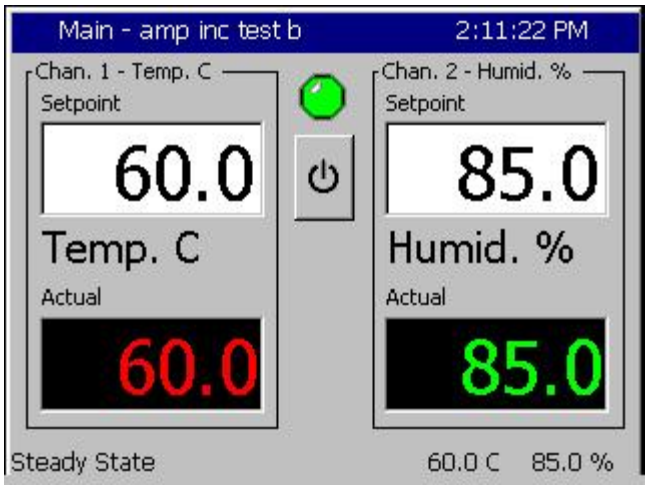
Synergy Controller Loop Back Setup



Introduction

The Synergy Controller offers a loop-back feature whereby one or more channels provide simulated Process Variable feedback for the purpose of configuration testing, software development, or troubleshooting. In loop-back mode, the Actual Values (AKA Process Variables or PV) follow the setpoints (or SP) ideally or with a gain and offset adjustment. This application describes the adjustments required for this mode.

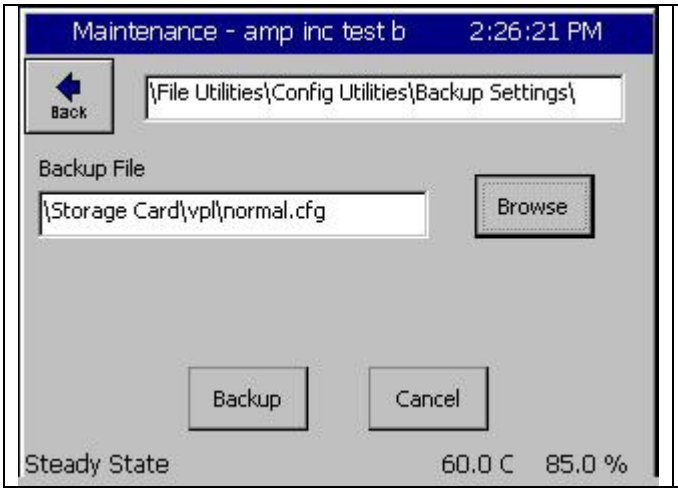
Tidal Engineering's Synergy Controllers, both the Synergy Micro and the ¼ DIN Synergy Nano provide state-of-the-art usability and connectivity for environmental test control and data acquisition and combine the functions of a chamber controller and a data logger and are designed to improve test efficiency by supporting both factory automation and test and measurement protocols and standards.

Synergy Controller feature highlights includes:

- ➔ Color touch screen
- ➔ Ethernet, RS-232 and GPIB communications
- ➔ Built in Data logger with USB drive support
- ➔ Data Acquisition, up to 64 T-type thermocouples (Optional)
- ➔ Built-in Web Server for remote control; WebTouch Remote ™ (Optional)
- ➔ Compatible with Synergy Manager for PC based control, monitoring and programming.
- ➔ Built-in FTP Server for factory automation and test and measurement applications

For more information regarding the controller please see the full Synergy Controller Technical Manual on our website at http://www.tidaleng.com/synergy.htm

Before making the controller settings adjustments for loop-back mode, you may want to capture the normal settings using the Backup Settings function so you can easily restore the controller to normally operation. You can save the settings to the Controller's Storage Card (as shown below) or alternatively to a removable USB Hard Drive for archival purposes.

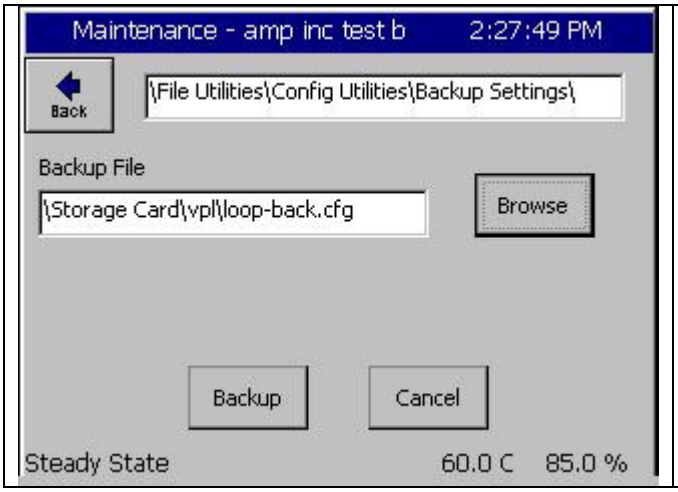


To backup the normal settings, browse to the folder at the left. Press the Browse button and select the file or enter an appropriate file named.

The file name "normal" is used in the example at left.

