VersaTenn V Step Descriptions

The VersaTenn V supports a robust programming language allowing users to create complex temperature and humidity profiles. The VersaTenn V supports five different step types, with each step type having a specific function. The steps are: Setpoint, Waitfor, Jumploop, Autostart and Stop.   Each step is described in detail below.

- **Setpoint Step** – The Setpoint step is used to ramp the chamber from one setpoint to another. Setpoints can be different from a prior step or the same if the user only desires to change events or logical values.

  Some fields are required in a setpoint step and some are not. Temperature setpoint is always required, even if it is the same as the previous step. Channel 2 (if available) can be set, or can be turned off and not controlled.

  If a ramp time is desired it can be entered. If no time is entered, the setpoint will immediately go to the desired setting and the profile will continue. If a ramp time is set, the setpoint will ramp linearly from the starting point to the desired setpoint throughout the step. For example, if the user wants to ramp the temperature ten degrees in ten minutes, the chamber will drive the temperature one degree higher every minute.

  Events are also optional. If the user has anything connected to the event outputs, events can be enabled or disabled (closed or opened) with every setpoint step. Events are evaluated at the beginning of every step. If an event is enabled, it is enabled at the beginning of the step, even if there is a ramp time. There is no way to enable or disable events at the end of a ramp in the same step.

  The last set of options in a Setpoint step are located on the events screen. They are Use Drier, LEV2, and OT11. Use Drier is the same as LEV 1 from the VersaTenn 3 controller. It enables the drier device (if available) on temperature/humidity chambers instead of the default dehumidify coil for better performance. OT11 changes the output logic for the ambient coil between On/Off logic and Time Proportioning logic. LEV2 controls the Purge device (if available and enabled through OT17). Enabling it will enable the purge device, disabling it will disable the purge device.

- **Waitfor Step** – The Waitfor step is the same as a hold step in some other controllers. The waitfor step holds program execution until certain conditions are met. Those conditions can be setpoints, a time interval or external digital inputs.

Waitfor steps can wait on channel one or channel two, both channel one and channel two, or neither channel. The waitfor will not advance until the actual reading (temperature, humidity, etc) for that channel goes above or below the waitfor value. Which direction the actual must travel is determined at the very start of the step. If the actual value is less then the waitfor value, then the step will wait until the actual value is greater then or equal to the waitfor value. If the actual value is greater then the waitfor value, then the step will wait for the actual value to be less then or equal to the waitfor value.

Waitfor steps can also wait for a period of time. If any hours, minutes or seconds are entered, then the waitfor will hold on that step for that desired length of time after all other conditions are met. The timer will not start counting down until channel one and channel two targets are met (if they are set), and any digital inputs are met (if they are also set). Once the conditions are met then the waitfor time will count down to zero and then continue onto the next step.

Waitfor steps also have the option of waiting for any of sixteen digital inputs to be in a certain state. Digital inputs can be wired into the VersaTenn V to inform the controller of certain user desired events, such as a unit under test powering up during a test. All inputs are independent of one another and can be ignored, or be set to wait for the input to be on or off (closed or open). Only digital inputs that are not ignored are checked. By default, all inputs are ignored unless specified.

- Jumploop Step – The Jumploop step is used to repeat parts of a profile over and over again. A Jumploop step is made up of two parameters: the step to jump to, and the number of times to jump. The step to jump to must always be less then the jump step's own step number. You cannot jump forward over parts of a profile, you may only jump back into the profile. The jump count specifies how many times you jump back over the steps. The count can be anywhere from one to two hundred fifty five, or negative one. If the count is negative one, then it will loop infinitely. It will never get past the jumploop step, it will continue jumping back to the specified step until the profile is stopped manually.

- Autostart Step – The Autostart step is used to automatically start the chamber. The chamber can either be started in a relative amount of time (ten hours and five minutes from when you click on Run) or at an absolute day and time (Tuesday, November 4th, 2003 at 7:30 AM).

  When you add an Autostart step to a profile you are asked if you want the profile to start on a specific date and time, or in a set time. You select a specific date and time to enter the date and time that the profile should start. You select "in a set time" to program the profile to actually start executing a specific amount of time after you press the Run button (i.e. ten hours five minutes).

- Stop Step – The Stop step is used at the end of a profile. You cannot add any steps after a stop step. The stop step tells the chamber what to do at the end of a profile. You can either have the chamber shut down and turn off all the outputs and allow the chamber to slowly go back to ambient levels, or you can have the chamber go into steady state and run until manually stopped. If you have the chamber run in steady state mode, the last setpoints from a setpoint step will be used as the steady state setpoints.

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.

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