

Dual Valve Control Box and Dual Pump Synchronization
Part #: ADPT-VALVE-INTERFACE-2.2
(Includes Synchronization Cable CBL-DUAL-3)

Description

With the pumps set to Reciprocating Communications mode, the system synchronizes the pumping starting and stopping operation and pumping direction for 2 pumps. When one pump is set to infuse or withdraw, the other pump will be set to the opposite pumping direction. With an appropriate control program, and valving, this will create a continuous infusion system.

In Dual Pump Communications mode, the system synchronizes the pumping starting and stopping operation and pumping direction for 2 pumps. When one pump changes direction, the other pump will change to the same direction. NOTE: While you can set the pumps for dual pumping, the included power supply may not be sufficient to properly power both valves simultaneously. Depending on your valves, a larger power supply may be needed.

The Valve Control Box will switch an attached pair of 12 VDC valves according to the corresponding pump's pumping direction.

Contents:

Description	Figure	Quantity
Valve Control Interface Box for two valves	5	1
TTL Pump Adapter: DB9 to RJ-11 adapter	2	2
Modular cable: 6P4C , 7'	1	2
Power Supply: 12 VDC @ 200 mA	3	1
Synchronization cable: CBL-DUAL-3	4	1

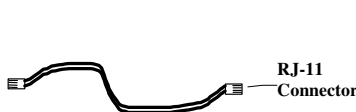


Figure 1: Adapter Cable, 7'



Figure 2: TTL Pump Adapter

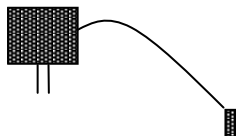
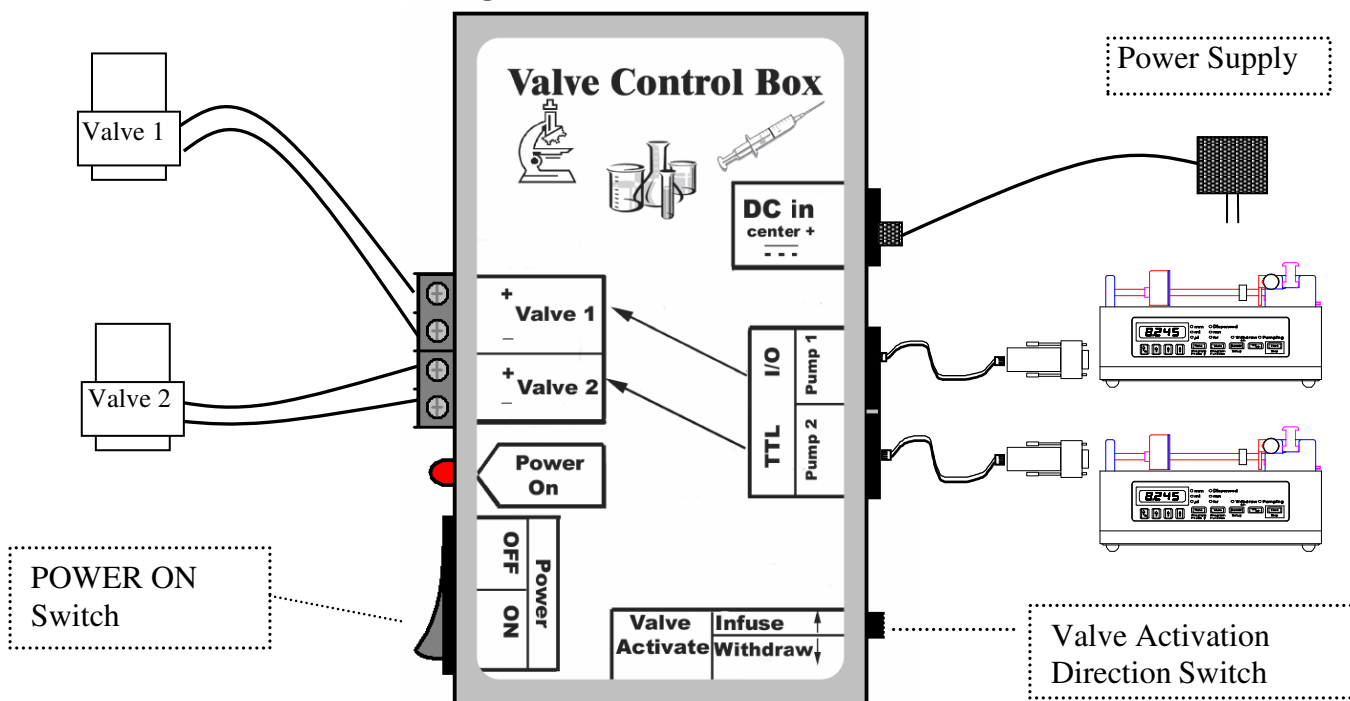


