TRAINING DOCUMENT

# Turntide Smart Motor System Wiring with Venstar Surveyor Control

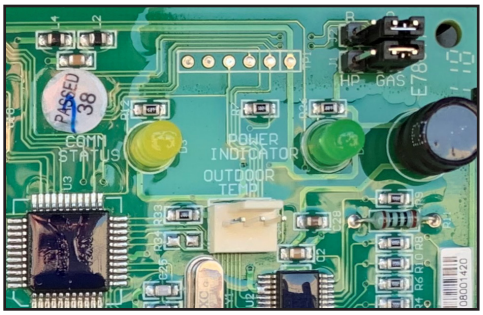
## Introduction

This document is intended as a field reference guide following completion of the Turntide Academy course *Control Wiring with Venstar Surveyor Control*. This guide should not be construed as a replacement for the course.

Only qualified technicians that are familiar with electrical and mechanical safety procedures should use this guide. The processes outlined here should only be performed with the unit power disconnected.

## Step 1 - Power & Communication Verification

Verify the status of the Venstar Surveyor control green POWER LED and amber COMM STATUS LED. The POWER LED should be on. The amber COMM STATUS LED should blink several times followed by steady on, then a brief off period and repeat. Document the status **BEFORE** starting the Turntide Smart Motor System Installation by adding a short video to XOi workflow number 2, step 1.



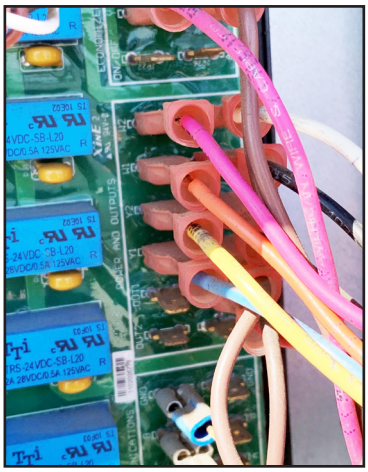
**Surveyor Control LEDs**

The video **must** show the LED sequence and pan to show the control wiring and original induction motor. If the LEDs are not displaying as outlined above, complete XOi number 7, *Existing Equipment Issue Report* and include a video indicating the LED status. Technicians should not attempt to resolve any pre-existing communication issues.

## Step 2 - Remove Wires From Surveyor Control

Remove the wires attached to the G, Y1, Y2, W1 and W2 terminals of the Venstar Surveyor control. **Do Not** remove any other wiring!

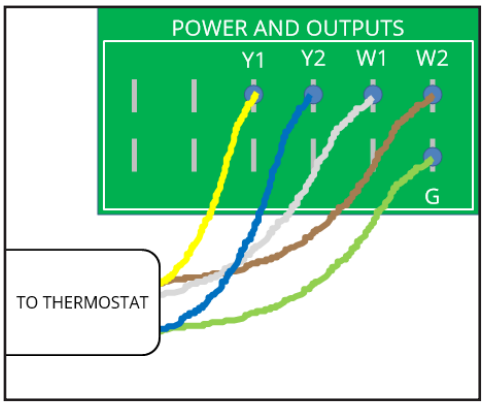
**Pro Tip:** Take a picture of the wiring before starting. The picture may be a useful resource during the step three.


**Surveyor Control Wire Example**

# Step 3 - Connect White *To Thermostat* Wires

Connect the wires of the **white TO THERMOSTAT** motor controller harness as follows:

- Green wire to G terminal of Surveyor control
- Yellow wire to Y1 terminal of Surveyor control
- Blue wire to Y2 terminal of the Surveyor control
- White wire to the W1 terminal of the Surveyor control
- Brown wire of the W2 terminal of the Surveyor control




