

# Single Pump Valve Package Types and Installation

For Teledyne ISCO Syringe Pumps

## Overview

For active valve operation with single syringe pumps, Teledyne ISCO offers several valve configurations.

The D Series pump system with valve operation consists of one or more syringe pumps with electric or air valve package(s), independently controlled from a single D Series controller.

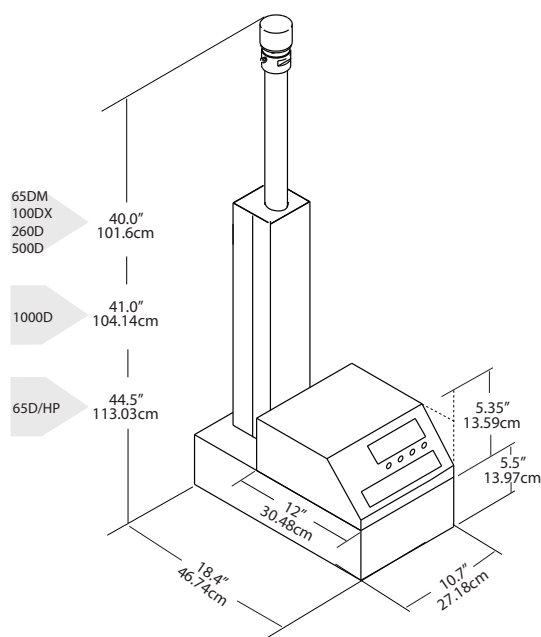


Figure 1: Single pump system dimensions

Single Pump	
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

## Valve Packages

The valve packages may be either air or electric valves. Electric valves are recommended for the following applications:

- Liquefied gases
- Heated viscous fluids delivered at low pressure from a pressure pot
- Viscous fluids requiring a forced valve closure

Valve Type	Wetted Materials	Tubing O.D.	Temperature Rating
Air	Hastelloy, SST, PEEK, Chemraz	500D, 260D, 100DX 5DM: 1/8"	149°C / 300°F
		1000D: 1/4"	
Electric	Hastelloy, Inconel, Silicon Nitride	1000D, 500D, 260D, 100DX, 65DM: 1/8" NOTE: 1000D uses adaptor 1/4" to 1/8"	

### Air Valves

The actively controlled pneumatic valve package requires a pressurized air source of 80 to 115psi (5.5 to 7.9 bar).

### Electric Valves

The actively controlled electric valve package provides added protection against back flow, and requires a special interface board mounted inside the controller.

## Valve Package Installation

For the steps that follow, refer to Figures 2 and 3 on the following page.

### ⚠ WARNING

**Risk of injury. The pressure produced could be up to 10,000psi (700 bar). Use only the appropriate tubing and connections.**

1. Use a plug to close the port that is unconnected.
2. Loosely attach the tubing from the valve assembly to the pump.
3. Place the strap around the pressure transducer cap. Tighten the wingnut.
4. Install the two panhead screws on the bottom of the bracket.