Figure 3: Power Supply



Figure 4: Synchronization cable

Figure 5: Valve Control Box



System Setup

Note: Valve 1 will be controlled by Pump 1 and Valve 2 will be controlled by Pump 2.

- 1) Turn the Power switch to the Off (0) position and turn power off to the pumps.
- 2) Attach valves:

Using a small screwdriver to attach:

- a) Valve 1: one wire to connector labeled Valve 1(+), and the other wire to the connector labeled Valve 1(-).
- b) Valve 2: one wire to connector labeled Valve 2(+), and the other wire to the connector labeled Valve 2(-).

NOTE: Most valves do not have polarity, thus, it is ok to connect wires either way. If Valve requires polarity, connect according to (+) and (-) polarity. Refer to your Valve User Manual.

- 3) Attach Pumps:

- a) Attach one 9 pin adapter to the 9 pin connector labeled "TTL I/O" on the back of each pump.
- b) Attach one modular cable (telephone style) to the 9 pin adapter attached to each pump.
- c) Attach the other end of the modular cable for pump 1 to the Valve Control Box "TTL I/O" connector labeled Pump 1.
- d) Then attach the cable for pump 2 to the connector labeled Pump 2.
- e) Attach cable CBL-DUAL-3 to the "To Computer" connector of each pump.

- 4) Attach Power supply: Attach the power supply to the DC Power Supply connector, then, plug the power supply into a power outlet.

- When the power is turned on to both pumps and the Valve Control Box, the valves will be activated or de-activated according to the pumping directions of their respective pumps.

Operation

The Valve Control Box will activate each valve when the corresponding pump is either infusing or withdrawing. Since the valves draw power and will heat up when activated, the valve should be set to be active during the shorter operation cycle, infusing or withdrawing.

Set the Valve Activation Direction Switch to configure when each valve will be activated, either Infusing or Withdrawing, by its corresponding pump. Setup the tubing accordingly.

After powering on the pump, turn the power switch on the Valve Control Box to the On position (1). The Power On LED will illuminate when power is on. It is normal for the LED to dim slightly when the valve is activated.

Example Pump Setup with cable CBL-DUAL-3

- One pump will be used as the Master pump and the operation of the secondary pump will be controlled by the Master pump.
- Attach cable CBL-DUAL-3 according to the instructions included with the cable.

Make sure that the RS-232 communications mode is set to

R	E	C	P
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, for reciprocating operation. For Dual pump mode, set communications mode to

D	U	A	L
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Reciprocating Pump Program

Below is an example of how to setup the pumps for reciprocating, continuous flow operation. Pump 1 is the Master pump which controls when the pumps change direction. In Reciprocating Mode, Pump 2 pumps duplicates the operation of Pump 1, but in the opposite direction.

Pump 1

Phase	Function	Rate	Volume	Direction
1	RATE	750 mL/hr	10.0 mL	Infuse

Phase	Function	Rate	Volume	Direction
2	RATE	750 mL/hr	10.0 mL	Withdraw

Phase	Function
3	JP:01

Jump to Phase 1: Repeats infusion / withdrawal cycle.

Pump 2

Phase	Function	Rate	Volume	Direction
1	RATE	750 mL/hr	0.0 mL (off)	Withdraw

Phase	Function
2	Stop

Valve Control Box Specifications

Power Supply Type: Unregulated linear external wall adapter

Connector: 2.1 mm pin, center positive

Power Supply Output Rating: 12 V DC @ 200 mA

Power Supply can be upgraded to 12V DC @ 1A