For detailed instructions regarding the Backup Settings functions, see the Synergy Controller technical.

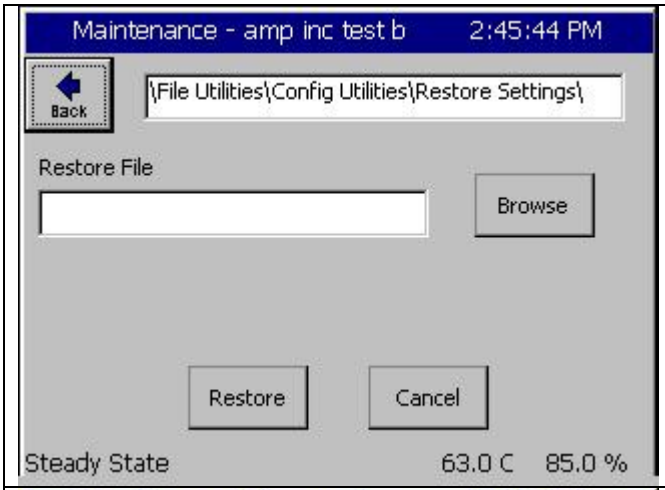
After the adjustments are made, you can save the loop-back settings to a file to make it easy to switch between the normal and loop-back modes.



To backup the loop-back settings, browse to the folder at the left. Press the Browse button and select the file or enter an appropriate file named.

The file name "loop-back" is used in the example at left.

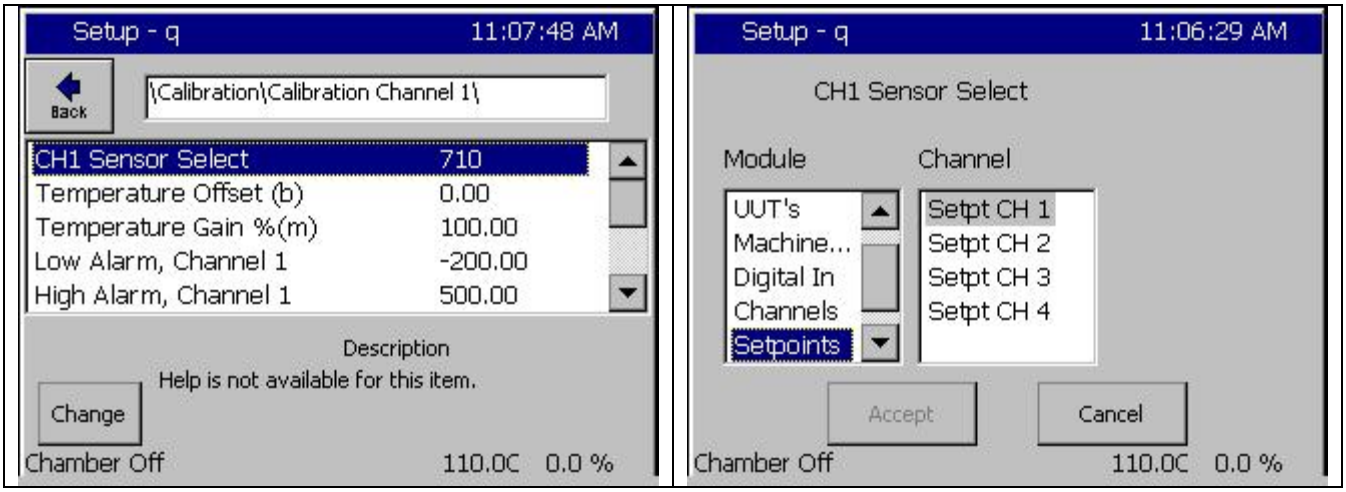
You can restore these two settings files to easily switch between the normal and loop-back modes.



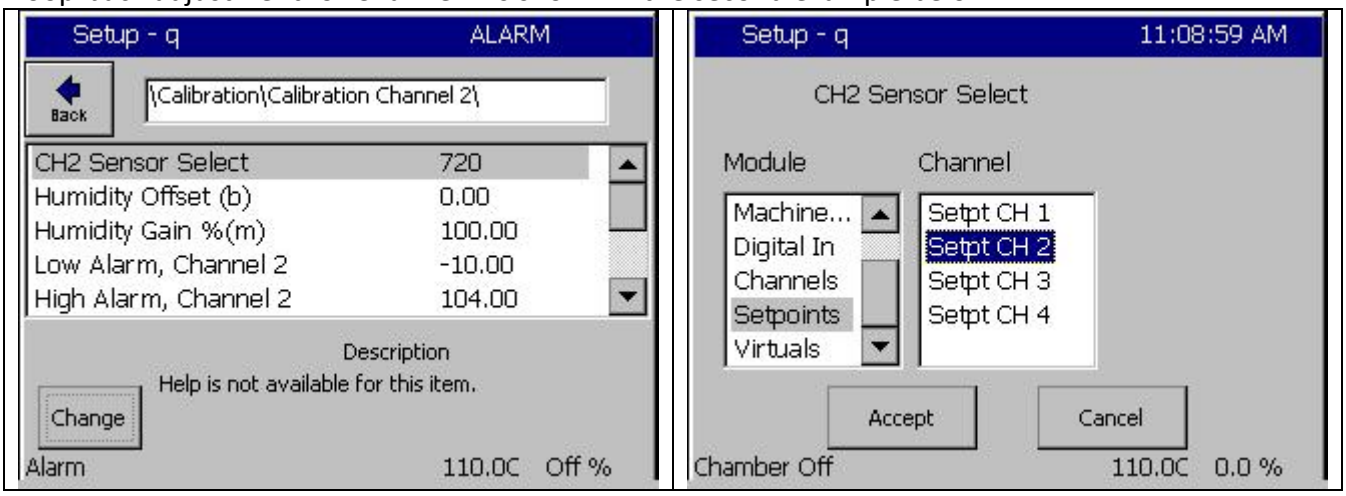
To restore the loop-back or normal settings, browse to the folder at the left. Press the Browse button and select the file as required.

