Installation Considerations: Dimensions, Distances, & Environment

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Syringe Pump Technical Bulletin Sept 2020, TB13

For Teledyne ISCO Syringe Pumps

Overview

For optimal safety and performance in the operation of Teledyne ISCO single and multiple pump systems, this bulletin provides physical dimensions and weights of system components, cabling information, and considerations for ideal laboratory conditions.

Basic System Dimensions and Power Requirements

The pump controller is designed to sit on top of the pump base, although it can be placed anywhere suitable within reach of the control cable.

Pump Controller

The controller receives its power from the pump connected to the PUMP A socket.



Figure 1: D Series controller dimensions

Controller Weight	6.5lbs (2.96kg)	 – Single Pump Sy		
		 Weight	Pump - 85lbs (38	

Single Pump

A D Series single pump system consists of a single pump module regulated by a single controller.



Figure 2: Single pump system dimensions

Single Pump System				
Weight	Pump - 85lbs (38.5kg)			
	Controller - 6.5lbs (2.96kg)			
Power Requirements	100 ±10VAC, 1.5A maximum			
	117 ± 12VAC, 1.5A maximum			
	234 ± 23VAC, 0.75A maximum			
Line Frequency	50 or 60 Hz			

Dual Pumps

A D Series dual pump system consists of two pump modules connected with an air, electric, or check valve package, regulated by a single controller.



Figure 3: Dual pump system dimensions (shown with check valve package installed)

	Dual Pump System
Weight	Pumps (2) - 170lbs (77.11kg)
	Controller - 6.5lbs (2.96kg)
Power Requirements	100 \pm 10VAC, Pump A max 1.5A; Pump B max 1.5A
	117 ± 12VAC, Pump A max 1.5A; Pump B max 1.5A
	234 ± 23VAC, Pump A max 0.75A; Pump B max 0.75A
Line Frequency	50 or 60 Hz

Port Locations

The two inlet/outlet ports are located on either side of the cylinder cap. There is no difference between the ports; therefore, depending upon the setup and configuration of the system, either port can serve as inlet or outlet.

You may also plug one port and use a single port as both the inlet and outlet, as shown in the figure below.



Figure 4: Syringe pump cylinder cap: Ports and transducer cable

Connection Tips

- Be sure to keep the tubing as straight as possible at the end, as this will make it easier to install the ferrules.
- Be sure to cut the tubing ends squarely.
- Remove any burrs from the tubing ends.
- When installing ferrules on the tubing, be sure the tubing extends beyond the ferrule for proper crimping.
- If the connection is leaking, retighten the fittings.
- Push the tubing completely into the port before tightening the nut.
- When connections are made to the cylinder cap, the pressure reading may be affected. If the pressure

no longer reads zero, zero the pressure (ZERO PRESS) to readjust.

Cabling

For all systems, connect the control cable of the pump module (Pump A for multiple-pump systems) to the connector labeled PUMP A on the rear panel of the controller. Subsequent pumps in multiple-pump systems can be connected to controller connectors PUMP B and PUMP C.

Note 🗹

The transducer cable (refer to Figures 5 and 6) must be plugged into the PRESSURE TRANSDUCER connector on the rear panel of the pump module for the pump to operate.

Cable part numbers and lengths are listed in the following chart.

Pump controller connect cable (see Figure 6).	7 ft (2.1m)	(attached to
Pump module transducer cable (see Figure 5).	6 ft (1.8m)	pump)
	Hazloc pumps:	
Extension cable for pump controller connect	10 ft (3m)	68-1020-243
	D Series	
	Pumps only:	
	10 ft (3m)	68-1020-210
	50 ft (15.2m)	68-1020-214
RS232 Cable for computer serial control of a sin-		
gle controller. 9 pin to 25 pin.		
	6 ft (1.8m)	480-7996-00
RS232 Extension cable for computer serial con- trol of three or more controllers. Connects to above cable. 25 pin to two 25 pin.		





Figure 5: Syringe pump cylinder cap: Attach to pressure transducer connector on back of pump.

The pressure transducer cable length is always 6 feet (1.8m). Never attempt to extend the length of this cable.



Figure 6: Connecting the pump and controller

Never make any cable connections while the pump is powered ON.



Voltage Adjustment for Longer Controller Cable Length (Legacy D-Series pump controller only)

This voltage adjustment is only for the legacy controller, and not for the current controller. To determine which controller your system has, refer to technical bulletin TB28 D-Series Pump Controller Versions.

The pump voltage is calibrated at the factory, in accordance with the length of the controller cable that was shipped with the system. If you replace this cable with one of different length, you must adjust the 5-volt input from the pump to the controller.

Note

This procedure should never be performed on HL-Series pumps. Contact the factory for assistance. To adjust the voltage:

- 1. Remove the top covers from Pump A and the controller.
- 2. On the controller board, connect a voltmeter to circuit common **TP134**, and **TP106**.



Figure 7: Connect to controller test points

3. On the back of the pump board, use a small, flat insulated screwdriver to adjust the potentiometer R133 until the voltage at TP106 reads 5.0V, $\pm 0.002V$.



Figure 8: Adjust voltage output from pump

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Teledyne ISCO is continually improving its products and reserves the right to change product specifications, replacement parts, schematics, and instructions without notice.