***To Thermostat* wire Connections**

# Step 4 - Connect Black *To Unit Terminal Board* Wires

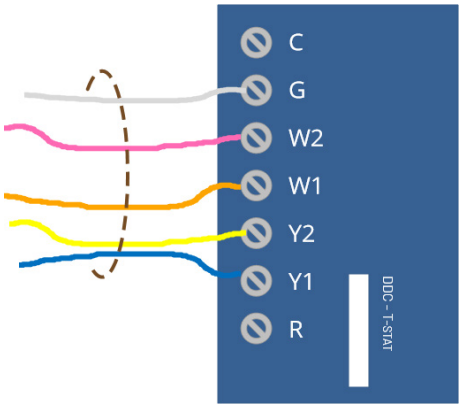
There are two scenarios for the wiring between the Surveyor control and the unit control. Select the scenario here that matches the unit on which you are working. Follow the directions exactly to avoid any erratic operation issues.

## Scenario 1 - Wires Connected to Terminal Strip

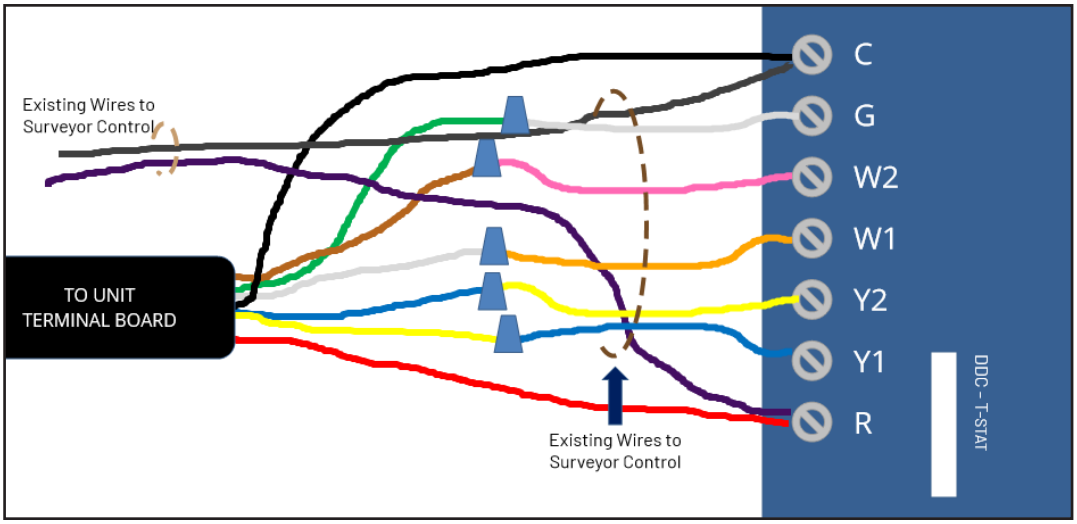
In this situation the wire from the Surveyor control connects to the RTU control terminal strip. Do Not remove any wiring from the RTU control.

Connect the wires of the **black *TO UNIT TERMINAL BOARD*** motor controller harness as follows:

- Green wire to the wire removed from the G terminal of the Surveyor control.
- Yellow wire to the wire removed from the Y1 terminal of the Surveyor control.
- Blue wire to the wire removed from the Y2 terminal of the Surveyor control.
- White wire to the wire removed from the W1 terminal of the Surveyor control.
- Brown wire of the wire removed from the W2 terminal of the Surveyor control.
- Red wire to the "R" terminal of the unit control board.
- Black wire to the "C" terminal of the unit control board.



