



Delta-T Pro Lite vs. Delta-T Pro Controller versions.

The controllers are available as stand-alone versions or integrated into Heliodyne heat transfer appliances. The HPAK 16 appliances come with a standard, Pro Lite, Pro Wifi, or Pro Ethernet controller versions. Both the Pro Lite controller and the Pro controllers will offer BTU metering (with compatible flow sensor), web based monitoring, vacation mode, and an input for a digital pressure sensor. The HPAK, HFLO, HPAS & HCOM appliances come with 2 x 10K Ohm lug type sensors.

The Delta-T Pro Lite (Available as **WiFi version only**):

- Has inputs for 3 x 10K ohm temperature sensors (T1 collector out, T2 storage tank low mandatory. T3 can be used for solar storage tank high or other temperature if using 2nd relay)
- Has input for a Digital Pressure & Temperature Sensor.
- For energy monitoring, a flow sensor that will measure temperature and flow (such as Grundfos Vortex Flow Sensors that Heliodyne carries) is required.
- Includes 2 relays.

The Delta-T Pro (Available in a **WiFi or Ethernet version**):

- Has inputs for 5 x 10K ohm temperature sensors (T1 collector out, T2 bottom of solar storage tank, mandatory. Other 3 can be used for different temperature uses such as T3 top of solar storage tank, T4 Energy out, and T5 outdoor/ambient)
- Has input for Digital Pressure + Temperature Sensor monitoring, CT meter, or pyranometer for insolation monitoring.
- For energy monitoring, a flow sensor that will measure temperature and flow (such as Grundfos Vortex Flow Sensors that Heliodyne carries) is required. If pipe size is larger than 2", we recommend sourcing a pulse/paddle-wheel flow sensor (Heliodyne does not carry these).
- Includes 3 relays. Relay 1 operates the solar loop pumps. Relay 2 is used as a temperature operated relay (e.g. for use with combination Systems, etc.). Relay 3 is generally used for combination systems, to operate an additional pump as in a heat dump loop, to operate a single tank gas water heater system, or to operate an electric ignition gas heater. This relay is combined with an internal timer to prioritize solar water heating over auxiliary heating.
- Allows for variable speed pump operation (only in "Closed Loop Commercial" system mode) with a 4-20 milliAmp output along with appropriate voltage supply to the pump's AC input with Relay 1.

***Important note: From time to time, Heliodyne releases firmware updates for the 3 different Pro controller versions. If you have a Wifi version, the firmware can be updated via an ad-hoc Wifi connection. However, if you have an Ethernet version, then a 2-part cable must be used (available from Heliodyne) to allow for updating. Please see the document on updating the Pro controllers.**

The Pro versions of the controllers also have the capability of tying into an existing Building Automation System (BAS). It is important to ascertain whether the BAS system uses Modbus communication or another language. Our Pro controllers use Modbus communication via TCP/IP or RTU as described [here](#): (also found on our controller page at www.heliodyne.com/controls). If the BAS system uses another protocol, then a Field Server can be used to translate. If the project requires a Field Server, Heliodyne should be notified before the equipment is ordered so that Heliodyne can program the Field Server. Here is a list of the different drivers compatible with the field server: <http://www.fieldserver.com/products/drivers/drivers.php>.

- The Pro-Lite controllers can store 144 lines, or 24 hours worth of data.
 - The Pro Ethernet controllers can store 216 lines, or 36 hours worth of data.
 - The Pro Wi-Fi Controllers can store 4,320 lines, or 30 days worth of data.
- The amp rating on relay #1 NO contact is 20A; the relay #1 NC contact is rated for 10A

Both relay 2 and 3 are rated at 30A (Only Pro Controllers have relay 3)