The normal and loop-back settings files created for this example are shown in the image on the left.

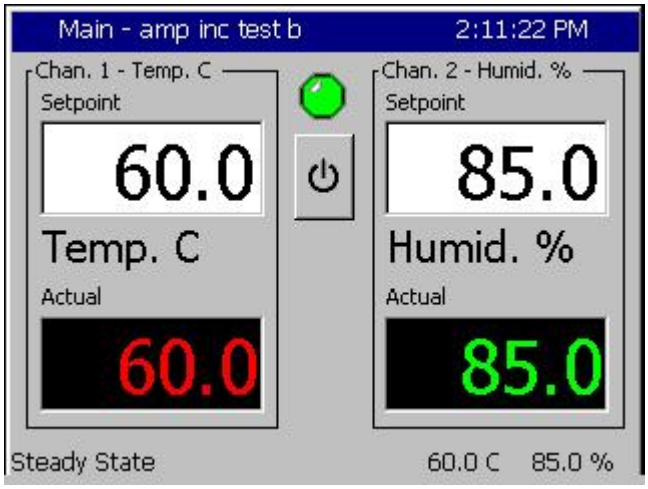
To put a controller channel in loop-back mode, browse to the calibration screen for the channel as shown below and change the Sensor Selection to the appropriate Setpoint channel (Setpt CH) as shown in the example below for Channel 1.



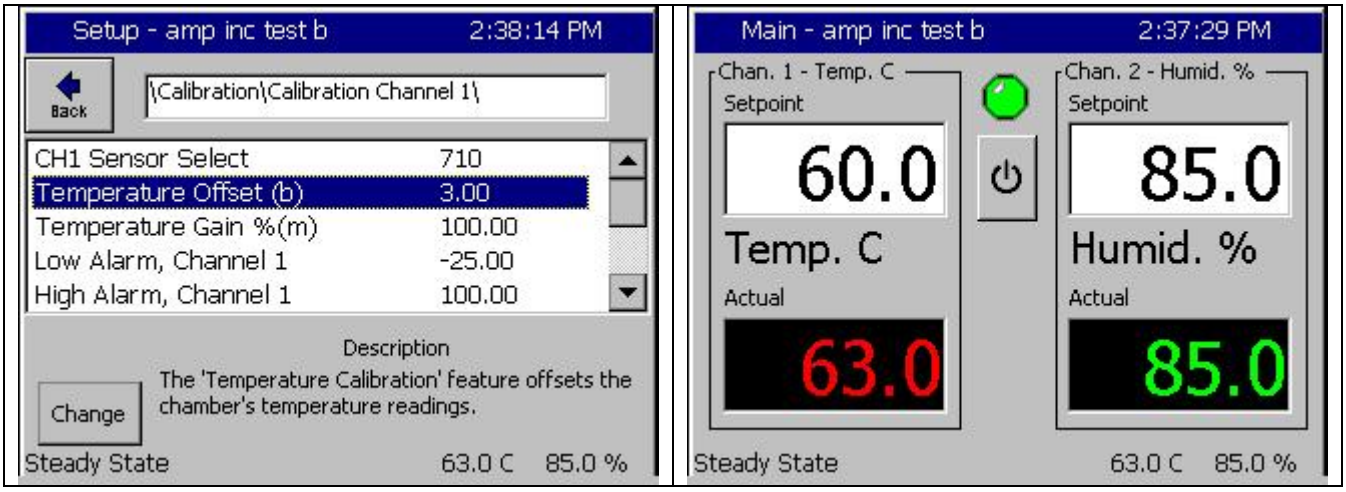
For any other channel, browse to its Channel Calibration folder and repeat the procedure. The loop-back adjustment for Channel 2 is shown in the second example below.



After these adjustments are made and assuming that no channel gain or offset adjustments were made, the Synergy Controller Actual Values (PVs) will follow the Set Points (SPs) exactly as shown below.



If a deviation between the PVs and SPs is desired, then Channel Gain and Offset adjustments can be made. In the screens below the 3.00 Degree Channel 1 Temperature offset is evident on the Main Screen.



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 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.

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