

## PHD ULTRA™ 4400 OEM Open Frame Syringe Pump (syringe not included)

**Please download the complete manual under the pumps/liquid handling section of our website by clicking [here](https://www.harvardapparatus.com/technical-support/manuals) or by visiting <https://www.harvardapparatus.com/technical-support/manuals>.**

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### Unpacking the System

Your PHD ULTRA™ 4400 is packed in a shipping carton that is specifically designed to provide maximum protection to the syringe pump during transportation and normal handling conditions. Upon receipt, the carton should be examined for any external damage resulting from shipment.

The syringe pump is shipped in two main assemblies to assure optimum protection during shipment and requires a simple assembly procedure before the pump can be used. The two main assemblies are the syringe pump mechanism and controller board mounted on brackets. Also included with the assemblies are lock nuts for attaching the controller board to the syringe pump mechanism and a 9-Pin D-Sub cable assembly. This cable is only required if RS-232 communication is needed through a 9-Pin D-Sub connection.

Open the carton and carefully remove the components and inspect for any apparent damage. Save the carton and packing materials for future transportation and shipping requirements. Check the packing slip to ensure that all items ordered and listed are included in the shipment. Inform Harvard Apparatus immediately if any parts are missing or damaged.

### Installation

Once you have verified that the supplied components have not sustained any obvious damage in shipment, proceed with the installation. Please see page two of this Quick Start Guide for instructions on connecting the controller board to the pump assembly and for connecting the RS-232 cable if required.

Place the syringe pump in a location that is a dry, level, sturdy surface free from extremes in ambient temperature, dust or chemical exposure. Allow the device to equilibrate to room temperature. 30 V DC is required to run the syringe pump. A power supply is not included with the syringe pump. Please contact Harvard Apparatus to order a power supply.

The syringe pump is controlled by pump commands and/or I/O logic. Please download the full PHD ULTRA™ OEM Module Series User's Manual for pump commands and additional control instructions.

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## Controller Board Installation

Please attach the 6-pin motor connector to P13 on the controller PCB shown in Figure 1.

Attach the 4-pin encoder connector to P4 on the controller PCB shown in Figure 1.

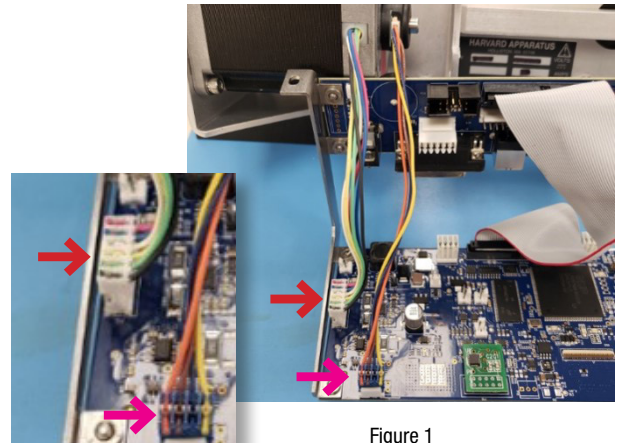


Figure 1

Please attach the controller PCB brackets to the mounting plate using supplied lock nuts as shown in Figure 2. A 5/16" open end wrench is required to tighten the lock nuts.

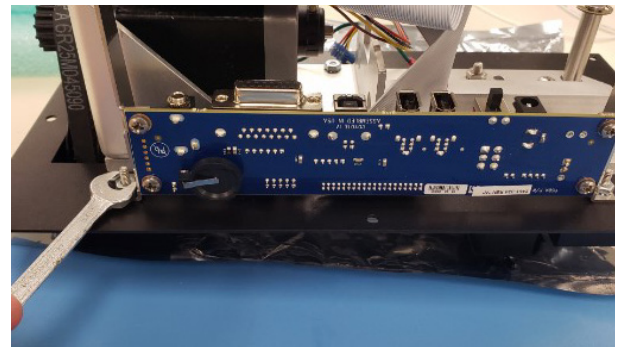


Figure 2

## RS-232 Installation

Please plug the connector end into the RS-232 connection shown in Figure 3. This cable is only required if RS-232 communication is needed through a 9-Pin D-Sub connection.

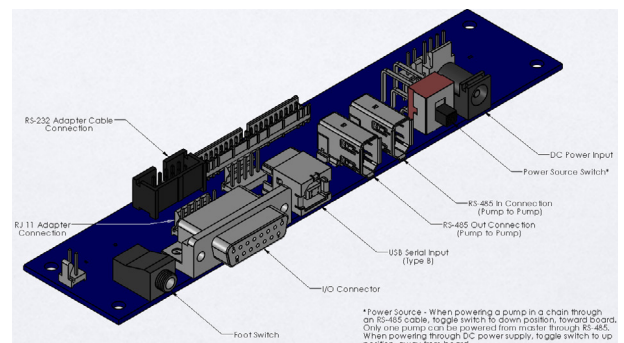


Figure 3

\*Power Source - When powering a pump in a chain through an RS-485 cable, toggle switch to down position, toward board. Only one pump can be powered from master through RS-485. When powering through DC power supply, toggle switch to up position, away from board.