components are IP67 rated for maximum protection in harsh outdoor environments.

Pressure Transducer (Optional)
Multiple psi ranges available, Stainless steel sensing element, 1/4” male NPT process connection

When Ordering, specify:
Controller Type: For controller specific instructions, please contact Altrac. Be prepared to share make and model number as well as pictures of your pump equipment.

Length of Wire: Standard length is 40 feet. If you need a longer cable, measure the distance from your pump cabinet to the mounting location of the Altrac Pump Station.

PSI Range: Pressure transducers come in a range of ratings: 0-100, 0-200, 0-300, etc.

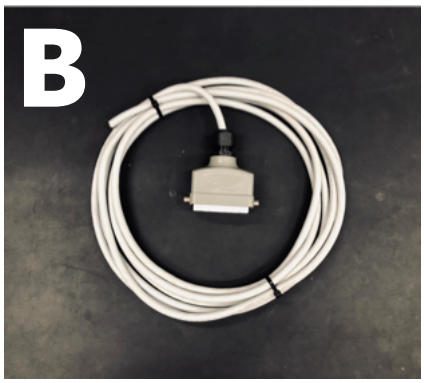
WARNING! This controller is not to be used as the primary means of determining flow through your waterworks. It must not be used in the absence of redundant systems in critical applications where there may be significant safety risk or financial exposure in the event of over or underpumping.

Components

The Altrac Pump Station comes with a (a) cellular device (b) control line and (c) pressure transducer.

A

A: The Altrac Station includes a cellular modem which connects your equipment to the internet. All components are IP 67 rated for harsh outdoor environment.



B: The control line is wired into your pump cabinet and attaches to the Altrac Station. Comes with 30’ of cable.

C

C: The (optional) pressure transducer attaches to your irrigation line and wires into the accessory port on the Altrac station. It is helpful to determine when your pump is operating.

Required Tools and Hardware

We recommend having the following equipment on hand during the installation.

A

A: In order to connect to the auto side of the HOA switch, you will need a selector switch contact block.

B

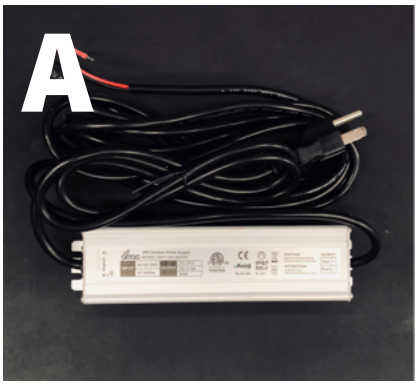
B: If you need to run the power supply into the cabinet, use a cable gland to seal the hole. Power supply cable is .25” in diameter.

C

C: If no relay is available on the VFD, you must install one of your own.

Power Supply

The Pump Station must be powered by a 12VDC power source. The Altrac provided option is described below.



A: The 12VDC power supply connects directly to a 120VAC electrical outlet to provide power to the Altrac Station. The power supply is IP67 rated with a wire length of 12 feet.
Part number: PW200

Enclosure Mounting

For maximum protection against water intrusion, mount the Altrac enclosure with the connector and the antenna toward the ground.

Altrac Inputs - Pressure Sensors

Pressure Transducer (4-20mA)

To install a pressure transducer, use the 6-pin accessory port pigtail provided in your pump kit.

(1) Connect transducer V+ to Pin 1, Red on the accessory port.

(2) Connect transducer output to Pin 5, Yellow on the accessory port.

(3) Connect the yellow wire inside the pump enclosure to screw terminal 'T'.

WARNING: Failure to comply will damage the Altrac station.

Pressure Switch (24VDC Max)

To install a pressure switch, use the 6-pin accessory port pigtail provided in your pump kit.

