Blue-White®

Operating Manual

CHEM-FEED®

Multi-Diaphragm Metering Pump

CD1

READ THE ENTIRE OPERATING MANUAL PRIOR TO INSTALLATION AND USE.

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SAFETY INFORMATION

Please read this manual completely before unpacking, installing, and operating this equipment. In particular, pay attention to all dangers, warnings, and precautions, otherwise, it may cause serious injury to the operator or damage to the equipment.

Symbol	Description
	Warning (Risk of electric shock)
	Caution (Refer to the user's guide)
	Ground, Protective Conductor Terminal

AGENCY LISTINGS

Note: When in doubt regarding your electrical installation, contact a licensed electrician.

This pump complies to the Machinery Directive 2006/42/EC, BS, EN 60204-1, Low Voltage Directive 2014/35/EU BS EN 61010-1, EMC Directive 2014/30/EU, BS EN 50081-1/BS EN 50081-BS EN 50082-1.

This pump is ETL listed to conforms to the following: UL Standard 778 as a motor operated water pump CSA Standard C22.2 as process control equipment

1.0 Introduction

Congratulations on purchasing the CD1 Multi-Diaphragm Metering Pump!

The CD1 pump is designed to inject chemicals into piping and process systems. The CD1 is capable of pumping a variety of chemicals and solutions.

The CD1 pump is unique in that it features dual diaphragm technology and a variable speed drive creating a continuous, smooth, and uniform flow with minimal pulsation. The speed of the pumping mechanism is adjustable from .05% through 100%.

The CD1 pump is available with two control options:

Digital Control - (Model CD1C) Includes digital interface, 4-20ma input, Remote Start/Stop Input, 4-20ma output, and output alarm I/O for motor active, and DFD/FVS functions.

Base Control - (Model CD1B) Includes digital pump speed display and manual speed control via touchpad.

Note: Your new pump has been pressure tested at the factory with clean water before shipping. You may notice trace amounts of clean water in the pump head.

1.1 Features

- Patented Hyperdrive® Multi-Diaphragm Technology for smooth, nearly pulse-less metering.
- Excels with off-gassing chemicals such as Peracetic Acid (PAA), Hydrogen Peroxide, Aqueous Ammonia, and Sodium Hypochlorite.
- Double Ball Checks for improved pumping reliability.
- Unibody cartridge valve simplifies maintenance.
- Unidirectional valve ports provide mistake-free maintenance.
- Exclusive DiaFlex® Diaphragm designed to last the life of the pump, eliminating costly rebuild kits.
- Self-priming, vapor-lock resistant, with up to 20 ft. suction lift.
- Innovative manifold design with left/right suction and discharge options.
- Multiple connection types: 1/4” x 3/8” tube compression, ½” hose barb (elbow/inline), ½” male NPT (elbow/inline), quick disconnect (inline).
- Innovative wall-mount bracket snaps pump securely into place.
- Lockout features prevent tampering.
- Intuitive display for output adjustment, priming, and control modes.
- Heavy-duty UV shield protects display in harsh environments.
- Built-in Leak Detection (DFD): senses diaphragm failure and automatically shuts down.

1.2 What's in the Box?

Your pump package will contain the following:

- CD1 pump with polycarbonate display cover
- Power cord (if ordered)
- Mounting Bracket
- Foot Valve
- Ceramic tubing weight
- Injection fitting with internal back-flow check valve
- Mounting hardware kit
- Instruction Manual or Quick Start Guide

Note: Discharge and suction tubing not provided with pump. Must be ordered separately. See accessory options.

1.3 Storage and Handling

The CD1 Multi-Diaphragm Pump is shipped to withstand standard shipping methods. If your pump has arrived with damaged packing, note damage and check contents immediately.

Contact factory if pump or components have sustained damage. Shipping damage is not covered under warranty and will be addressed according to Blue-White freight terms and policy.

If the pump will not be installed at time of arrival, store the pump in original packaging indoors in an air conditioned environment. Do not store pump in excessive heat or freezing temperatures, or in environments with high humidity. Do not stack other boxes or equipment on top of the pump/packaging/box.

When preparing to install pump, keep it away from excess dust or unusual chemical/moisture exposure. Do not drop the pump or handle in such a way as to cause high impact. Always handle pump with care.

If there is any question about how to store or handle the pump and accessories, please contact the factory or authorized service center for assistance customerservice@blue-white.com (714) 893-8529.

1.4 Product Matrix

Model Number Matrix

CD1

CHEM-FEED® Model Number

CD1	CHEM-FEED® Diaphragm Metering Pump

Control

B	Base = Manual Speed Control (No I/O)
C	Control = 4-20mA Input, 4-20mA Output, Manual Speed Control, Remote Start/Stop Input, Outputs (TFD, FVS, Motor)

Diaphragm and O-Rings Material

V	DiaFlex® Diaphragms and TFE/P O-Rings
W	Flex-A-Prene® Diaphragms and TFE/P O-Rings
D	DiaFlex® Diaphragms and EP O-Rings
E	Flex-A-Prene® Diaphragms and EP O-Rings

Pump Fittings (Inlet / Outlet)

B	1/2” ID Barb Straight Fittings
C	1/2” ID Barb Elbow Fittings
S	1/4” x 3/8” Compression Straight Fittings (maximum pressure rating is 150 psi (10.3 bar) when using compresion fittings)
T	1/4” x 3/8” Compression Elbow Fittings (maximum pressure rating is 150 psi (10.3 bar) when using compresion fittings)
M	1/2” M/NPT Straight Fittings
X	1/2” M/NPT Elbow Fittings

Power Cord - Removable (Operating voltage requirement 96VAC to 264VAC)

4	115V 50/60Hz, power cord NEMA 5/15 plug (US)
6	220V 50/60Hz, power cord CEE 7/V11 plug (EU)
X	No Power Cord Provided (Power cord is required - See accessories for power cord options)

CD1	**B**	**V**	**B**	**4**	**Sample Model Number**

1.5 Application Guides

For assistance with correct use of pump for your application, please contact our factory for assistance. Additionally, resources are available on our website to assist with application review.

Chemical Resistance Guides - Charts include most common chemicals compatibility with DiaFlex and Flex-A-Prene diaphragms. https://www.blue-white.com/resources/diaphragms-and-chemical-compatibility/

Viscosity Effects - Learn how viscosity can affect pump performance. www.blue-white.com/article/achieving-successful-dosing-of-viscous-or-abrasive-chemicals/

Suction Lift - Learn how suction lift can affect pump performance. www.blue-white.com/bw-videos/bwa-suction-lift-explained-the-key-to-pump-performance/

Other concerns - Visit our Help Center where you can review specific information about the A-100N pump and ask Oswald AI Chat questions. www.blue-white.com/resources/help-center/

1.6 Accessories and Options

WALL MOUNT SHELF

The Wall Mount Shelf is a simple way to mount your pump without using valuable floor space. The bracket is sturdy and versatile and allows the pump to be mounted at a convenient height for operation and service. Includes (4) 3/8” x 2-3/4” long anchor bolts.

KIT-PSM HDPE Bracket, 14.75” wide
KIT-PSS HDPE Bracket, 11” wide

SUCTION AND DISCHARGE TUBING

C-334-6 Tubing, Suction, clear PVC 3/8” O.D. x 5’ length
C-334-6-10 Tubing, Suction, clear PVC 3/8” O.D. x 10’ length
C-334-6-100 Tubing, Suction, clear PVC 3/8” O.D. x 100’ length
C-335-6 Tubing, Discharge, opaque PE 3/8” O.D. x 5’ length
C-335-6-10 Tubing, Discharge, opaque PE 3/8” O.D. x 10’ length
C-335-6-100 Tubing, Discharge, opaque PE 3/8” O.D. x 100’ length

TANKS

High strength polyethylene tanks are available to store chemicals. STAR III tanks at capacities of 7 gal, 15 gal, or30, gal. Cylindrical tanks at capacities of 15 gal, 30 gal, or 50 gal.

INJECTION FITTINGS

Injection fittings ensure that chemical feed injects into the process stream while preventing the process fluid from returning to the chemical line. The built-in check valve contains a ceramic ball that prevents siphoning.

Part Number	Description	Material (Body/O-ring	Spring
A-014NK-6A	Injection Valve, PVDF/FKM, ¼”x3/8” tube connection	PVDF/FKM	½ psi
A-014NK-6E	Injection Valve, PVDF/EP, ¼”x3/8” tube connection	PVDF/EP	½ psi
A-014NK-6A-T	Injection Valve, PVDF/FKM, ¼”x3/8” tube connection (PTFE Ball)	PVDF/FKM (PTFE ball)	½ psi
71000-770	Injection Valve, PVDF/FKM, ½” Hose Barb	PVDF/FKM	2 psi
71000-377	Injection Valve, PVDF/EP, ½” Hose Barb	PVDF/EP	2 psi
71000-767	Injection Valve, PVDF/FKM, ½” MNPT	PVDF/FKM	2 psi
71000-386	Injection Valve, PVDF/EP, ½” MNPT	PVDF/EP	2 psi
71000-985	Injection Valve, PVDF/FKM, ½” MNPT (PTFE Ball)	PVDF/FKM (PTFE ball)	2 psi

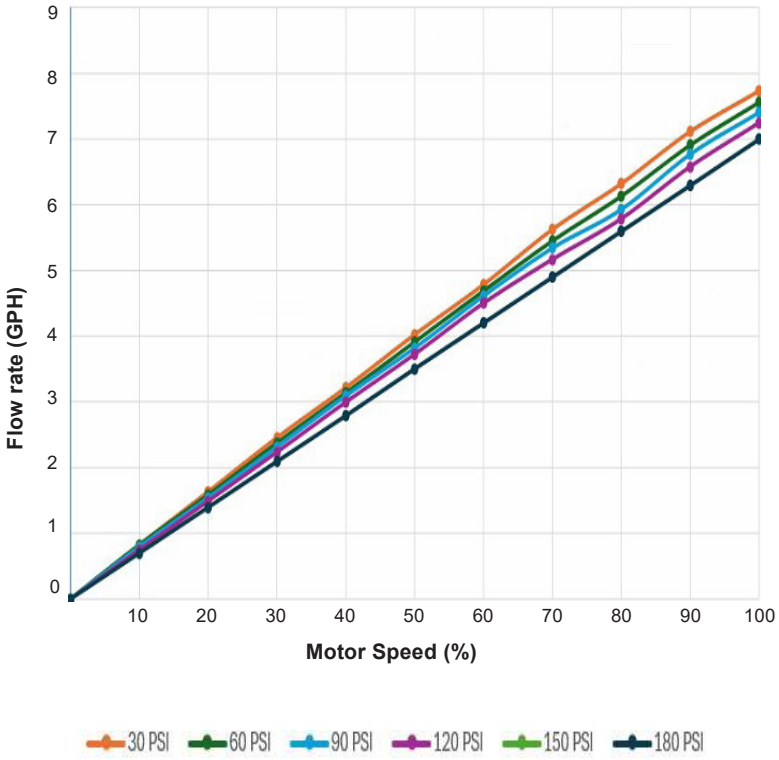
2.0 Engineering Specifications

Maximum Working Pressure	Up to 180 psig (12.4 bar) (Maximum pressure rating is 150 psi when using compression fittings)
Maximum Fluid Temperature	Up to 185 °F (85 °C)
Maximum Ambient Temperature	14 to 115 °F/ -10 to 46 °C
Maximum Viscosity	1,000 Centipoise
Maximum Suction Lift	20 ft. at 0 PSI (water at seal level)
Operating Voltage	115V60Hz 1 PH (0.6A max., 80 W max.)
	220V50Hz 1 PH (0.3A max., 80 W max.)
	230V60Hz 1 PH (0.3A max., 80 W max.)
	230V50Hz 1 PH (0.3A max., 80 W max.)
	240V50Hz 1 PH (0.3A max., 80 W max.)
Power Cord Options	115V/60Hz = NEMA 5/15 (USA)
	230V/60Hz = NEMA 6/15 (USA)
	220V/60Hz = CEE 7/VII (EU)
	240V/60Hz = AS 3112 (Australia/New Zealand)
	230V 50/60Hz = BS 1363/A (United Kingdom)
Signal Connectors	M12 - 5 pin (IP67 rated) (“C” model only)
Motor	Brushless DC, 42 W
Duty Cycle	Continuous
Motor Speed Adjustment Range	2,000:1 (0.05% – 100%) Max. rpm = 100 (200 strokes/min)
Maximum Overall Dimensions	9.5”W x 9.5”H x 10.53”D (24.1 W x 24.1 H x 26.8 D cm)
Product Weight	10.7 lb. (4.85 Kg)
Approximate Shipping Dimensions	11” W x 13” H x 13” D (28 W x 33 H x 33 D cm)
Approximate Shipping Weight	20 lb. (9.0 Kg)
Enclosure	NEMA 4X, Valox® (PBT)
RoHS Compliant	Yes
Standards	cETLus, CE

2.1 Output Specifications

Motor Speed %	Flowrate (Gal/hr), Pressure						Flowrate (mL/min), Pressure					
	30 PSI	60 PSI	90 PSI	120 PSI	150 PSI	180 psi	30 PSI	60 PSI	90 PSI	120 PSI	150 PSI	180 PSI
	2.1 Bar	4.2 Bar	6.2 Bar	8.3 Bar	10.3 Bar	12.4 Bar	2.1 Bar	4.2 Bar	6.2 Bar	8.3 Bar	10.3 Bar	12.4 Bar
10	0.82	0.82	0.79	0.74	0.73	0.70	52	52	50	47	46	44
20	1.63	1.59	1.54	1.49	1.46	1.39	103	100	97	94	92	88
30	2.46	2.38	2.31	2.23	2.19	2.09	155	150	146	141	138	132
40	3.22	3.14	3.09	3.00	2.92	2.79	203	198	195	189	184	176
50	4.03	3.92	3.82	3.72	3.60	3.50	254	247	241	235	227	221
60	4.79	4.69	4.61	4.50	4.36	4.20	302	296	291	284	275	265
70	5.63	5.45	5.34	5.17	5.01	4.90	355	344	337	326	316	309
80	6.32	6.13	5.93	5.79	5.66	5.60	399	387	374	365	357	353
90	7.12	6.91	6.77	6.58	6.45	6.29	449	436	427	415	407	397
100	7.73	7.56	7.40	7.24	7.13	7.00	488	477	467	457	450	441

Performance



Note: All values are from testing with water at sea level with 3 foot suction lift.

