Replacing a VersaTenn III Controller

Figure 1, Synergy Controller Installation

Introduction

Synergy Controller is Tidal Engineering's ® Environmental Chamber retrofit package that drops in many Environmental Test Chambers and provides state-of-the-art usability and operating efficiency.

Synergy Controller includes:
--> Color touch screen
--> Ethernet, RS-232 and GPIB communications
--> Built in Data logger and Data Acquisition, Up to 64 T-type thermocouples
--> Built in Web Server for remote control
--> Compatible with LinkTenn32 software
--> Built in Floppy drive for data logging and program transfer.
--> Built in USB port compatible with USB Disk drives for data logging and program transfer.

The unit was specifically designed to be field retrofitable and installed in place of a VTIII within 10 minutes. It can also be retrofit into chambers from Envirotronics, Thermotron, Blue-M and Cincinnati Sub-Zero.

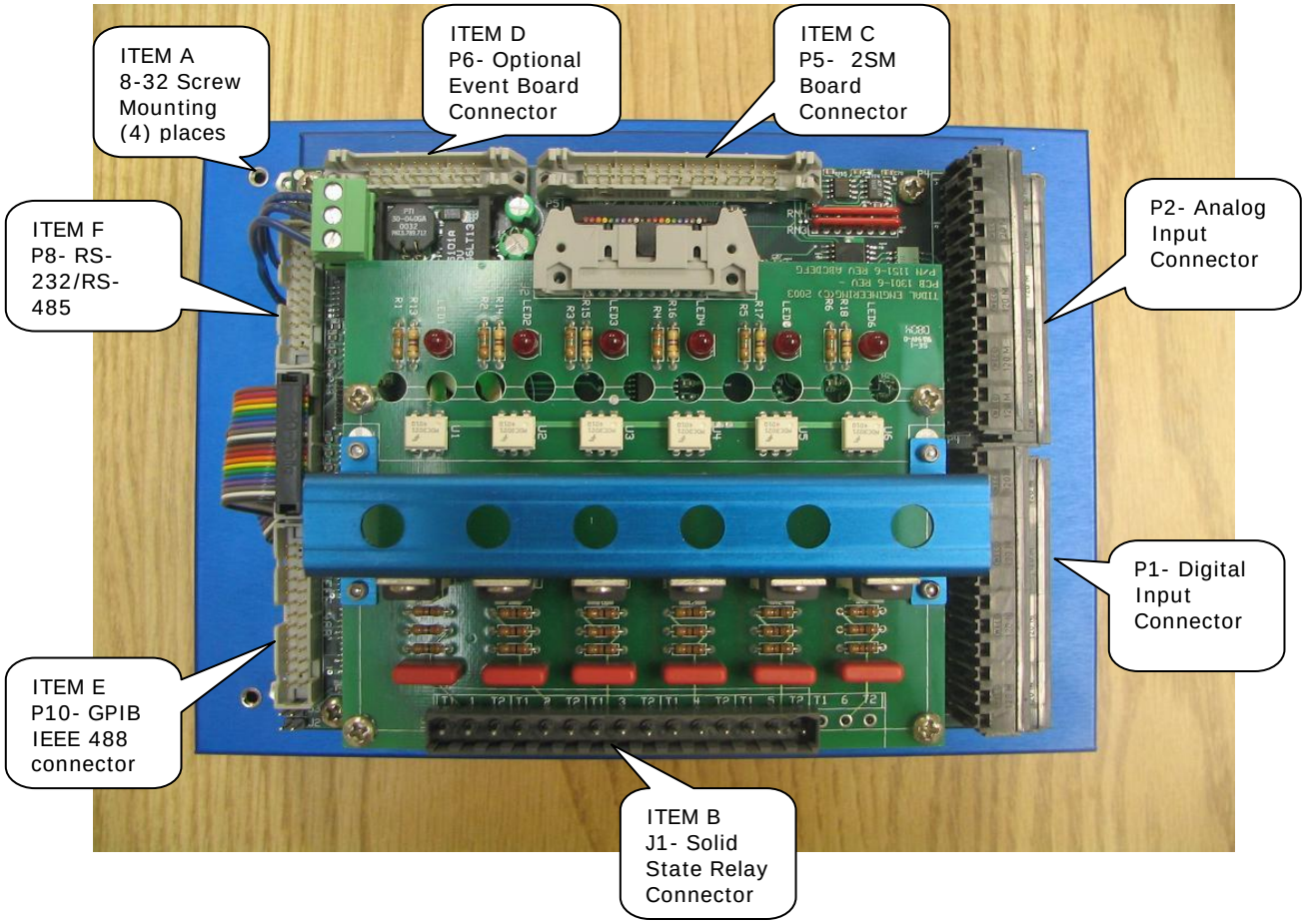
This Synergy Controller application note describes the installation in a VersaTenn III equipped environmental test chamber.