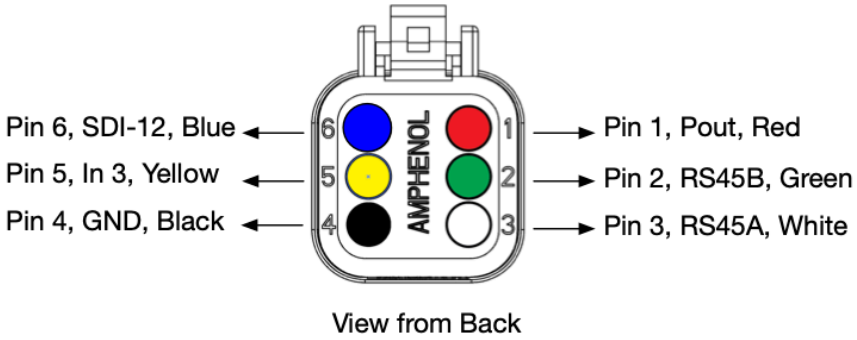
(1) Connect transducer V+ to Pin 1, Red on the accessory port.

(2) Connect transducer output to Pin 5, Yellow on the accessory port.

(3) Connect the yellow wire inside the pump enclosure to screw terminal 'S'.

WARNING: Failure to comply will damage the Altrac station.

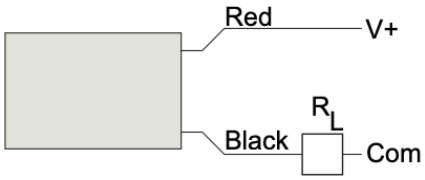
Accessory Port - Deutsch Connector



NOTE: Connecting the Pump Station should only be done by a licensed electrician following local codes. Improper installation could result in shock or fire hazard.

Pressure Sensor (Optional)

Pressure Sensor
4 to 20mA Output Wiring Diagrams

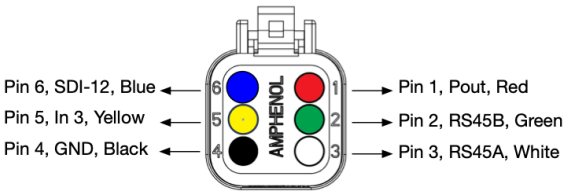


With Integral Cable

Wiring:
Wire the Red V+ on the pressure sensor to Pin 1, Pout (Red) on Altrac's accessory port.

Wire the Black COM Ground on the pressure sensor to Pin 5, IN3 (Yellow) on Altrac's accessory port.