2.2 Materials of Construction

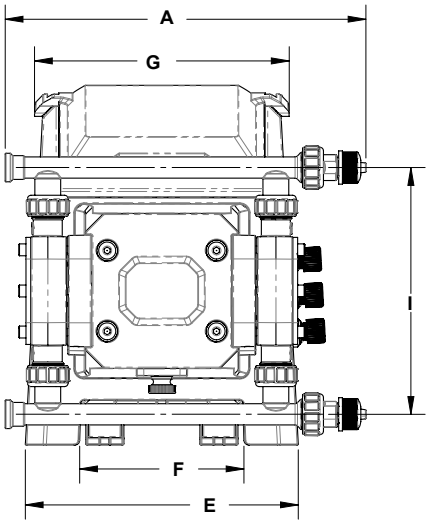
Non-wetted Components:
Enclosure: Valox® (PBT)
Drive Enclosure: PA12
Control Panel Cover: Polycarbonate
Pump Head Cover: Polycarbonate
Cover Screws: Stainless steel
DFD System Sensor Pins: Hastelloy C-276
Power Cord: 3 Conductor, SJTW-A water-resistant
Hardware: 316 Stainless steel screws
Mounting Brackets: Nylon

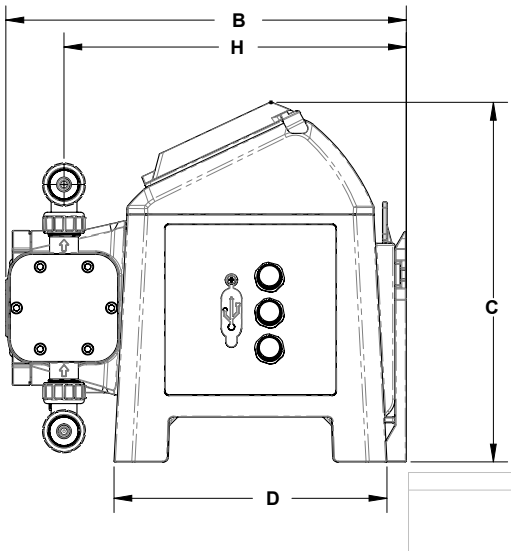
Wetted Components:
Pump Head Assembly:
Pump Head : PVDF
Manifold/Fitting Connections : PVDF
Valve Cartridge : PVDF
Valve Balls : Ceramic (PTFE balls available)
O-Ring Seals : TFE/P or EP
Diaphragm : DiaFlex® or Flex-A-Prene®
Injection/Back-Flow Check Valve:
Body & Insert : PVDF
Check Ball : Ceramic
Spring : Hastelloy C-276
Ball Seat O-Ring : TFE/P or EP
Static Seal O-Ring : TFE/P or EP
Foot Valve / Strainer:
Body & Adapter : PVDF
Check Ball : Ceramic
Spring : Hastelloy C-276
O-Ring Seal TFE/P or EP
Filter Screen : PVDF

2.3 Dimensions

Dim	Inch	cm
A	9.49”	24.10
B	10.53”	26.75
C	9.46”	24.02
D	7.18”	18.23
E	7.18”	18.23

Dim	Inch	cm
F	4.32”	10.98
G	6.7”	17.02
H	9.01”	22.89
I	6.49”	16.48





3.0 Installation

3.1 Safety

CAUTION

- Follow these instructions before installing your pump to avoid failure.
- The pump is designed to be installed and operated by qualified personnel only. Please note that warranty coverage does not include damage due to misuse or improper installation.
- Ensure pump is installed according to instructions and site guidelines.
- Always wear eye protection when installing or removing chemical feed pumps.
- Wear suitable PPE (Personal Protective Equipment) such as gloves, goggles, masks, protective gear, chemical resistant clothing, and proper footwear to avoid injury due to splashes, spills, and fumes.
- Confirm chemicals being used with the pump are compatible with wetted components of the pump. Review all SDS sheets prior to use or service. User is responsible for determining chemical compatibility with pump.
- Inspect equipment regularly for wear, leaks, or abnormal operation.
- Only use the pump for the purpose which it is intended.
- This pump should not be used by children and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge.
- Pump is not a toy. Do not allow children to play with the pump.

PRESSURE

- Maximum Total Pressure is 180 PSI (12.4 bar) Do not exceed maximum pressure. High pressure and temperature will damage the diaphragm and pump. (Maximum pressure when using compression fittings is 150 PSI)

WARNING

- Risk of electric shock – cords are supplied with a grounding conductor and grounding-type attachment plug. To reduce risk of electric shock, be certain that it is connected only to a properly grounded, grounding-type receptacle.
- Power cord connection is located on bottom of the pump. Power cords must be type IEC 320-C13.
- Be certain to connect the pump to the proper supply voltage. Using the incorrect voltage will damage the pump and may result in injury. The voltage requirement is printed on the pump serial label.
- Electrical connections and grounding must conform to local electrical codes.
- Use the voltage for which the cord is rated.
- To prevent electronic noise interference, electronic signal wires and AC power wires must be kept separate. Do not bundle these cables together or run within the same conduit.
- When there is a power interruption, the pump will restart (resume) in the same state as prior to power interruption.
- POWER: 115V60Hz (0.6A max.), 220V50Hz (0.3A max.), 230V60Hz (0.3A max.), 230V50Hz (0.3A max.), 240V50Hz (0.3A max.) 80 W Max.
- COVERS FOR USB CONNECTION AND M12 CONNECTIONS MUST BE IN PLACE WHEN NOT CONNECTED TO CABLES
- Serial Label is located on right side of pump. Install pump so label is visible after installation.
- Do not open the pump electrical enclosure. No serviceable parts inside.

3.2 Mounting Location and Installation Requirements

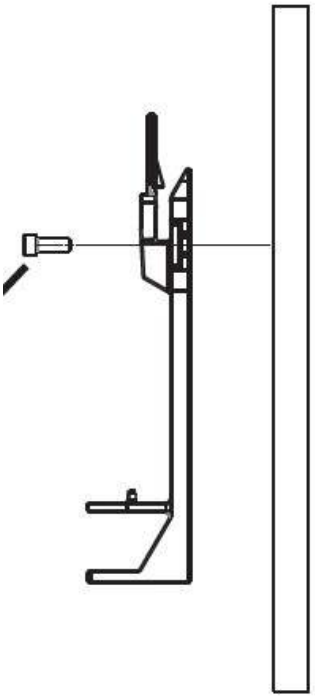
Choose an area located near the chemical supply tank, chemical injection point and electrical supply. Although the pump is designed to withstand outdoor conditions, a cool, dry, well ventilated location is recommended. Install the pump where it can be easily serviced. **Do not place pump on floor or in a location with excessive chemical spills or vapors.**

- Suction and Discharge manifolds can be removed and rotated so the suction/discharge connections are on opposite ends.
- Mount the pump to a secure surface or wall using the enclosed hardware.
- Wall mount to a solid surface only. Mounting to drywall with anchors is not recommended.
- Mount the pump close to the injection point. Keep the outlet (discharge) tubing as short as possible. Longer tubing increases the back pressure at the pump.
- Your solution tank should be sturdy. Keep the tank covered to reduce fumes. Do not mount the pump directly over your tank. Chemical fumes may damage the unit. Mount the pump off to the side or at a lower level than the chemical container.
- Mounting the pump lower than the chemical container will gravity feed the chemical into the pump. This “flooded suction” installation will reduce output error due to increased suction lift. You must install a shut-off valve, pinch clamp or other means to halt the gravity feed to the pump during servicing.
- Be sure to install a back-flow prevention check valve to prevent fluid from flowing back through pump during service.
- A pressure relief valve is recommended on the discharge side of the pump to prevent over-pressurization of the pump.
- A back-pressure valve may be required to provide consistent back-pressure on the pump. This will prevent siphoning and provide consistent flow rate.

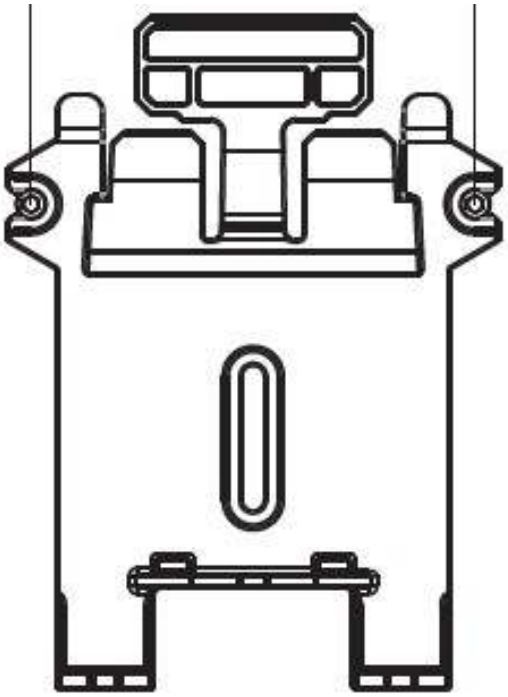
Caution: When power is applied to the pump, the pump will either automatically begin to pump, or maintain power-off status, depending on the previous pump status.

3.3 Wall Mounting

Using the provided #10 self-tapping screws, mount the bracket to a secure wall that is located where it can be easily serviced.



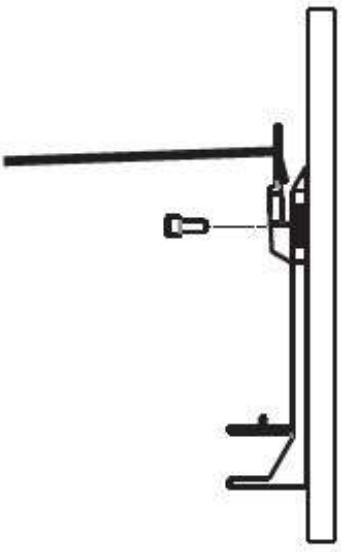
Wall Mount Bracket (Side View)



Wall Mount Bracket (Front View)

Lower the pump so that the tab on the wall mount is inserted into the slot located on the back of the pump. The pump will now be secured to the wall mount bracket. To remove pump, pull tab and lift pump.

Wall Mount Bracket -Pull Tab



3.4 Input Power Connection

WARNING! Risk of Electrical Shock

- Power cord connection is located on bottom of the pump. Power cords must be type IEC 320-C13.
- Be certain to connect the pump to the proper supply voltage. Using the incorrect voltage will damage the pump and may result in injury. The voltage requirement is printed on the pump serial label.
- The pump is supplied with a ground wire conductor and a grounding type attachment plug (power cord). To reduce the risk of electric shock, be certain that the power cord is connected only to a properly grounded, grounding type receptacle.
- Electrical connections and grounding must conform to local electrical codes.
- Use the voltage for which the cord is rated.
- To prevent electronic noise interference, electronic signal wires and AC power wires must be kept separate. Do not bundle these cables together or run within the same conduit.
- When there is a power interruption, the pump will restart (resume) in the same state as prior to power interruption.
- POWER: 115V60Hz (0.6A max.), 220V50Hz (0.3A max.), 230V60Hz (0.3A max.), 230V50Hz (0.3A max.), 240V50Hz (0.3A max.) 80 W Max.
- COVERS FOR USB CONNECTION AND M12 CONNECTIONS MUST BE IN PLACE WHEN NOT CONNECTED TO CABLES

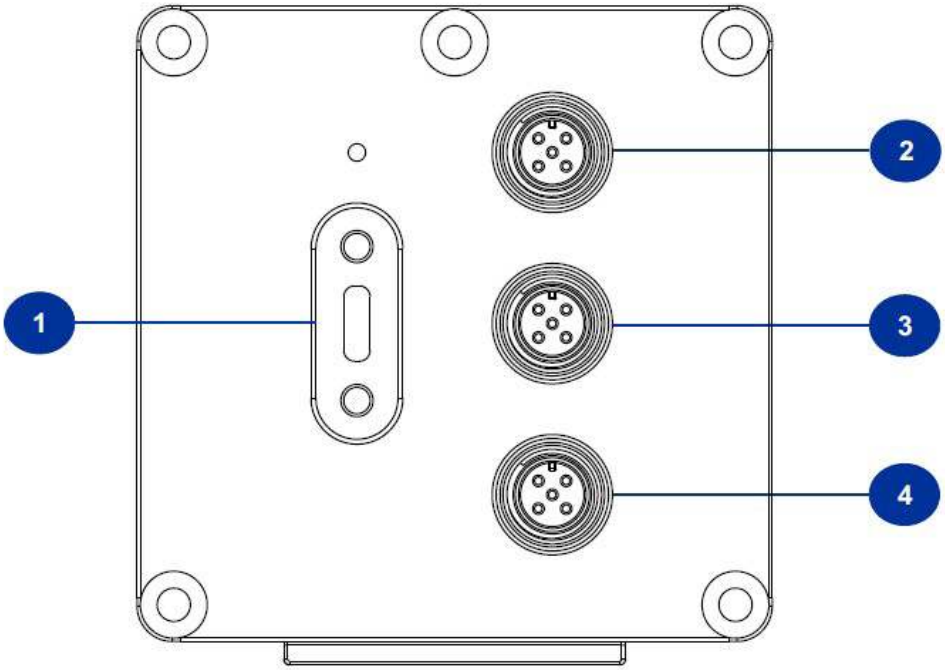
Note: When in doubt regarding your electrical installation, contact a licensed electrician.