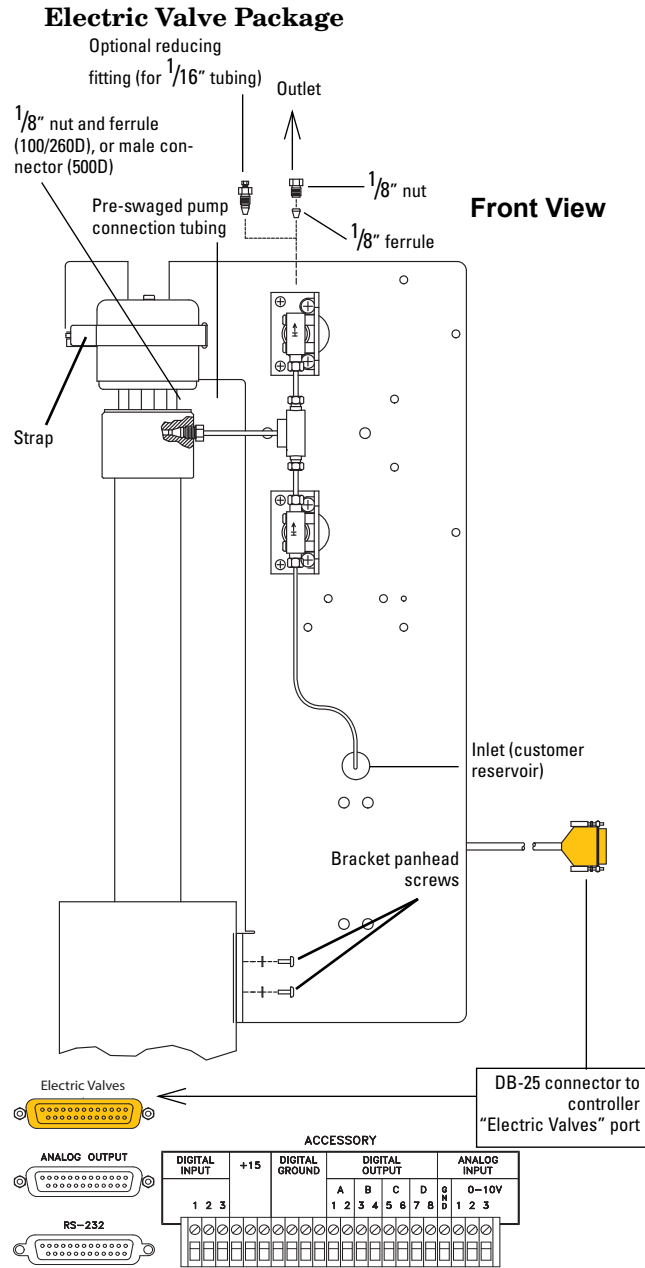
### Plumbing Connections

1. Tighten the tubing nuts.
2. Connect the inlet tube to the supply reservoir.
3. Connect the outlet to your apparatus.

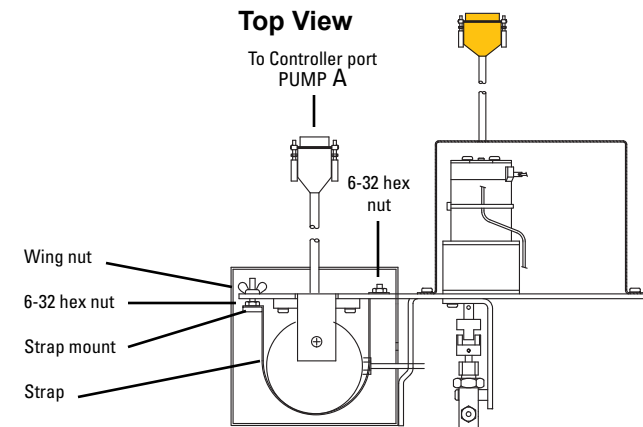
### Electrical Connections

**Electric Valve Package** – Connect the DB-25 cable to the controller rear panel "Electric Valves" connector, as shown shaded in Figure 2 on the following page.

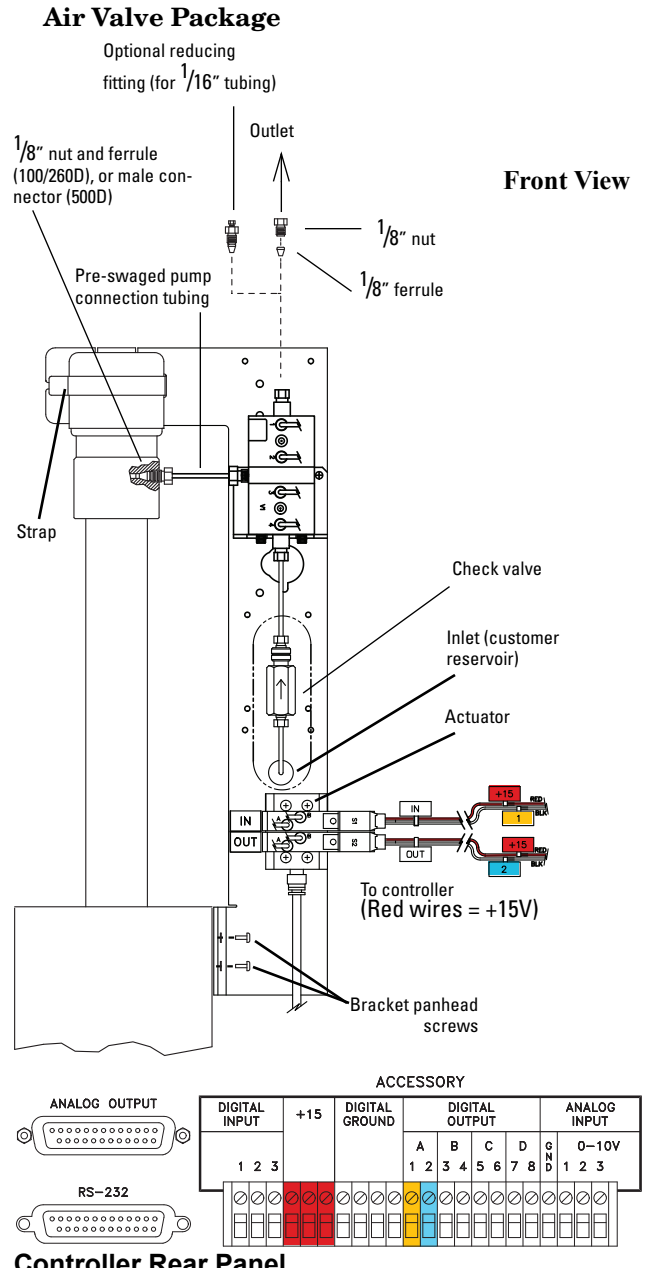
**Air Valve Package** – As shown in Figure 3, connect the two positive (red) wires to any two of the 15VDC terminals on the rear of the controller. Connect the black wire from solenoid #1 (IN) to DIGITAL OUTPUT 1. Connect the black wire from solenoid #2 (OUT) to DIGITAL OUTPUT 2.



