

# Installation Considerations: Dimensions, Distances, & Environment

For Teledyne Isco Syringe Pumps

## Overview

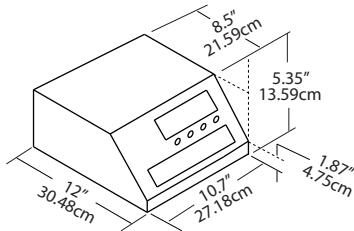
For optimal safety and performance in the operation of Teledyne Isco single and multiple pump systems, this bulletin provides physical dimensions and weights of system components, cabling information, and considerations for ideal laboratory conditions.

## 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.

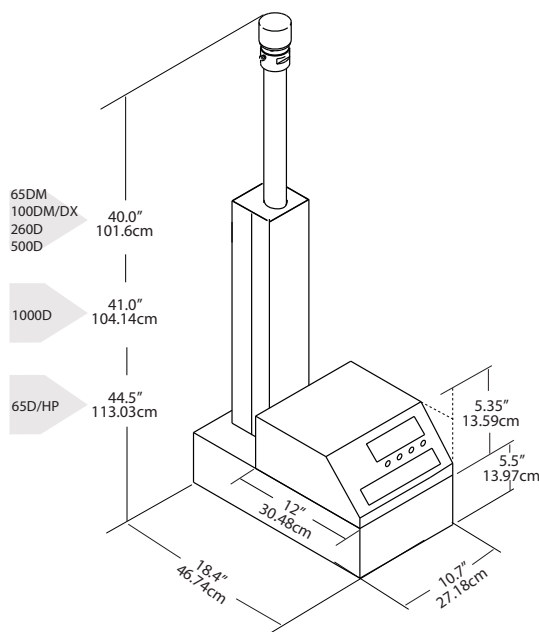


**Figure 1: D Series controller dimensions**

Controller Weight	6.5lbs (2.96kg)
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### Single Pump

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

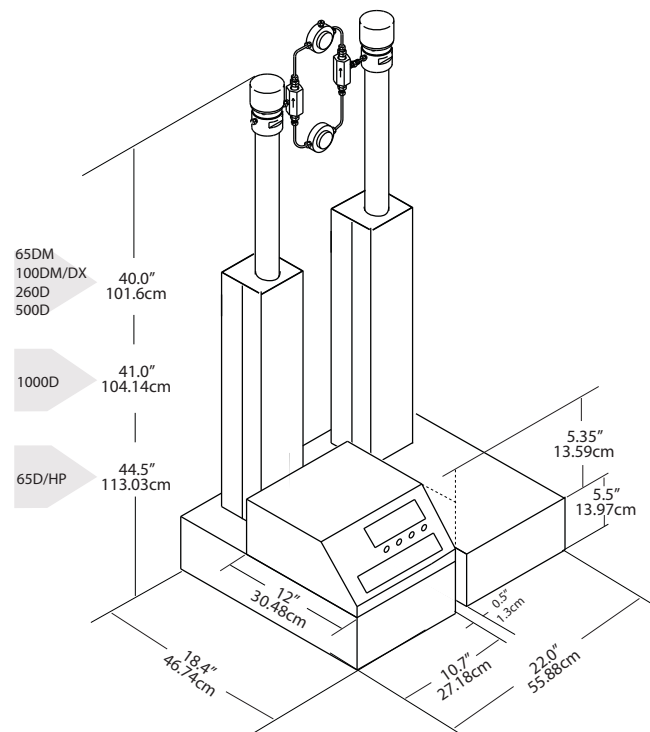


**Figure 2: Single pump system dimensions**

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.



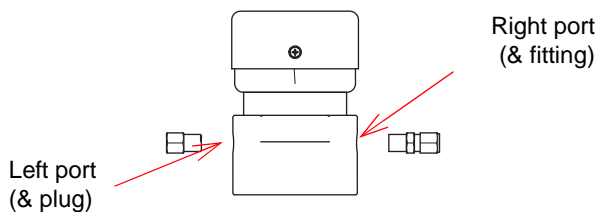
**Figure 3: Dual pump system dimensions  
(shown with check valve package installed)**

Dual Pump System	
Weight	Pumps (2) - 170lbs (77.11kg) Controller - 6.5lbs (2.96kg)
Power Requirements	100 ± 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

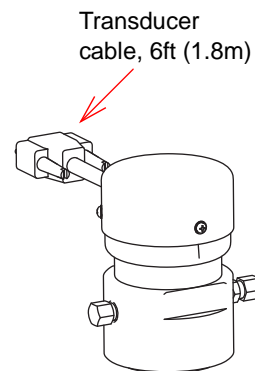
For all systems, connect the control cable of the pump module (Pump A for multiple-pump systems) to the connector labeled PUMP A on the rear panel of the controller. Subsequent pumps in multiple-pump systems can be connected to controller connectors PUMP B and PUMP C.