3.5 Pump Side View - Signal Wiring Connections (CD1C)

3.6 External Signal Wiring - “C” Control Model Only

M12 Signal wiring connectors provided for “C” Control models only.

Covers for USB Connection and M12 Connections must be in place when not connected to cables. Leaving M12 connectors exposed to the environment may void warranty.



Item Number	Item
1	USB-C Connector
2	M12 Connector I/O 1
3	M12 Connector I/O 2
4	M12 Connector I/O 3

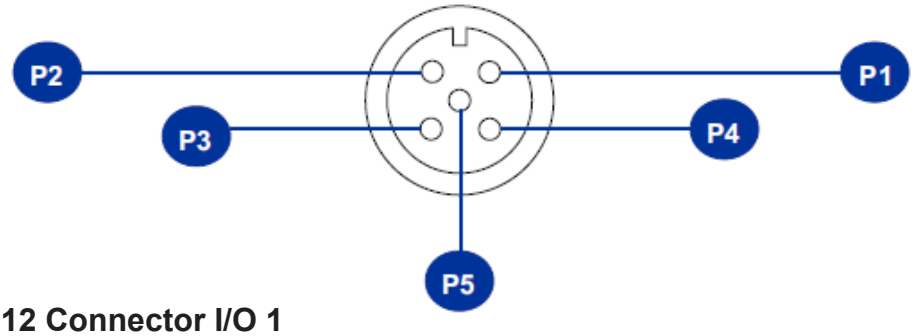
M12 Cables not included with product. See accessories for cable options.
Blue-White requires any A-type M12 connector with 5 position female sockets.
All signal wiring entirely from control device to pump must be shielded and grounded properly.

3.7 M12 Connection Guide - “C” Control Model Only

WARNING

Never allow individual M12 cable wires to touch each other while the pump is active. Wiring shorts will cause the pump to malfunction and can void the warranty.

Properly grounded shielded must be used for all signal wiring.



Blue-White M12 Cable Wiring	
Pin #	Wire
P1	Brown
P2	White
P3	Blue
P4	Black
P5	Gray

M12 Connector I/O 1

Pin	Function	Specifications	Reference
P1	4-20mA Input (+)	120 Ohm Impedance Non Powered Loop	(+) Positive
P2	4-20mA Input (-)	120 Ohm Impedance Non Powered Loop	(-) Negative
P3	4-20mA Output (+)	250 Ohm Max Load	(+) Positive
P4	4-20mA Output (-)	DC GND (O VDC)	(-) Negative
P5		Not Used	

M12 Connector I/O 2

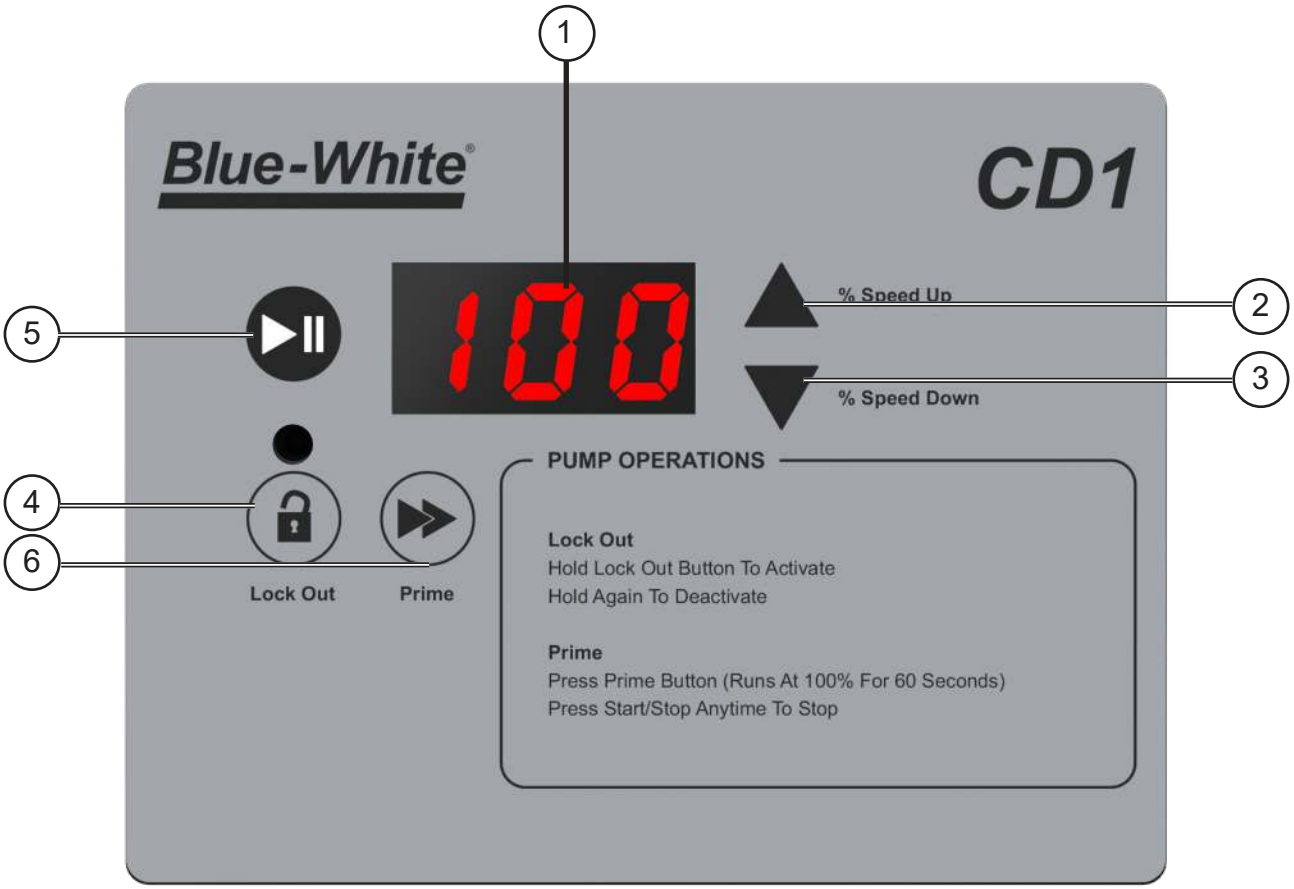
Pin	Function	Specifications	Reference
P1	Remote Start/Stop	Dry Contact Closure (Do Not add voltage)	Green Light = Normally Open Red Light = Normally Closed
P2	Ground	DC Ground	0 VDC
P3	FVS (+)	15 VDC @ 60 mA	Power for FVS Sensor
P4	FVS (-)	DC GND (O VDC)	FVS Ground Input
P5	FVS (Signal)	Input Signal	Input for FVS Signal

M12 Connector I/O 3

Pin	Function	Specifications	Reference
P1	Pump Motor Running (+)	0-60VDC sinking output (+) Solid State Contact Closure	(+) Positive
P2	Pump Motor Running (-)	0-60VDC sinking output (-) Solid State Contact Closure	(-) Negative
P3	N.O. (closes with DFD or FVS alarm)	Relay Out, N.O. Contact 3Amp @ 250 VAC	
P4	COM	Relay Out, COM Contact	
P5	N.C. (opens with DFD or FVS alarm)	Relay Out, N.C. Contact 3Amp @ 250 VAC	

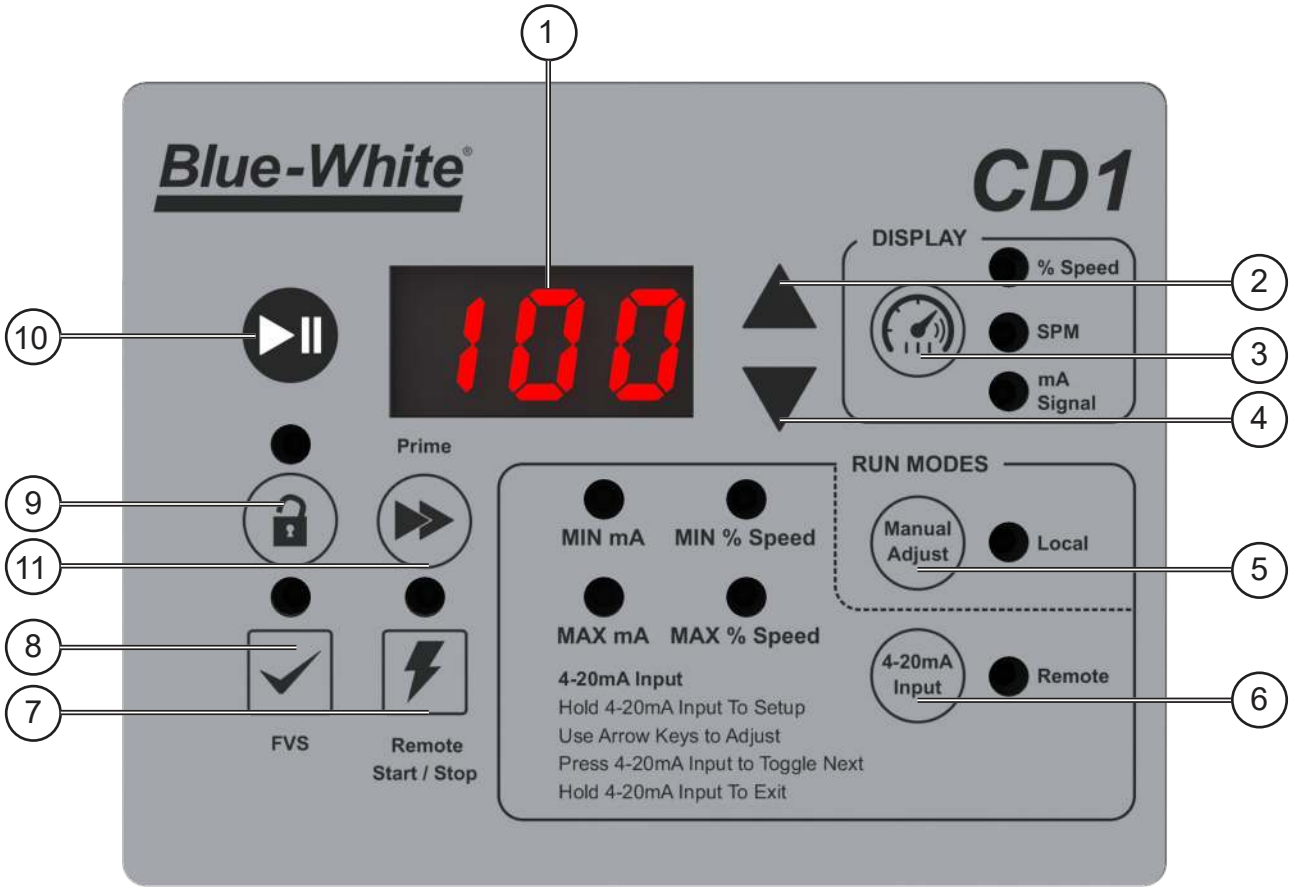
4.0 Controls and Set-up

4.1 Touchpad Layout “B” Base Model



Item Number	Item
1	LED Readout (Pump Speed / RPM / 4-20mA signal)
2	Up Key
3	Down Key
4	Lock-Out Key
5	Start & Stop Key
6	Prime Key