Accessory Port - Deutsch Connector

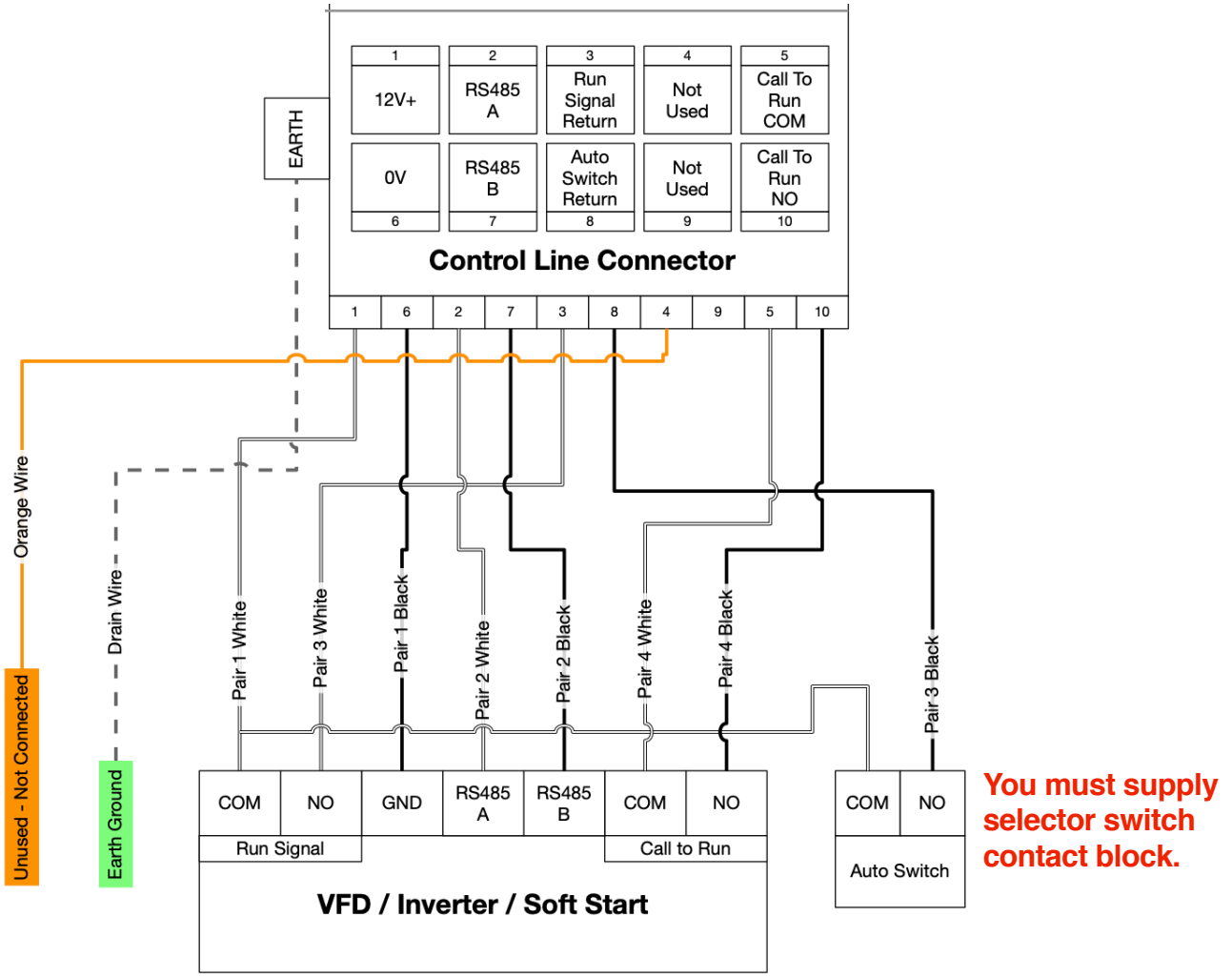


View from Back

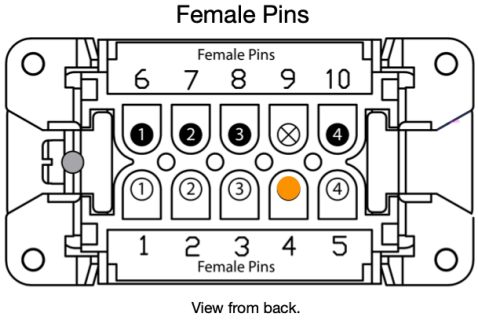
Shielded Cable Models Wire Designation		
Wire Color	***0 - 10 VDC Output***	***4 - 20 mA Output***
Red	V +	V +
Black	Com	Output
White	Output	None
Bare*	Shield Drain Wire	Shield Drain Wire
**** Where shielded wiring is being used; Connect the drain wire to the guard terminal on the read out device or measuring instrument if available. In all other cases connect to the power supply negative terminal.***		

NOTE: Connecting the Pump Station should only be done by a licensed electrician following local codes. Improper installation could result in shock or fire hazard.

Pump Side Schematic



Run Signal:
In order to track when the pump is operating, 12VDC power feeds from the Pair 1 White wire (Pin 1) through the VFD's run signal relay then back to our run signal return, Pair 3 White (Pin 3).



Pin 1: White, Pair 1, Run Signal, COM
Pin 2: White, Pair 2, RS485 A
Pin 3: White, Pair 3 Run Signal, NO
Pin 4: Unused - Orange Wire
Pin 5: White, Pair 4 Call to Run, COM
Pin 6: Black, Pair 1, GND
Pin 7: Black, Pair 2, RS485 B
Pin 8: Black, Pair 3, Auto Switch, NO
Pin 9: Unused
Pin 10: Black, Pair 4, Call to Run, NO
Earth GND: Black, Pair 6

NOTE: Connecting the Pump Station should only be done by a licensed electrician following local codes. Improper installation could result in shock or fire hazard.