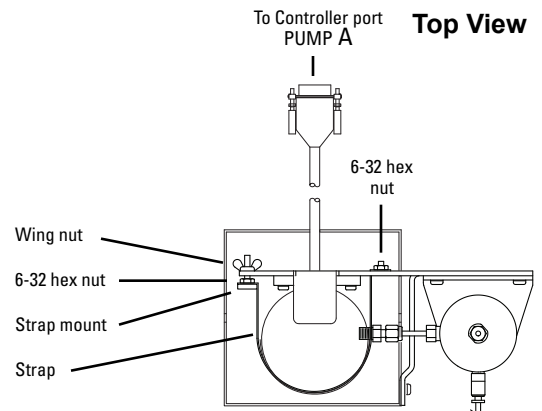
**Controller Rear Panel**



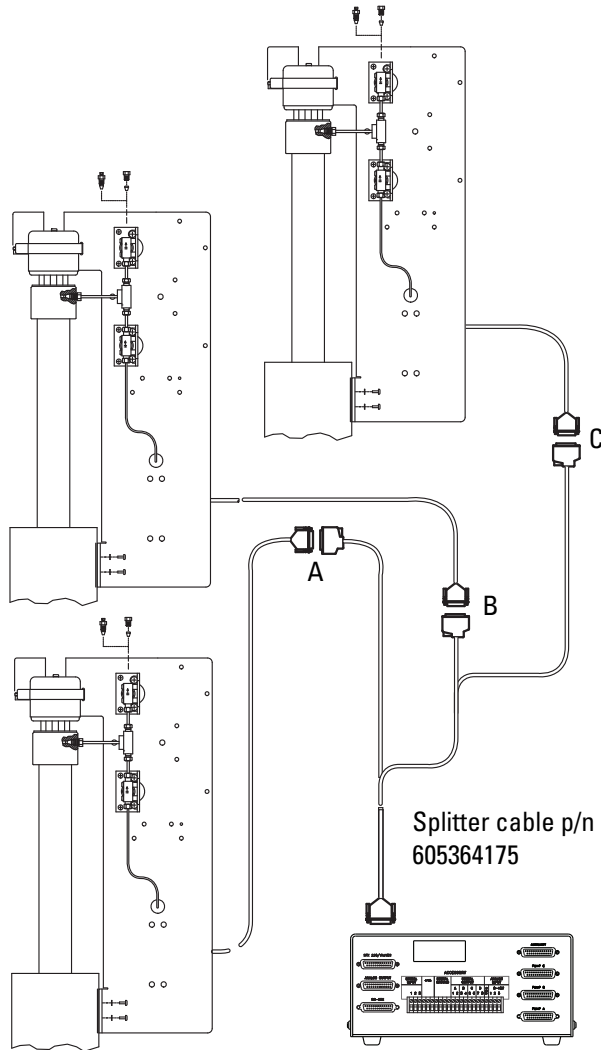
**Figure 2: Electric valve installation**



**Controller Rear Panel**



**Figure 3: Air valve installation** Requires pressurized air source @ 80-115 psi (5.5 - 7.93 bar)



Note: For 2 single electric valve packages, use only two of the connectors.

**Figure 5: Custom single electric valve slave cable for up to three single electric valves**

## Concentration Gradients

A single pump can provide time programmed, linear pressure and flow gradients.

**Time** — When programming gradients, time can be entered with a resolution of 0.1 minute, with a maximum time of 9,999 minutes per step.

**Steps** — Up to 200 user-programmed steps can be entered, e.g., 1 gradient with 200 steps or 200 gradients with 1 step each.

## Single Valve Packages Available from Teledyne ISCO

Single pump valve configurations are available for the 1000D, 500D, 260D, 100DX and 65D pumps. Please contact Teledyne-ISCO for more information.

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