4.2 Touchpad Layout “C” Control Model



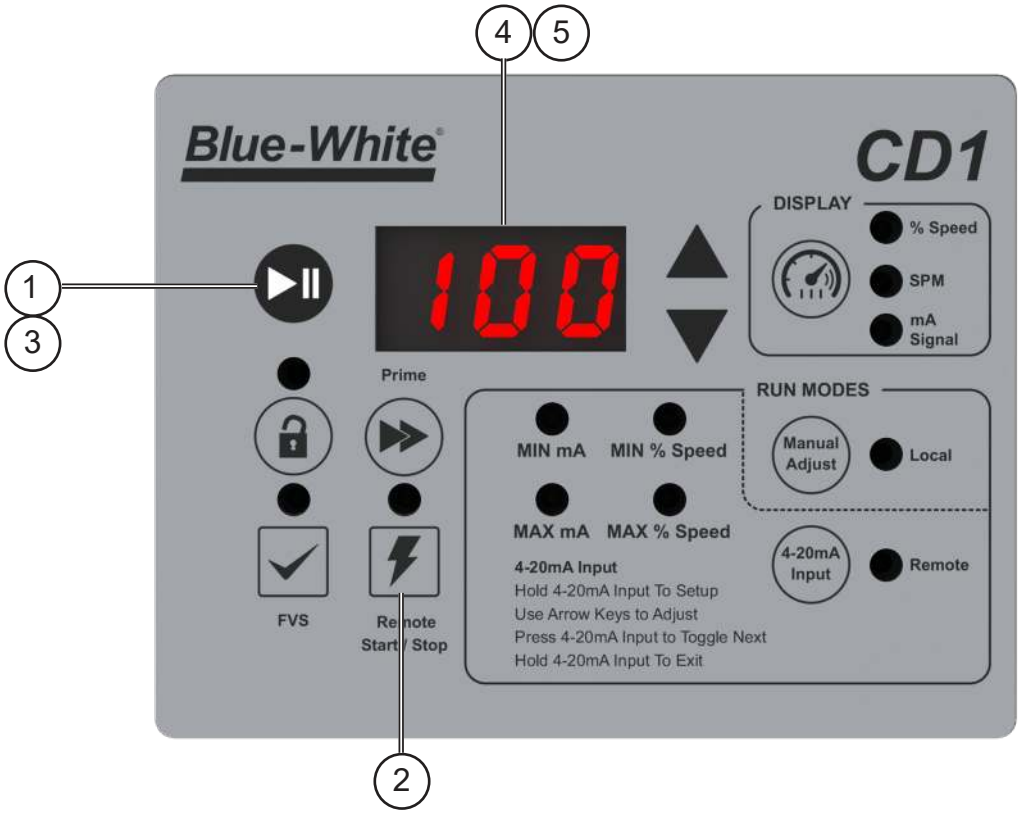
Item Number	Item
1	LED Readout (Pump Speed / RPM / 4-20mA signal)
2	Up Key
3	Rate Display Key
4	Down Key
5	Manual Speed Adjust Control Mode (Local)
6	4-20mA Input Control Mode (Remote)
7	Remote Start/Stop Key (Red = N.C, Green = N.O.)
8	Flow Verification Sensor (FVS) Key
9	Lock-Out Key
10	Start & Stop Key
11	Prime Key

4.3 Programming

CD1C - programming options are Manual seed adjustment (up/down), Remote Start/Stop, Manual Adjust/Local Mode, 4-20mA Input Mode, Pump Lock-out, FVS Input, and Display readout options.

CD1B programming options are Manual speed adjustment (up/down), and Pump Lock-out.

4.3.1 Remote Start/Stop (“C” Control model only)

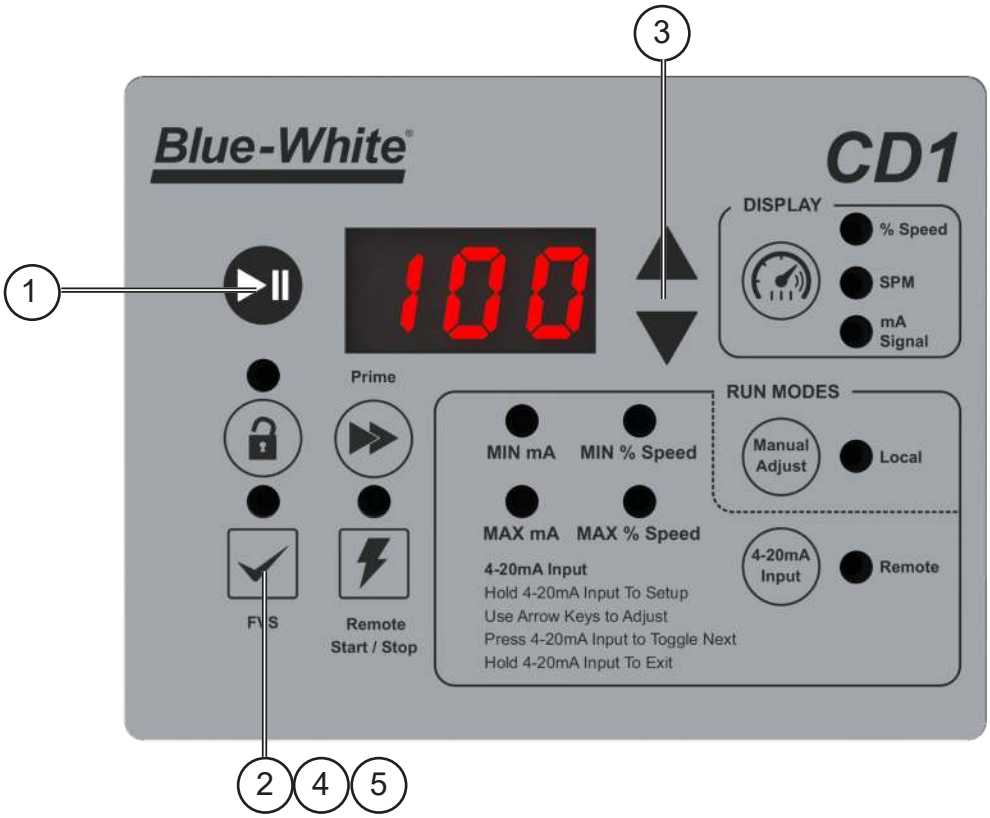


Step	Directions for selecting Normally Open operation
1	Confirm that pump is OFF
2	Press Remote Start/Stop button to activate. **Light will turn green.**
3	Press Start/Stop button to put pump in ready state.
4	Display will show “SbY” (standby) when waiting for contact closure
5	Display will show Pump Speed (or RPM or 4-20mA signal) when contact is closed.

Step	Directions for selecting Normally Closed operation
1	Confirm that pump is OFF
2	Press and hold Remote Start/Stop button for 7 seconds to activate. **Light will turn red.**
3	Press Start/Stop button to put pump in ready state.
4	Display will show “SbY” when contact is closed.
5	Display will show Pump Speed (or RPM or 4-20mA signal)” when contact is open.

4.3.2 Programming FVS (Flow Verification Sensor) (“C” Control model only)

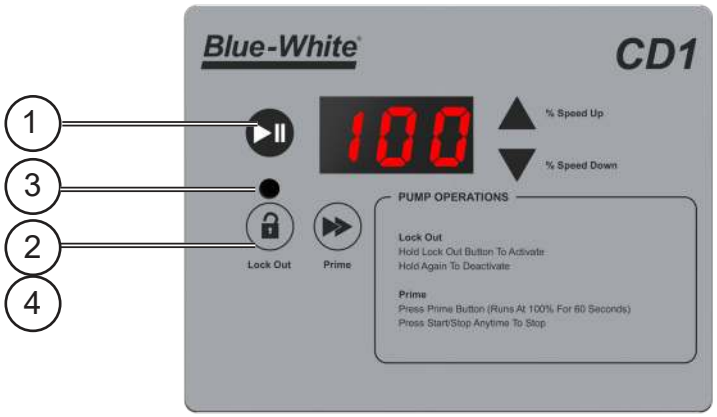
NOTE: When active, the FVS alarm condition (no flow) will show “FvS” on the display and will activate output alarm relay.



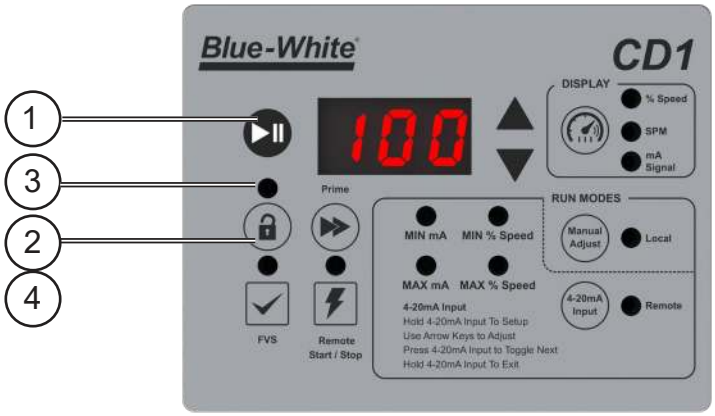
Step	Directions for programming FVS
1	Confirm that pump is OFF
2	Press and hold FVS button for 7 seconds to set.
3	Toggle Up and Down arrows to set Delay time. (Range 1-20 seconds.)
4	Press and hold FVS button for 7 seconds to save Delay Time.
5	Activate FVS by pressing FVS button once. Light will turn on. Press again to deactivate.

4.3.3 Pump Lockout

Pump Lockout feature allows the user to “lock out” the ability to change pump controls, such as Pump Speed, Prime, FVS, Remote Start/Stop, Manual/4-20ma Modes. User will still be able to start and stop the pump.



“B” Base Model

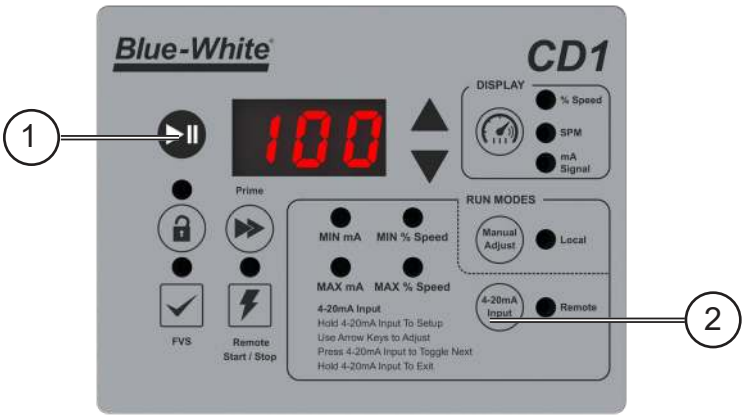


“C” Control Model

Step	Directions for activating pump Lockout
1	Pump can be running or in the off position.
2	Press and hold Lockout button for 7 seconds to activate.
3	Light will activate.
4	To deactivate, press again for 7 seconds.

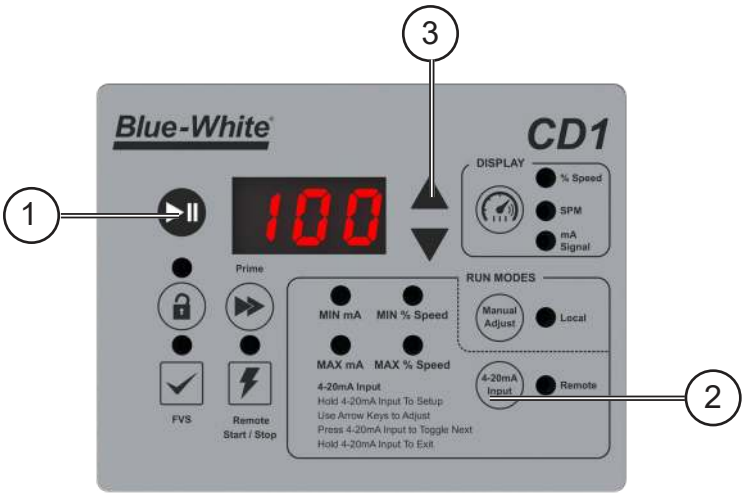
4.3.4 4-20mA Input (“C” Control model only)

Selecting 4-20mA Input Mode



Step	Directions
1	Confirm Pump is in the OFF position
2	Press 4-2omA Input button

Programming 4-20mA Input



Step	Directions
1	Confirm the pump is in the OFF position
2	Press and hold the 4-20mA Input button until the MIN mA light turns on
3	Use arrow keys to toggle the desired MIN mA value
4	Press 4-20mA Input button to access MIN % speed value. Light will turn on.
5	Use arrow keys to toggle the desired MIN % speed value.
6	Press 4-20mA Input button access MAX mA value. Light will turn on.
7	Use arrow keys to toggle the desired MAX mA value.
8	Press 4-20mA Input button access MAX % speed value. Light will turn on.
9	Use arrow keys to toggle the desired MAX % speed value.
10	Press and hold 4-20mA Input button to exit the programming mode

4.4 Outputs (“C” Control model only)

4.4.1 4-20mA Output

The pump will generate a full scale 4-20mA output signal whether in Manual Speed Adjust Mode or 4-20mA Input Mode. There is no option for scaling the output signal. The output signal will always represent full 0-100% speed scale.

4.4.2 Motor Active Output

The pump will generate a contact closure “Motor Active” signal when the motor is running.

4.4.3 DFD or FVS Alarm Output

When FVS is activated, an alarm output will activate when FVS condition occurs.
A DFD alarm will trigger when a leak is detected behind the diaphragm.
This output can wired for Normally Open or Normally closed. See wiring section for details.

5.0 Operation

Once the pump has been installed and wired properly, it can be put into operation. Be sure you are familiar with all control features before using the pump. Ensure the pump is connected to proper power source. As soon as pump is powered on, it is ready to be run. There is no power on/off switch.

