

## EASY START - PID PLUG & PLAY HEATER CONTROL SYSTEM (P107361)



Ideal Vacuum Heater Control Systems are based on the Solo 4848-RR PID temperature controller, housed in a 1/4 DIN enclosure. Control system models are for 120/240 VAC heaters, up to 20A. This document will assist the user with the most basic set up instructions. Factory settings are listed in the table. All other parameters are user configured. For detailed information about programming Solo 4848 features, download the [Solo 4848 Quick Start Guide](#) and the [Complete Solo 4848 Manual](#).

PARAMETER	Value
Thermocouple	Type K
Temperature Units	° C
Audible Alarm	4° C over SV

First, locate the heater control on a table top, or panel mount it (1/4 DIN cutout is 92mm square).

1. Connect heater wires to the 2 outside terminals of the supplied C19 plug, as shown. Use a #1 Phillips to open the plug and a #2 Phillips to make the connections. AC Heater wires are not polarized. Heater and input voltage must be the same.
2. Connect the heater, K type thermocouple and input power cable to the control box.
3. After all input and output electrical connections are made, energize the vacuum system and turn on the PID heater control box.



The PID has two LED numeric displays. The upper red PV (Process Value) number indicates the current thermocouple temperature. The lower green SV (Set point Value) number shows the desired temperature for the system to maintain.

### Program the SV (Set point Value):

Press the **UP** arrow button. The green SV number will flicker. Press the **UP** or **DOWN** arrow button to change the set point temperature. Press the **SET** button to save.



### Auto-tune the PID to optimize temperature control:

Make sure SV is set to the desired temperature. Press the **SET** button. The PV value will change to "FL", the SV value will read **OFF**. Press the **UP** button to change the SV value to **ON**. This will initiate the autotune process and illuminate the AT LED. Press the **SET** button to show PV and SV values as the unit autotunes. Once the AT LED goes off, the system is optimized. This procedure only needs to be completed once for any system configuration.



### NOTICE

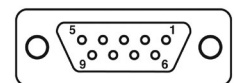
While auto-tuning, heater temperature could fluctuate by up to 10°C over SV. Make sure all vacuum system components (i.e., O-rings) are able to withstand elevated temperatures.

### Changing Temperature Units (° C / ° F):

Press the **SET** button for more than 3 seconds until PV shows "C/F". Press the gray ROTATE button once until PV shows "F/C". Press the **UP** or **DOWN** button to select the temperature units (C or F). Press **SET** to return to temperature readings.

### Set Point Relays:

The system has two switched output relays (ALA1 and ALA2), and a third (overtemperature) alarm relay preset at 4° C above SV. ALA1 and ALA2 can be used to control auxiliary equipment (i.e., solenoid valves). The relays are rated for 1A @ 240 VAC max. Use a 1/2A inline fuse to protect these relays. These relays are wired through the system's back mounted DB9 connector. The PID has many relay configurations which can be programmed according to the user's requirements. See Section 13 of the [Solo 4848 Quick Start Guide](#) for details.



DB9 FEMALE

### RS485/Modbus:

System monitoring and control can be performed remotely via RS485/Modbus software. See Sections 6 and 7 of the [Complete Solo 4848 Manual](#) for details about remote operations.

DB9 Pinout	
Pin	Function
1	RS485, D-
2	RS485, D+
3	--
4	--
5	--
6	--
7	Relay 1/2 Com
8	Relay 1
9	Relay 2

### Reset to Factory Default:

Refer to Section 10 of the [Solo 4848 Quick Start Guide](#) to reset the PID to original factory settings. **NOTE:** Refer to Section 13 of the Quick Start Guide to reset the ALA3 audible overtemperature alarm.