WARNING: LETHAL VOLTAGES ARE EXPOSED INSIDE ALL ENVIRONMENTAL TEST CHAMBERS. USE CAUTION!

Step I - Removing the existing VersaTenn III (VTIII) Controller

1. WARNING! Make certain power has been disconnected from the chamber.
2. Remove the cables from the back of the VTIII.
3. Remove the four screws holding the controller in place.
4. Pull the VTIII from the front of the chamber.

Figure 2, Synergy Controller Back view



Step II - Installing the new Synergy Controller (See Figure 2).

1. Place the Synergy Controller on the front of the chamber through the rectangular opening.
2. Place four 8-32 X 1/2" mounting screws from inside the chamber into the four threaded holes in the back of the controller (Item A).
3. Plug the Solid State relay connector to the back of the Synergy Controller, Triac board J1 connector. (Item B)
4. Connect the existing 34-position ribbon cable from the 12-Channel Triac board 2SM to Olympic Board connector P5 (Item C).
5. Connect the optional Event board to the Olympic Board connector P6 (Item D).
6. Connect the GPIB cable to the Olympic Board connector P10 (Item E).
7. Connect the RS-232/RS-485 communication cable to the Olympic Board connector P8 (Item F).

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Figure 3, Synergy Controller Back view

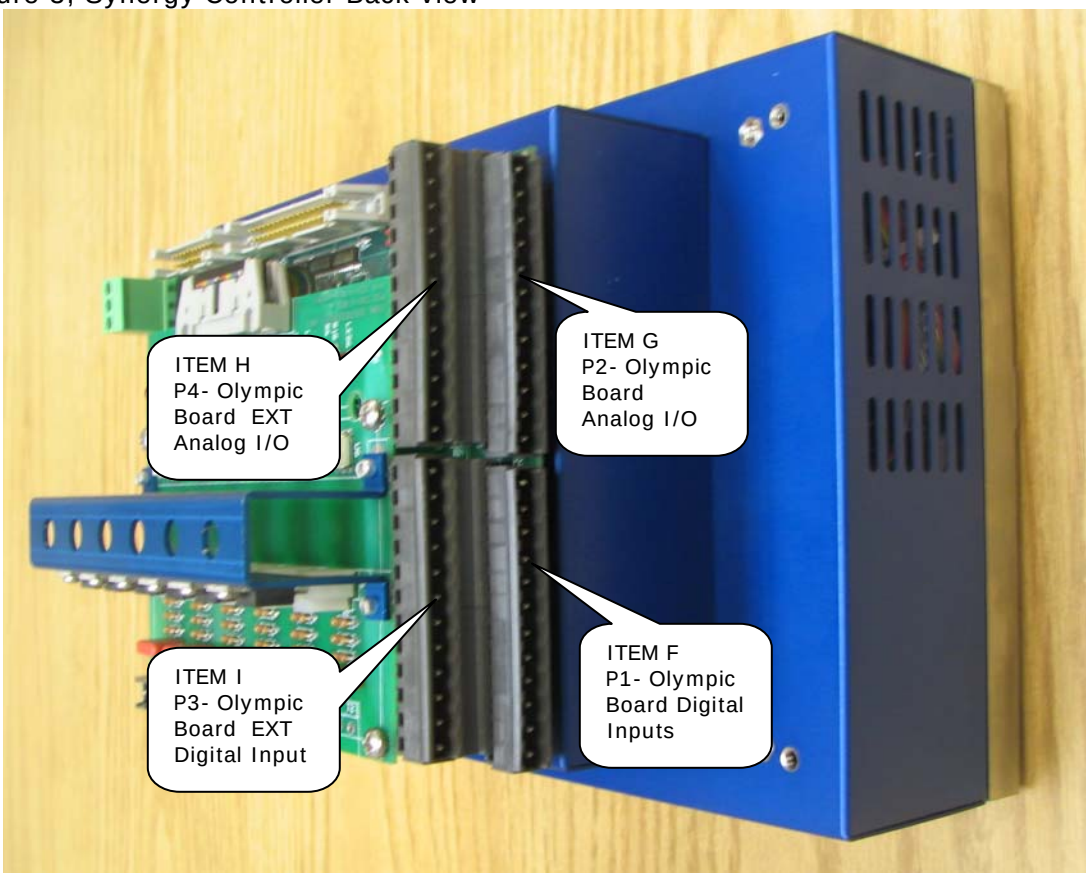
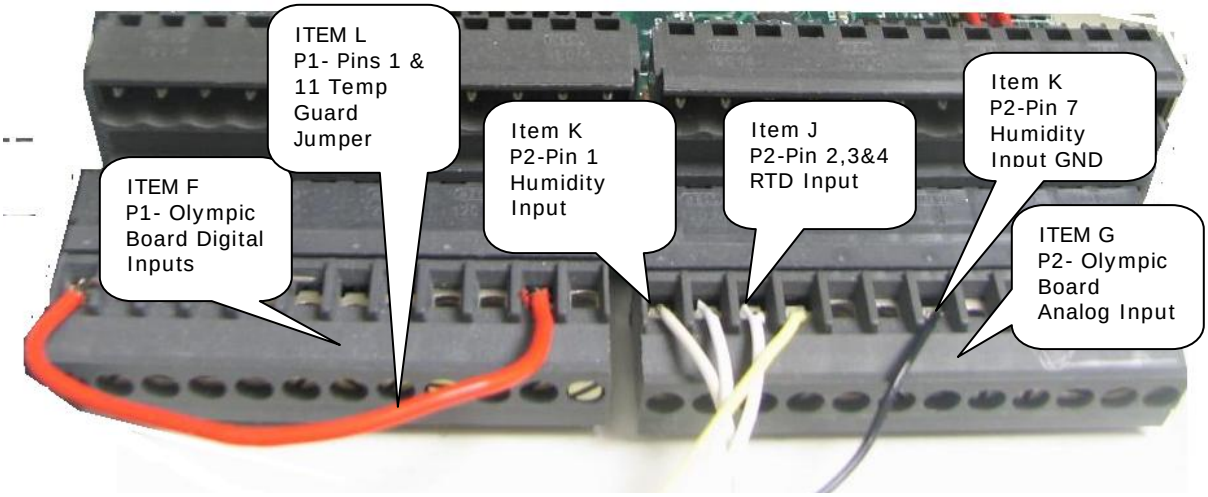