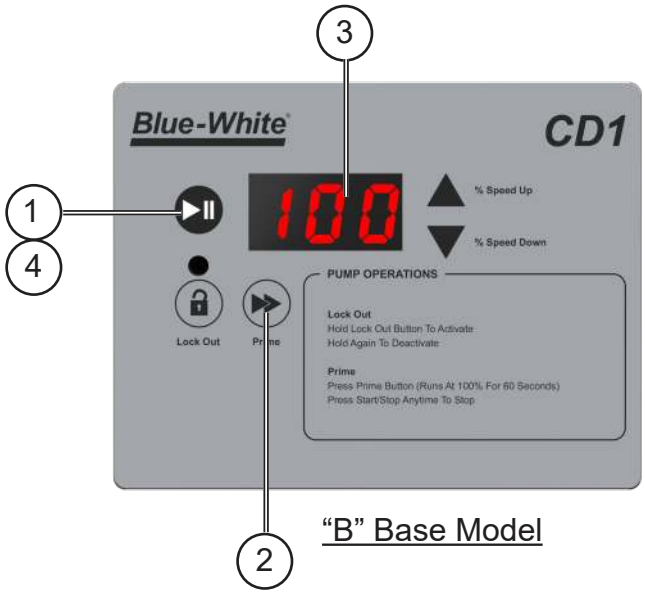
Caution: If the last time the pump was run and power was disconnected, the next time the pump is powered on it will resume operating in same state when powered off. If the pump was running at a set manual speed, it will start immediately at the same speed.

5.1 Priming the Pump

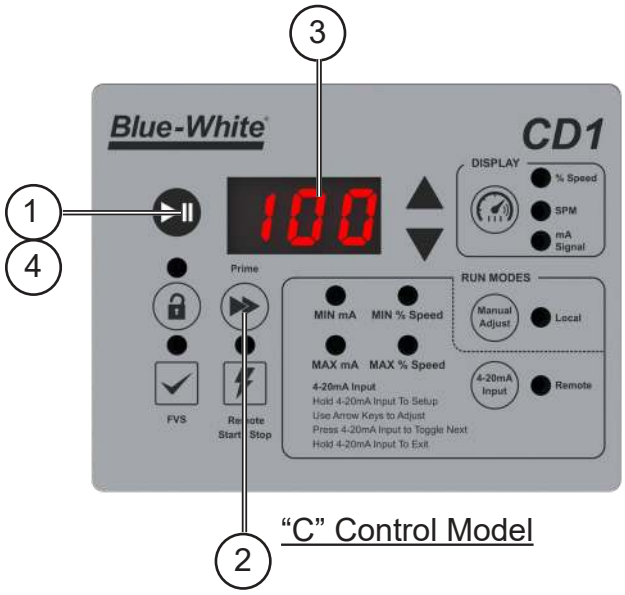
Before priming the pump, or starting the pump, be sure that all suction and discharge lines are connected properly and that proper valves are open.

If the pump does not prime, check the suction line for clogs, obstructions, or leaks. Make sure all appropriate valves are open.

To prevent accidental priming during normal operation, put the pump in Lockout mode.



"B" Base Model



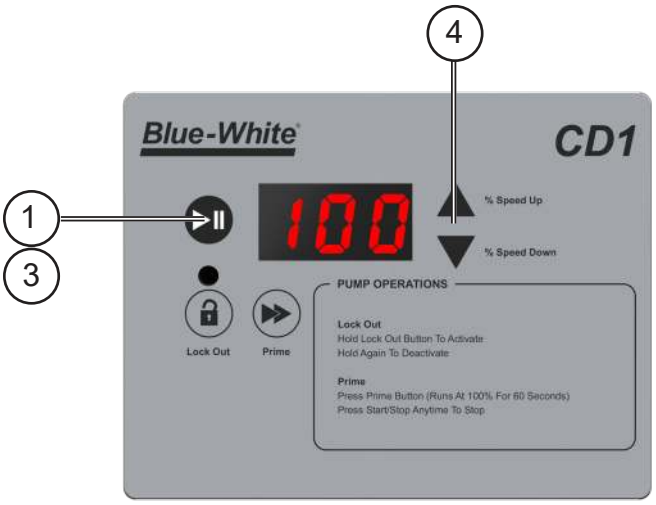
"C" Control Model

Step	Directions for Priming the Pump
1	Pump can be running or in the OFF position
2	Press the Prime Button
3	Pump will run at 100% speed and Display will count down from 60 seconds
4	Press Start/Stop button at any time to stop the pump.
5	Pump will return to previous state after priming.

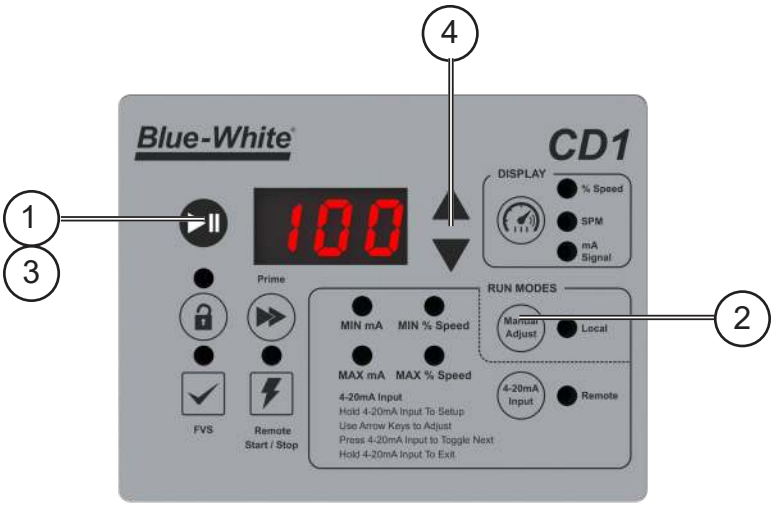
5.2 Manual Speed/Flow Adjust

Manual Operation

The CD1 has a variable speed DC motor capable of adjusting the speed between 0.01% and 100% speed.



"B" Base Model

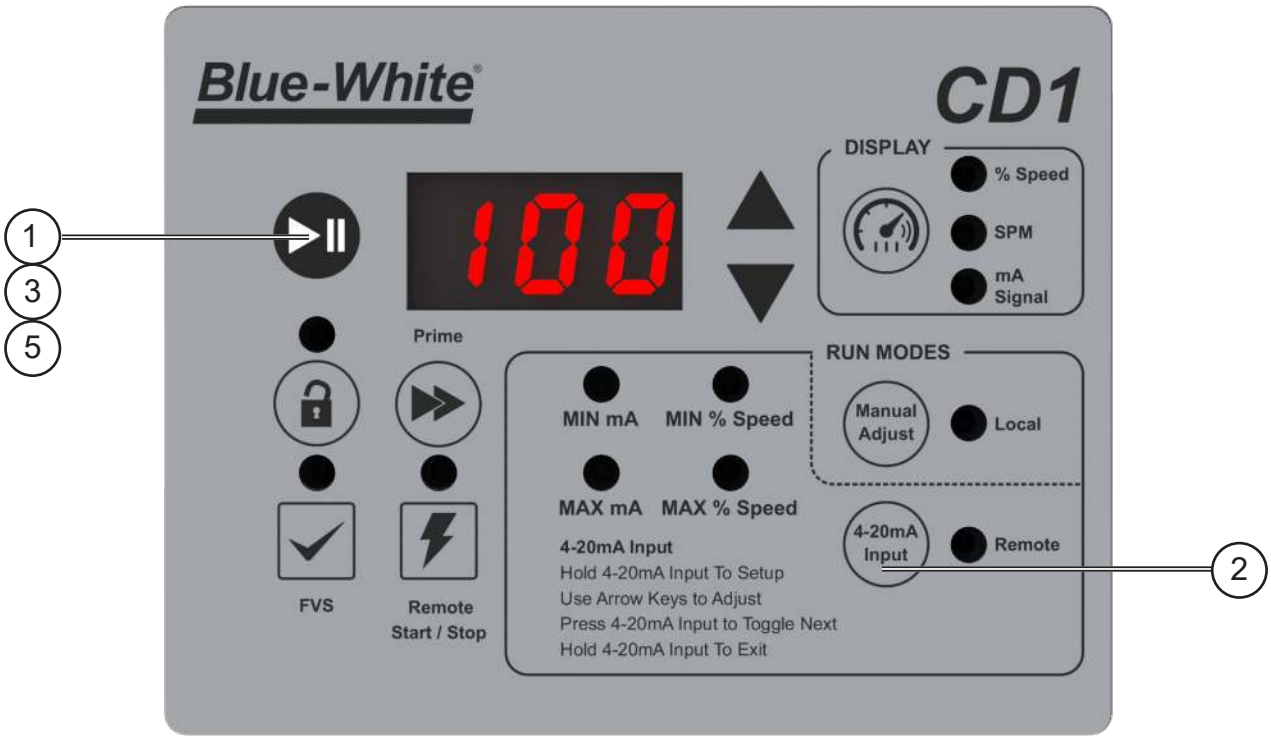


"C" Control Model

Step	Directions for Manual Speed Adjust
1	Confirm pump is in the OFF position
2	Press the Manual Adjust Button (C model only). Local light will activate.
3	Press Start/Stop button.
4	Adjust pump speed using up and down arrows.
5	Press Start/Stop button at any time to stop pump.

5.3 4-20 mA Input Speed Adjust (“C” Control model only)

To pump speed can be adjusted remotely via an external 4-20mA signal. Ensure pump is wired properly for 4-20mA operation and all signal wired is shielded. The 4-20mA signal can be scaled at the pump. See Programming section for details.



Step	Directions for 4-20mA operation
1	Confirm pump is in the OFF position
2	Press the 4-20mA Button. 4-20mA light will activate.
3	Press Start/Stop button.
4	Pump speed will be adjust by incoming 4-20mA signal.
5	Press Start/Stop button at any time to stop pump.

Note: Press “Display” button to toggle between “% Speed” and “mA Signal” to ensure 4-20mA signal at the pump is consistent with 4-20mA source.

5.4 Calibration

To ensure the most accurate pumping, a pump calibration is recommended prior to operating the pump, or whenever parts are replaced or system conditions change. The actual pump flow rate will vary depending on the suction/discharge line conditions and solution variables. Calibrate the pump with actual discharge line pressure and conditions.

To calibrate the pump:

1. Obtain a calibration column or similarly precise solution container.
2. Connect suction tubing to draw from the calibration column and connect discharge tubing to discharge into actual piping, or use back-pressure valve and pressure gauge to simulate actual pumping conditions.
3. Prime to the pump to the point where solution is discharging beyond pressure point.
4. Fill calibration column and measure/note amount of solution in the column.
5. Press the Prime button and allow the pump to flow for the 1 minute period. (Alternately, the pump can be calibrated at any speed or time duration, as long as speed and time are recorded properly.)
6. Record the flow difference in the calibration cylinder.
7. Calculate the flow rate by dividing the flow by the time. For example, if the pump runs for 1 minute, and the flow difference is 30 ml, then divide 30ml by 1 minute. The flow rate is 30 ml/min at the calibrated pump speed.
8. For best accuracy, run more than one calibration to check results, or run another calibration at a different pump speed.

Calibration results should be similar to the flow rating for the pump, but can vary depending on chemical composition, discharge pressure, viscosity, temperature, elevation, and other conditions.