**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.

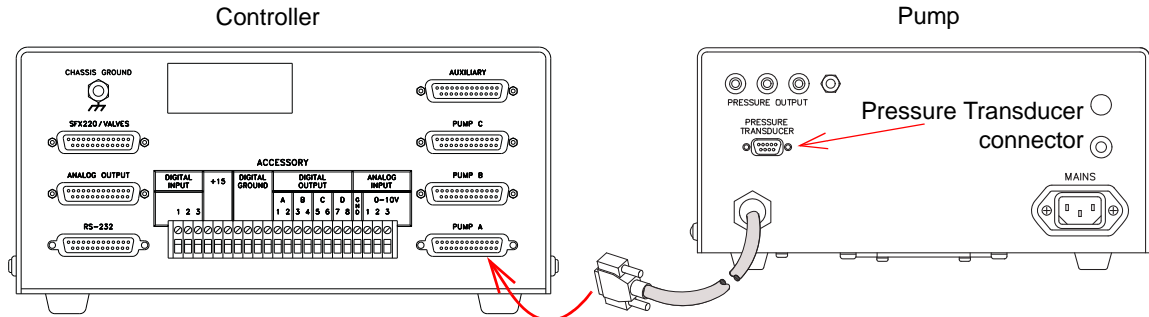
Pump controller connect cable (see Figure 6).	7 ft (2.1m)	(attached to pump)
Pump module transducer cable (see Figure 5).	6 ft (1.8m)	
Hazloc pumps:		
	10 ft (3m)	68-1020-243
	30 ft (9.1m)	68-1020-244
D Series Pumps only:		
	10 ft (3m)	68-1020-210
	50 ft (15.2m)	68-1020-214
RS232 Cable for computer serial control of a single controller. 9 pin to 25 pin.		
	6 ft (1.8m)	480-7996-00
RS232 Cable for computer serial control of two controllers. 9 pin to two 25 pin.		
	6 ft (1.8m)	68-1020-198
RS232 Extension cable for computer serial control of three or more controllers. Connects to above cable. 25 pin to two 25 pin.		
	6 ft (1.8m)	68-1020-180



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

**CAUTION**

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**

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,  $\pm 0.002V$ .

**CAUTION**

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

**Voltage Adjustment for Longer Controller Cable Length (D-Series pumps only)**

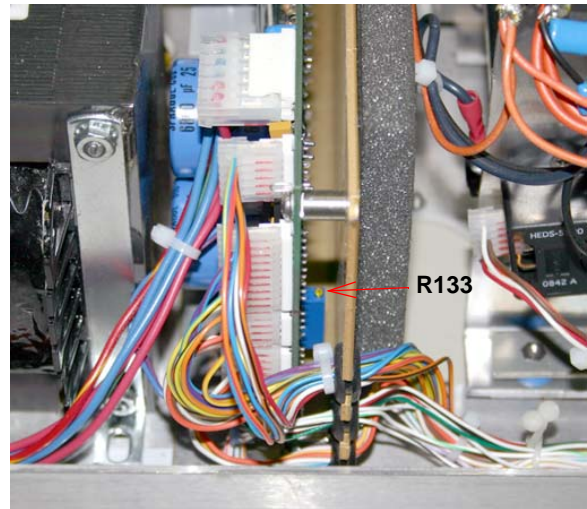
The pump voltage is calibrated at the factory, in accordance with the length of the controller cable that was shipped with the system. If you replace this cable with one of different length, you must adjust the 5-volt input from the pump to the controller.

**Note**

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

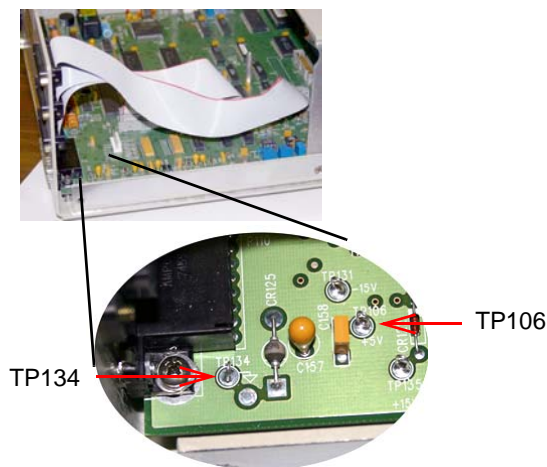
To adjust the voltage:

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 8: Adjust voltage output from pump**

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**Figure 7: Connect to controller test points**

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