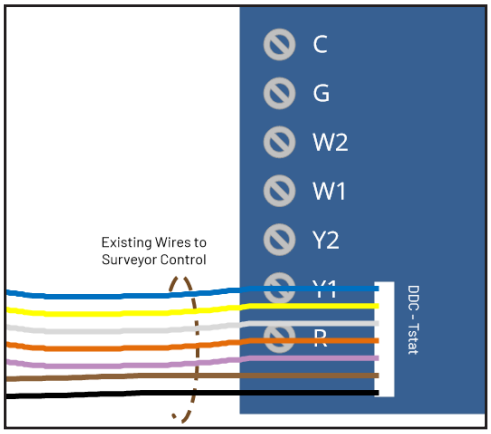

**RTU Control Board**




**Completed Wiring**

## Scenario 2 - Wires Connected to DDC - Tstat Socket

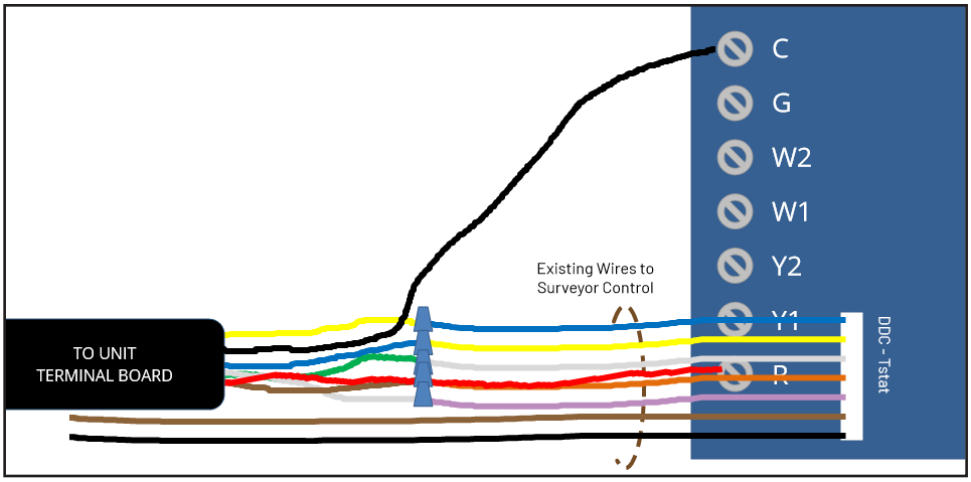
In this situation the wires from the Surveyor control connect to the RTU DDC - Tstat socket. Do Not remove or cut any wires leading to the DDC - Tstat socket. When the harness between the Surveyor and DDC - Tstat socket exist **only** connect the *To Unit Terminal Board* red and black wire to the RTU control terminals. **DO NOT** attach the other *To Unit Terminal Board* wires to the RTU control terminals. Doing so may yield unexpected results.



RTU Control Board

Connect the wires of the **black *TO UNIT TERMINAL BOARD*** motor controller harness as follows:

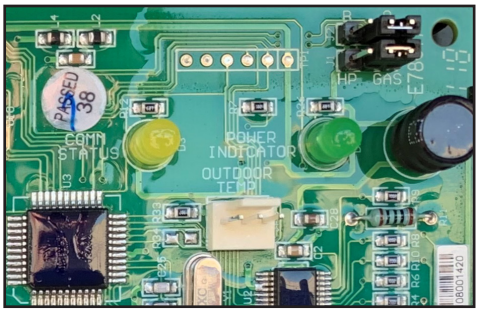
- Green wire to the wire removed from the G terminal of the Surveyor control.
- Yellow wire to the wire removed from the Y1 terminal of the Surveyor control.
- Blue wire to the wire removed from the Y2 terminal of the Surveyor control.
- White wire to the wire removed from the W1 terminal of the Surveyor control.
- Brown wire of the wire removed from the W2 terminal of the Surveyor control.
- Red wire to the "R" terminal of the unit control board.
- Black wire to the "C" terminal of the unit control board.



Completed Wiring

## Step 5 - Power & Communication Reverification

One of the last steps following an installation and function testing of the Turntide Smart Motor System is reverify the Surveyor LED status to control was not impacted by the motor installation. Record another video of the LED sequence for inclusion of XOi number 2 step 21. The video **must** show the LED sequence and pan to show the Turntide motor installation is complete.



Surveyor Control LEDs

If the LED sequence does not differ from the initial inspection, no action is necessary. **If the LED seqeunce has changed** since the initial inspection, **contact Turntide Technical Support** for assistance (877-776-8470) **BEFORE** leaving the jobsite.