Reference Calibration Video here. blue-white.com/bw-videos/the-blue-white-academy-how-to-calibrate-the-1-series-diaphragm-metering-pump/

5.5 DFD (Diaphragm Failure Detection)

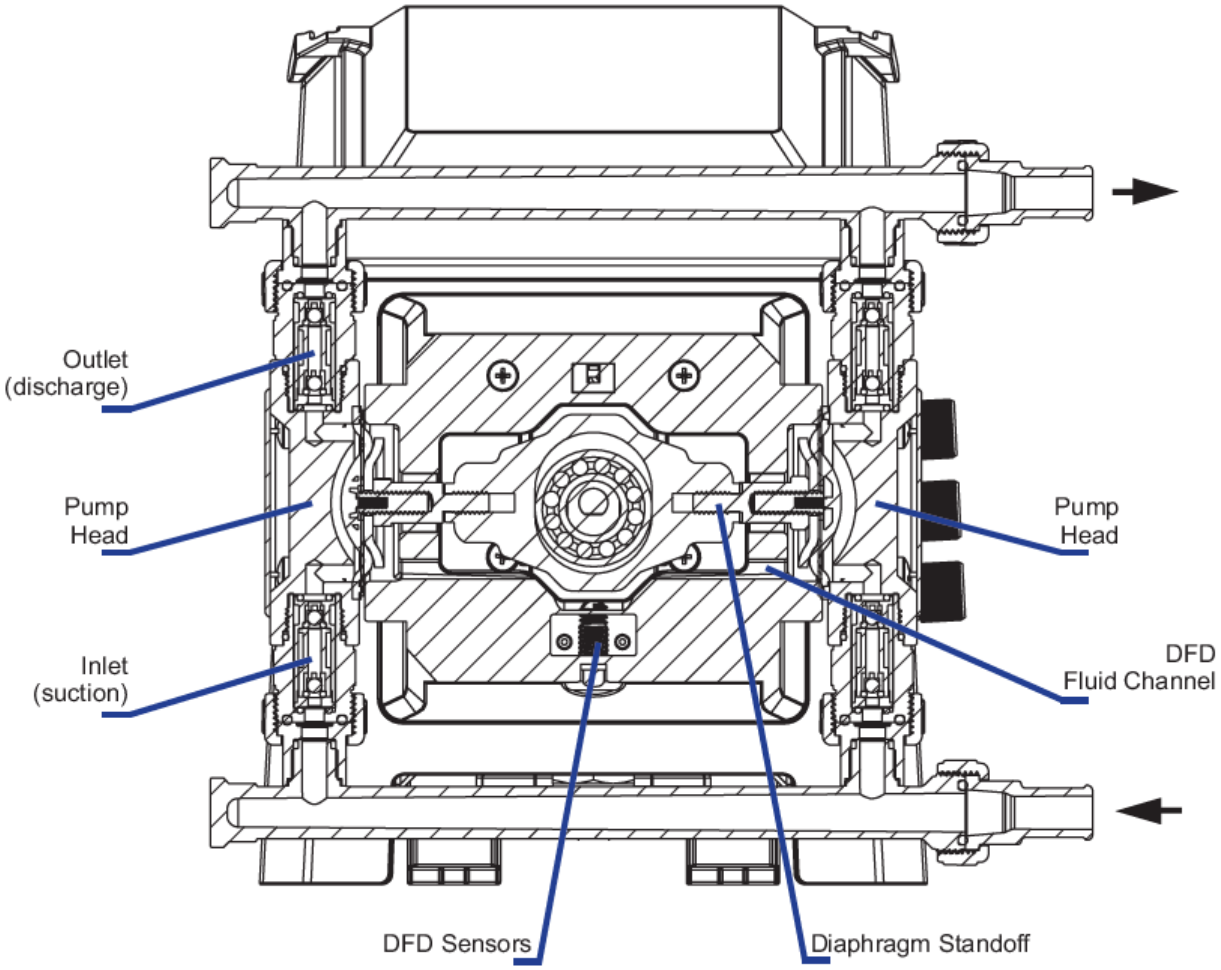
DFD (Diaphragm Failure Detection) - The pump is equipped with a Diaphragm Failure Detection System which is designed to stop the pump and activate alarm output signal in the event the chemical enters the pump head.

This patented system is capable of detecting the presence of a large number of chemicals including Sodium Hypochlorite (Chlorine), Hydrochloric (muriatic) Acid, Sodium Hydroxide, and many others.

The DFD measures solution conductivity and may not sense solutions with low conductivity such as deionized water, oils, and polymer.

If the system has detected chemical, the pump will stop and an output alarm will activate. The pump display will change to “dFd”.

The pump must be serviced after a DFD event. Refer to maintenance instructions for inspecting and replacing the diaphragm. DFD pins must be thoroughly cleaned before the pump is paced back in operation. To clean the DFD pins, remove cover on bottom of drive chamber by removing the holding screw. You can now clean the pins in this area. (pump may need to be removed from mounting bracket for better access.) Failure to clean pump head will void warranty.



6.0 Maintenance

Prior to service, pump clean water (or other appropriate neutral solution) through the pump to remove chemical.

Always wear protective clothing, face shield, safety glasses and gloves when working on or near your metering pump. Additional precautions should be taken depending on solution being pumped. Refer to SDS warnings from chemical manufacturer.

6.1 Routine Inspection and Maintenance

The pump requires very little maintenance. However, the pump and all accessories should be checked weekly. This is especially important when pumping chemicals. Inspect all components for signs of leaking, swelling, cracking, discoloration or corrosion. Replace worn or damaged components immediately.

Cracking, crazing, discoloration and the like during the first week of operation are signs of severe chemical attack. If this occurs, immediately remove the chemical from the pump. Determine which parts are being attacked and replace them with parts that have been manufactured using more suitable materials. The manufacturer does not assume responsibility for damage to the pump that has been caused by chemical attack.

6.2 How to Clean the Pump

The pump will require occasional cleaning. Primarily areas of concern are the ball checks, strainers,and injection fittings. The frequency will depend on the severity of service.

- Inspect and replace pump head ball check valves as required.
- Periodically clean the injection/check valve assembly, especially when injecting fluids that calcify/precipitate such as sodium hypochlorite. These deposits and other build ups can clog the fitting, increase the back pressure and interfere with the check valve operation.
- Periodically clean the suction strainer.
- Periodically inspect all pump connections and fittings for leaks. No leaks should be present. A leak indicates that a component is faulty and needs to be replaced or cleaned. Do not ignore leaks.
- Replace old O-rings and tighten all fittings and pump head according to maintenance instructions. Clean if necessary.

6.3 How to Replace the Pump Ball Checks and Diaphragms

Diaphragm replacement may be necessary after a period of use. Pump diaphragms are designed to last the life of the pump when operated properly, however certain operating conditions and chemicals may necessitate eventual replacement. Note all maintenance events by date, and contact the factory if any questions arise regarding application conditions and typical life span of parts.

Remove the existing diaphragm

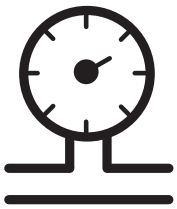
Warning - remove all system pressure before servicing the pump!

Required Tools: Safety glasses, gloves, allen wrench, torque screwdriver, cleaning solution, clean rag, small bucket or catch pan, and Q-tips.

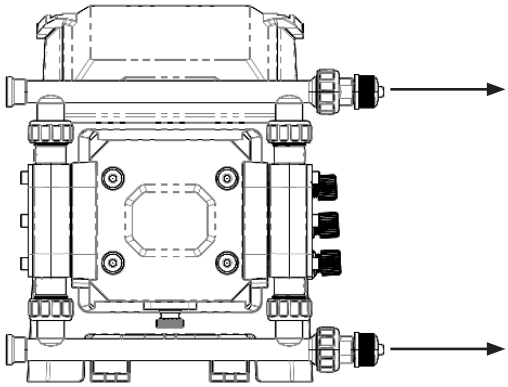
Pump must have power to perform diaphragm replacement. Exercise caution. Ensure pump is not in Remote operation.

Tip! When replacing diaphragms, we strongly recommend replacing ball checks and all O-rings. Complete kits featuring all parts are available in the spare parts pages.

1. Remove all pressure from the system before servicing pump. If possible, flush and drain pump. Note there will always be trace amounts of fluid in the pump head and manifolds when servicing. Where gloves and proper safety gear at all times.

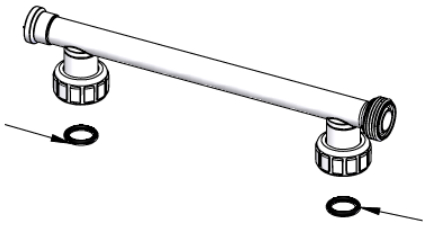


2. Disconnect piping or tubing from the discharge and suction manifolds.



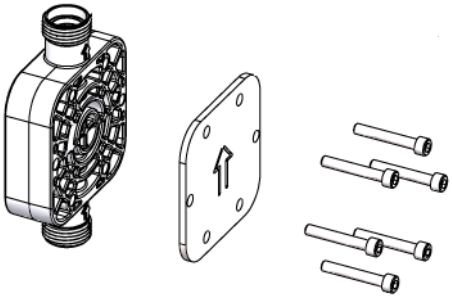
3. Put pump into Manual/Local mode. Disable Remote Start/ stop function. Adjust speed to 25% or less. Stop pump.

4. Remove top and bottom manifolds by unscrewing the unions nuts. Be careful not to misplace O-rings.



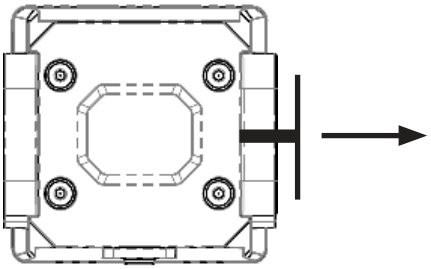
5. Remove the retainer piece. Remove the ball check cartridges. Be careful to keep all pieces together, and note position of arrows on cartridges. Inspect and clean thoroughly or replace as necessary. Place cartridges to the side.

6. Remove pump head face plate and pump head by unscrewing the six pump head screws. Use provided 5/32” Allen wrench, or screwdriver with 5/32” Allen bit. Pull out the pump head cover. Keep all parts together.

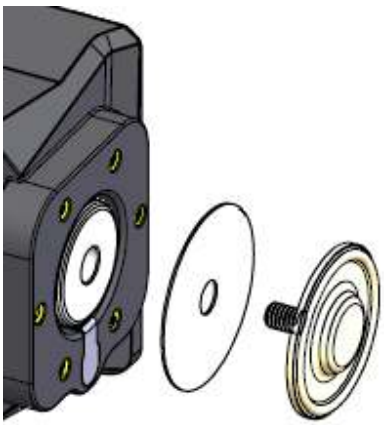


7. If replacing both diaphragms, repeat process for other side.

8. When removing the diaphragm, run the pump slowly so the diaphragm is extended to furthest outward point. This will make removal easiest.



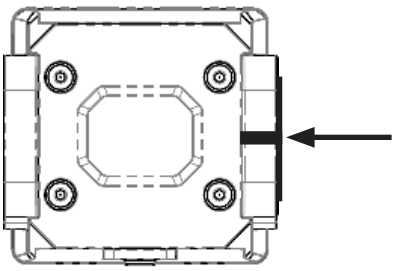
9. Unscrew the diaphragm counterclockwise. Note position of the Teflon backing piece.



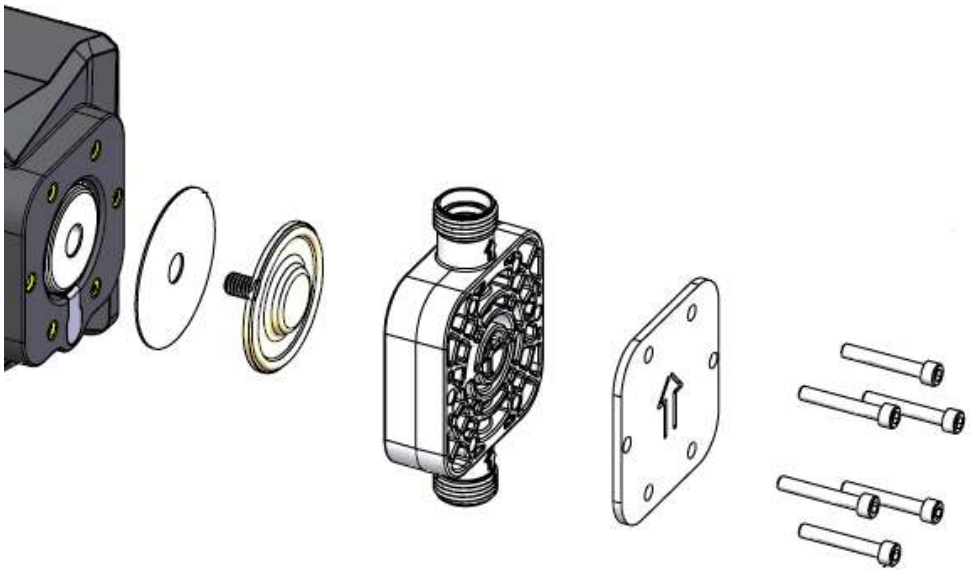
10. Clean the pump head and DFD pins. Ensure there is no chemical build-up on DFD pins. Use Q-Tips and sandpaper to ensure there is no build-up or film and pins. Pins must be clean to ensure proper conductive contact when leak is present. Also clean pump head mount and housing. ensure no chemical has entered pump head mount screw holes.

11. Your diaphragm replacement Kit will include a diaphragm, Teflon backing piece. Install the pieces together. A small amount of grease may be put on threads to ensure easy service. Tighten diaphragm until it fully stops. Hand tighten only. Do not use tools. Repeat process with other diaphragm.

12. Once both diaphragms are installed, replace pump heads. When re-installing pump head, run the pump slowly so the diaphragm is fully pulled to back into the pump. This will allow for easier installation and prevent leaks.



13. Install the six pump heads screws and washers. Install and tighten screws using a star pattern for uniform tightening. Over-tightening on one side of the diaphragm may cause leaks. Final tightening each screw to 38 in-lbs using a torque screwdriver. (it is recommended to check screws and torque after 1-2 hours of operation, as materials may soften or shift during break-in period.)