Figure 4, Synergy Controller Back view



8. Wire up the RTD Temperature sensor to the Olympic Board connector P2 (ITEM J).
   P2-Pin 2 White
   P2-Pin 3 White
   P2-Pin 4 Red

9. Wire up the Humidity sensor (optional) to the Olympic Board connector P2 (Item K).
   P2-Pin 1 White (signal 0-5 VDC, 0 - 100% RH)
   P2-Pin 7 Black Ground
10. Jump the Temp Guard input to the Olympic Board connector P1 (Item L).
   P1-Pin 1 to P1-Pin 11
11. Wire the Alarm wiring to the Olympic Board connector P3 (Item I).
   Connect the Wire marked 3 to P3-PIN 12.
   Connect the Wire marked 4 to P3-PIN 11.

Step III - Configuring the Synergy Controller

1. Confirm all connections are correct and secure.
2. Connect power to the chamber.
3. Confirm that the Synergy Controller LCD displays the boot process, the Synergy logo and finally the MAIN screen.
4. Go to the SETUP screen and select the Chamber Setup folder.
5. Select change and select the chamber configuration. For VTIII Temperature/Humidity Chambers, select the Retro T/H Selection. For VTIII Temperature only configurations select the Retro Temp Only configuration.
6. Press Apply.
7. Press the reset button on the front of the Synergy controller.
8. When the controller reboots, select OK at the first window and select OK at the second window.

For further information concerning the operation of the Synergy Controller please consult the Tidal Engineering website at http://www.tidaleng.com.
Once there, please download the free SimpleComm and Synergy Manager applications at http://www.tidaleng.com/download.htm.

SimpleComm can be used to verify connections to the Synergy Controller and as a simple remote control program for use with Ethernet, GPIB and serial connections.

SynergyManager can be used to write temperature profiles for the controller on the PC as well as collect data, chart and log the Synergy Controller's operation.

About Tidal Engineering

Headquartered in Randolph, NJ, Tidal Engineering Corporation has been designing and building award-winning embedded hardware and software for test and measurement and data acquisition applications since 1992. The company further provides product development services together with engineering support, and is recognized for technical expertise in such areas as Embedded IEEE 488, and turnkey SCADA (Supervisory Control and Data Acquisition) systems. Tidal's products are available exclusively through ADI American Distributors Inc., an ISO-9002 certified distributor of electronic and electromechanical components and assemblies.

Tidal Engineering Corporation
2 Emery Avenue
Randolph, NJ 07869
Tel: 973/328-1181
Fax: 973/328-2302
www.TidalEng.com
info@tidaleng.com