14. Repeat process with other pump head. Visually inspect each pump head to ensure even/symmetric installation.

15. Re-install ball check cartridges, **Retainer piece**, and upper and lower manifolds. (**Be sure all O-rings are in place. Double check O-rings on bottom adapters. Replace any O-rings if they show signs of degradation.)**

16. Re-connect piping/tubing to pump. Double check tightness of all fittings and screws before operation.

7.0 Parts and Accessories

7.1 Replacement Parts List

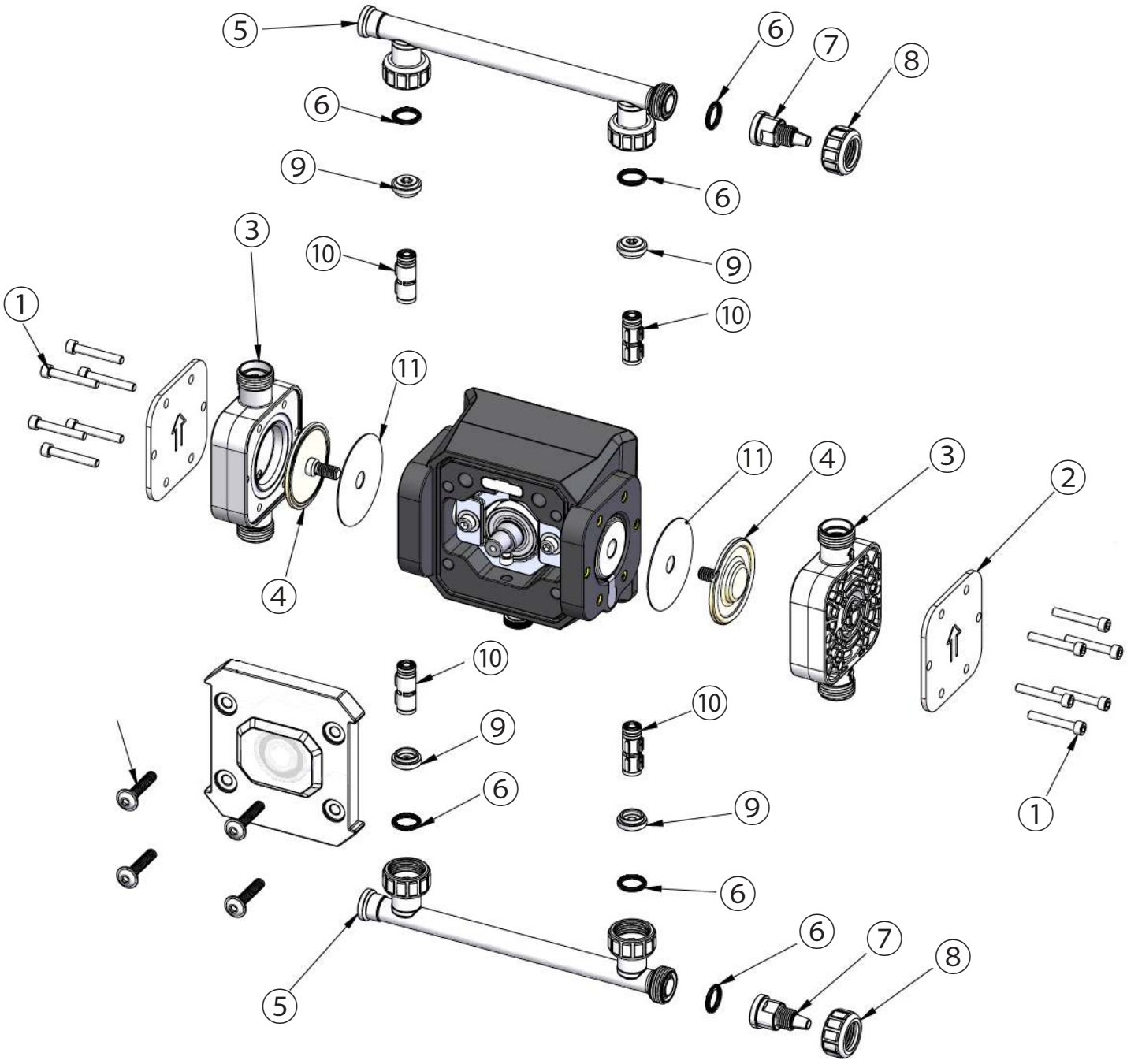
Item	Part No.	Product Name	Qty. Req.
1	90011-181	Screw 10-32 x 1.25 SOC Cap SS	12
2	N/A	Faceplate, Pump head, MD1/CD1 -V2	2
3	72000-847	Kit, Pumphead Assy - CD1/MD1 Enhanced -Aflas -Ceramic Balls- V2	1
	72000-848	Kit, Pumphead Assy - CD1/MD1 Enhanced -EPDM -Ceramic Balls-V2	1
4	72000-843	Kit, Diaphragm (DiaFlex) Enhanced - V2	1
	72000-842	Kit, Diaphragm (Flex-A-Prene) Enhanced - V2	1
5	71010-730	Manifold, MD1/CD1, PVDF	2
6	90003-581	O-ring, Aflas	6
	90003-633	O-ring, EP	6
7	KIT-CA1TZZ	Elbow Adapter Kit, 1/4” x 3/8” tubing comp., Aflas O-rings	1
	KIT-CE1TZZ	Elbow Adapter Kit, 1/4” x 3/8” tubing comp., EP O-rings	1
	KIT-CA1XZZ	Elbow Adapter Kit, 1/2” M/NPT fitting, Aflas O-rings	1
	KIT-CE1XZZ	Elbow Adapter Kit, 1/2” M/NPT fitting, EP O-rings	1
	KIT-CA1CZZ	Elbow Adapter Kit, 1/2” Hose Barb, Aflas O-rings	1
	KIT-CE1CZZ	Elbow Adapter Kit, 1/2” Hose Barb, EP O-rings	1
	KIT-CA1SZZ	Straight Adapter Kit 1/4” x 3/8” tubing comp., Aflas O-rings	1
	KIT-CE1SZZ	Straight Adapter Kit 1/4” x 3/8” tubing comp., EP O-rings	1
	KIT-CA1MZZ	Straight Adapter Kit 1/2” M/NPT fitting, Aflas O-rings	1
	KIT-CE1MZZ	Straight Adapter Kit, 1/2” M/NPT fitting, EP O-rings	1
	KIT-CA1BZZ	Straight Adapter Kit, 1/2” Hose Barb, Aflas O-rings	1
	KIT-CE1BZZ	Straight Adapter Kit, 1/2” Hose Barb, EP O-rings	1
8	90002-712	Union Nut, PVDF	2
9	N/A	Retainer, Cart Valve -V2	4
10	72000-845	Kit, 4 ea CD1/MD1 Cart Valve Double Unibody, PVDF, Aflas - V2 (Standard Ceramic Ball Checks)	1
	72000-846	Kit, 4 ea CD1/MD1 Cart Valve Double Unibody, PVDF, EPDM - V2 (Standard Ceramic Ball Checks)	1
	72000-854	Kit, 4 ea CD1/MD1 Cart Valve Double Unibody, PVDF, Aflas - V2 (PTFE Ball Checks)	1
	72000-855	Kit, 4 ea CD1/MD1 Cart Valve Double Unibody, PVDF, EPDM - V2 (PTFE Ball Checks)	1
11	N/A	PTFE Reinforcement Disc - V2	2
N/S	C-330-6	Tube Nut, 1/4” x 3/8”	2
N/S	90002-684	Top Cover, Polycarbonate	1
N/S	90002-685	Mounting Bracket	1
N/S	90010-644	M12 Connector Cap	3

Pumphead Assy Kits include:
(2) #3 Pumphead
(2) #2 Faceplate
(12) #1 Screws
(1) #10 Cart Valve Kit
(4) #6 O-ring
(4) #9 Retainer

Diaphragm Kits include:
(2) #4 Diaphragms
(2) #11 Reinforcement Discs

Elbow & Straight Adapter Kits include:
(2) #7 adapters
(2) #8 Union Nuts
(2) #6 O-rings

7.2 Replacement Parts Drawing

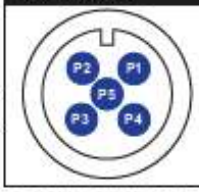


7.3 Accessories

KIT-M12
TWO M12 CABLES

KIT-M12

Kit contains: Two M12 cables. 10 foot length.
Other cable lengths:
KIT-M12-2-15 15 foot length.
KIT-M12-2-30 30 foot length.

KIT-M12 WIRING INSTRUCTIONS		
DIAGRAM	PIN #	WIRE COLOR
	PIN 1	BROWN
	PIN 2	WHITE
	PIN 3	BLUE
	PIN 4	BLACK
	PIN 5	GRAY

NOTE: THIS DIAGRAM IS FOR THE PUMP'S M12 PORT

KIT-M12-3
THREE M12 CABLES

KIT-M12-3

Kit contains: Three M12 cables. 10 foot length.
Other cable lengths:
KIT-M12-3-15 15 foot length.
KIT-M12-3-30 30 foot length.

CABLE-UAC
USB A-C CABLE

CABLE-UAC

Kit contains: One 3' USB-A to USB-C cable.

POWER CORDS - DETACHABLE

90010-663 115V/60Hz NEMA 5/15
90010-664 220V/50Hz CEE 7/V11
90010-665 230V/50Hz BS 1363/A
90010-666 240V/50Hz AS 3112
90010-696 230V/60Hz NEMA 6/15
90010-821 115V/60Hz NEMA 5/15 (Lockable)

KIT-CQA / KIT-CQE
QUICK CONNECT CD1 /MD1

KIT-CQA (Aflas O-rings) / KIT-CQE (EP O-rings)

Kit contains: One discharge fitting with o-rings installed (red),One suction fitting with o-rings installed (white), Two tube nuts, Two 1/2" hose barb quick connect adapters, Two 1/2" M/NPT quick connect adapters, Two quick disconnect adapters and Two #5 hose clamps.

KIT-C5M
CD1 1/2" MNPT Adapter Fittings

KIT-C5M

Kit contains: Two 1/2" MNPT adapters with integral union nuts.

KIT-C5B
CD 1/2" HOSE BARB

KIT-C5B

Kit contains: Two union nuts, Two 1/2" hose barb adapters, Two #5 hose clamps, One 2 1/2' clear reinforced PVC tube and One 5' 5/8" suction tube

Elbow Adapter Kits

ELBOW ADAPTER KITS (Kits include (2) adapters, (2) Union Nuts, (2) O-rings)

KIT-CA1TZZ	Elbow Adapter Kit, 1/4" x 3/8" tubing connection, Aflas O-rings
KIT-CE1TZZ	Elbow Adapter Kit, 1/4" x 3/8" tubing connection, EP O-rings
KIT-CA1XZZ	Elbow Adapter Kit, 1/2" M/NPT connection, Aflas O-rings
KIT-CE1XZZ	Elbow Adapter Kit, 1/2" M/NPT connection, EP O-rings
KIT-CA1CZZ	Elbow Adapter Kit, 1/2" Hose Barb connection, Aflas O-rings
KIT-CE1CZZ	Elbow Adapter Kit, 1/2" Hose Barb connection, EP O-rings

Suction / Discharge Tubing
1/4" ID x 3/8" OD

SUCTION AND DISCHARGE TUBING

C-334-6	Tubing, Suction, clear PVC 3/8" O.D. x 5' length
C-334-6-10	Tubing, Suction, clear PVC 3/8" O.D. x 10' length
C-334-6-100	Tubing, Suction, clear PVC 3/8" O.D. x 100' length
C-335-6	Tubing, Discharge, opaque PE 3/8" O.D. x 5' length
C-335-6-10	Tubing, Discharge, opaque PE 3/8" O.D. x 10' length
C-335-6-100	Tubing, Discharge, opaque PE 3/8" O.D. x 100' length

KIT-S07
STAR III 7 GALLON TANK

KIT-S07

Kit contains: One 7 gallon tank, One foot valve and strainer and One mounting bracket with screws

KIT-S15
STAR III 15 GALLON TANK

KIT-S15

Kit contains: One 15 gallon tank, One foot valve and strainer and One mounting bracket with screws

KIT-S30
STAR III 30 GALLON TANK

KIT-S30

Kit contains: One 30 gallon tank, One foot valve and strainer and One mounting bracket with screws

KIT-PSM
WALL MOUNT BRACKET, HDPE

KIT-PSM

Kit contains: One HDPE Bracket, (4) 3/8" x 2-3/4" long dia anchor bolts.

8.0 Troubleshooting

Common Issues

Air is entering the pump. Check suction lines to make sure all connections are tight. Check the level of the chemical tank. Remove obstructions and clean strainers.

Pump is not accurate. Check the suction line and clean the strainer. Check for obstructions in suction lines, discharge lines, and injectors. Check the condition of the pump ball checks. Ensure ball checks are clean seating properly. Replace as necessary. (See Spare Parts)

The pump will not run and/or shows “dfd”

Check if the DFD (leak detection) has detected a solution/chemical in the pump.

The pump will not run and/or shows “fvs”

The Flow Verification System “FVS” alarm has been activated. Check flow verification device and ensure flow is present. Resolve flow issue and press Start/Stop button to reset. Or deactivate FVS feature by pressing and holding FVS button until light turns off.

An Error Code appears on display

Error Code	Explanation	Troubleshooting
E01	Motor Over Current	Ensure that diaphragm is installed properly
E02	Over Voltage	Check power supply output voltage
E03	Under Voltage	Check power supply output voltage
E04	Temperature exceeds 75°C at control	Check ambient conditions, restart pump once cooled to ambient temperature
E05	Inverter Error	Contact Blue-White (714) 893-8529 customerservice@blue-white.com
E06	No Motor Connection	Contact Blue-White (714) 893-8529 customerservice@blue-white.com
E08	Motor Stall	Ensure that diaphragm is installed properly
E10	Capacitor bank charging error	Contact Blue-White (714) 893-8529 customerservice@blue-white.com
E17	Communication error at display	Contact Blue-White (714) 893-8529 customerservice@blue-white.com

Electrical

The pump will not power up. Check power source or try a different power source. Check to ensure the power cable is properly wired.

The input signal (4-20mA, Remote Start/Stop) is dropping or incorrect. Check wiring integrity and proper connection to pump. Ensure 4-20mA signal is powered via 15-24VDC. Check that all signal cables are shielded and properly grounded. Ensure signal wiring is not located or run next to high voltage power or equipment generating EMI. Ensure power wiring to the pump is clean/conditioned.

9.0 System

About the CD1 Pump

The CD1 Pump is designed to be simple and easy to operate. The pump comes pre-tested and is ready to use.

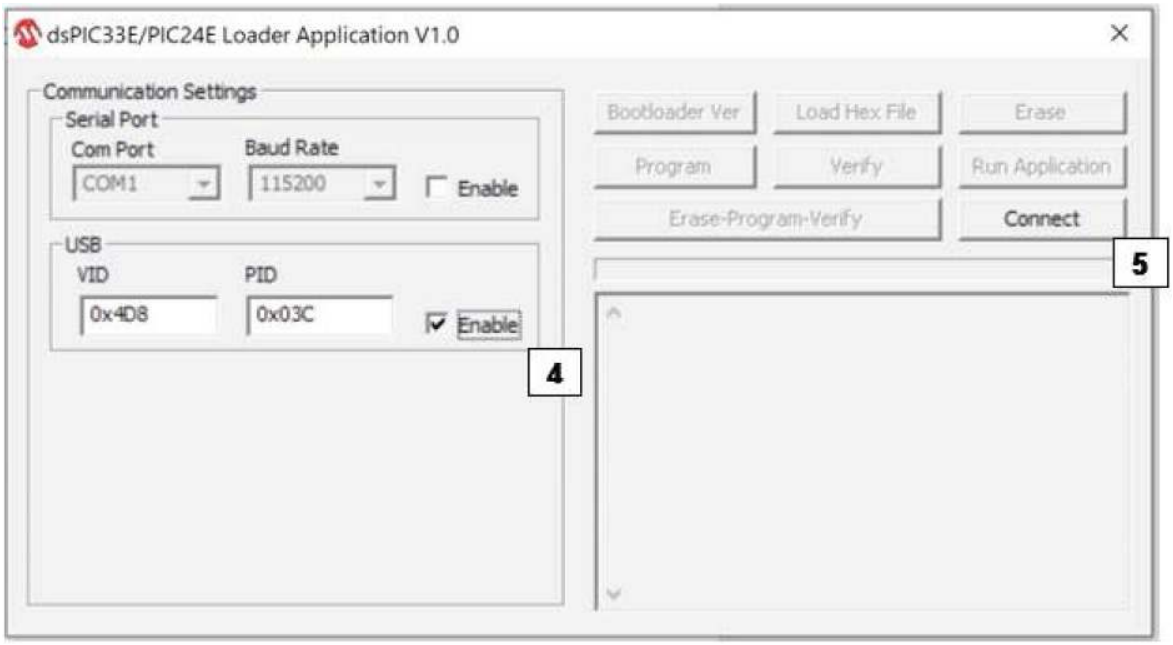
Firmware updates may be required. Contact customer service for details.

9.1 Updating the Firmware

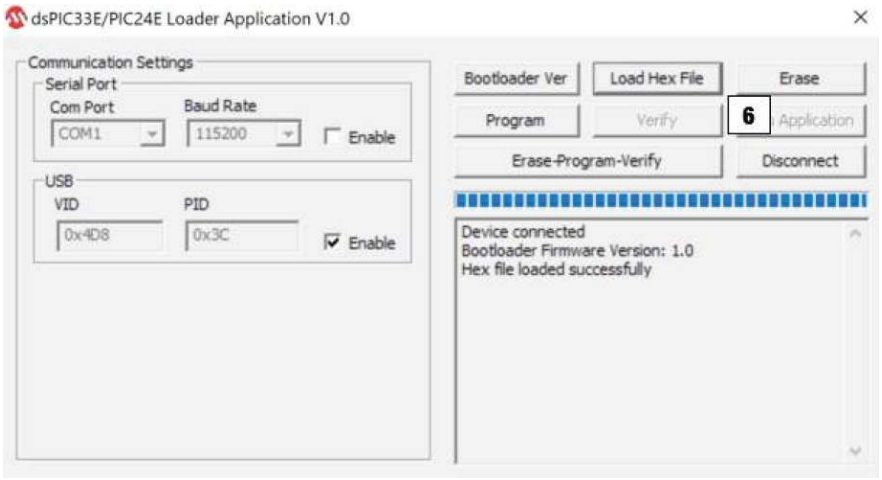
Requirements

Download & Install the CD1 Programmer file by visiting the Firmware Update section of the CD1 product page at www.blue-white.com as well as download the Firmware Update File.

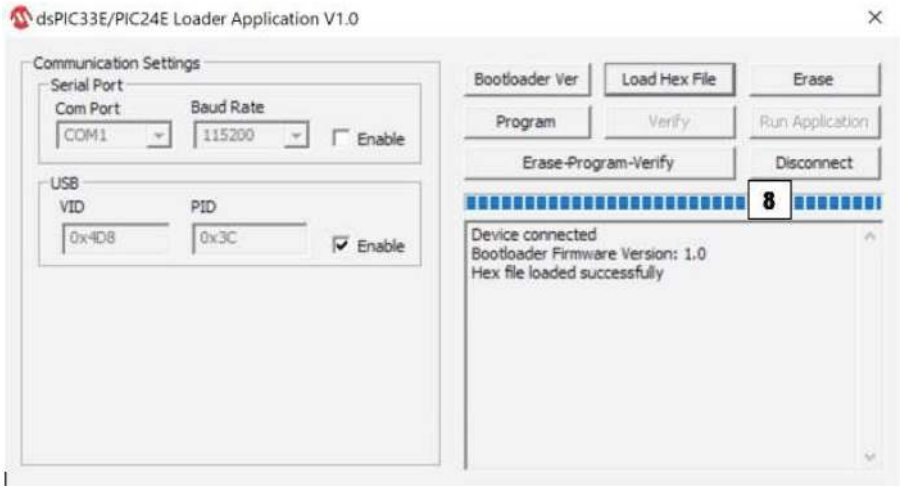
1. Connect the Pump to a computer via USB-A / USB-C cable (Pump must not be powered before starting.) (Be sure to replace USB cover after updating firmware)
2. Power up the Pump
3. Open the CD1 programmer
4. Select “Enable” USB in the Communication settings window
5. Click on Connect



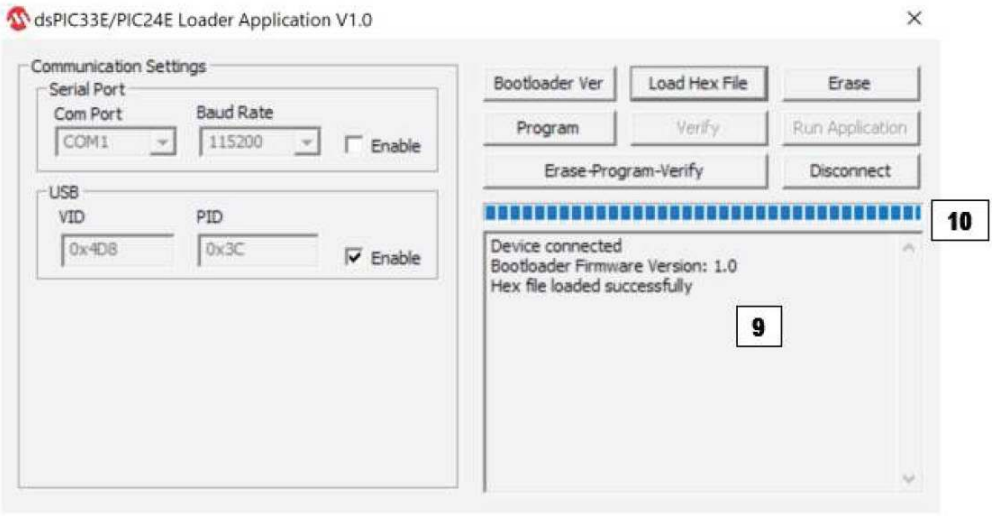
6. Select “Load Hex File”



7. Select “.HEX” file (CD1x_xxx.hex) (see Blue-White website for latest firmware version)



8. Click on “Erase-Program-Verify”
9. Once Hex file is loaded successfully
10. Click on “Disconnect”



11. Your firmware has now been updated.

10.0 Warranty

LIMITED WARRANTY
Your Blue-White product is a quality product and is warranted for a specific time from date of purchase (proof of purchase is required). The product will be repaired or replaced at our discretion. Failure must have occurred due to defect in material or workmanship and not as a result of operation of the product other than in normal operation as defined in the product manual. Warranty status is determined by the product's serial label and the sales invoice or receipt. The serial label must be on the product and legible. The warranty status of the product will be verified by Blue-White or a factory authorized service center.

CHEM-FEED® CD1Pumps and diaphragms are warranted for 2 years from date of purchase (proof of purchase is required). Pumps will be repaired or replaced at our discretion.

WHAT IS NOT COVERED

- Wear parts.
- Pump removal, or re-installation, and any related labor charge.
- Freight to the factory, or service center.
- Products that have been tampered with, or in pieces.
- Damage resulting from misuse, carelessness such as chemical spills on the enclosure, abuse, lack of maintenance, or alteration which is out of our control.
- Damage by faulty wiring, power surges or acts of nature.

BLUE-WHITE does not assume responsibility for any loss, damage, or expense directly or indirectly related to or arising out of the use of its products. Failure must have occurred due to defect in material or workmanship and not as a result of operation of the product other than in normal operation as defined in the pump manual.

Warranty status is determined by the pump's serial label and the sales invoice or receipt. The serial label must be on the pump and legible. The warranty status of the pump will be verified by Blue-White or a factory authorized service center.

PROCEDURE FOR IN WARRANTY REPAIR
Warranty service must be performed by the factory or an authorized service center. Contact the factory or local repair center to obtain a RMA (Return Material Authorization) number. It is recommended to include foot strainer and injection/check valve fitting since these devices may be clogged and part of the problem. Decontaminate, dry, and carefully pack the product to be repaired. Please enclose a brief description of the problem and proof of purchase. Prepay all shipping and insurance cost. COD shipments will not be accepted. Damage caused by improper packaging is the responsibility of the sender. When In-Warranty repair is completed, the factory pays for return shipping to the dealer or customer.

PRODUCT USE WARNING
Blue-White products are manufactured to meet the highest quality standards in the industry. Each product instruction manual includes a description of the associated product warranty and provides the user with important safety information. Purchasers, installers, and operators of Blue-White products should take the time to inform themselves about the safe operation of these products. In addition, Customers are expected to do their own due diligence regarding which products and materials are best suited for their intended applications. BLUE-WHITE is pleased to assist in this effort but does not guarantee the suitability of any particular product for any specific application as Blue-White does not have the same degree of familiarity with the application that the customer/end user has. While BLUE-WHITE will honor all of its product warranties according to their terms and conditions, Blue-White shall only be obligated to repair or replace its defective parts or products in accordance with the associated product warranties.

BLUE-WHITE SHALL NOT BE LIABLE EITHER IN TORT OR IN CONTRACT FOR ANY LOSS OR DAMAGE WHETHER DIRECT, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL, ARISING OUT OF OR RELATED TO THE FAILURE OF ANY OF ITS PARTS OR PRODUCTS OR OF THEIR NONSUITABILITY FOR A GIVEN PURPOSE OR APPLICATION.

CHEMICAL RESISTANCE WARNING
BLUE-WHITE offers a wide variety of wetted parts. Purchasers, installers, and operators of Blue-White products must be well informed and aware of the precautions to be taken when injecting or measuring various chemicals, especially those considered to be irritants, contaminants or hazardous. Customers are expected to do their own due diligence regarding which products and materials are best suited for their applications, particularly as it may relate to the potential effects of certain chemicals on Blue-White products and the potential for adverse chemical interactions. Blue-White tests its products with water only. The chemical resistance information included in this instruction manual was supplied to BLUE-WHITE by reputable sources, but Blue-White is not able to vouch for the accuracy or completeness thereof. While BLUE-WHITE will honor all of its product warranties according to their terms and conditions, Blue-White shall only be obligated to repair or replace its defective parts or products in accordance with the associated product warranties.

BLUE-WHITE SHALL NOT BE LIABLE EITHER IN TORT OR IN CONTRACT FOR ANY LOSS OR DAMAGE, WHETHER DIRECT, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL, ARISING OUT OF OR RELATED TO THE USE OF CHEMICALS IN CONNECTION WITH ANY BLUE-WHITE PRODUCTS.

Users of electrical and electronic equipment (EEE) with the WEEE marking per Annex IV of the WEEE Directive must not dispose of end of life EEE as unsorted municipal waste, but use the collection framework available to them for the return, recycle, recovery of WEEE and minimize any potential effects of EEE on the environment and human health due to the presence of hazardous substances. The WEEE marking applies only to countries within the European Union (EU) and Norway. Appliances are labeled in accordance with European Directive 2002/96/EC. Contact your local waste recovery agency for a Designated Collection Facility in your area.

AUTHORIZED SERVICE CENTERS

To find an authorized service center near you, please call Blue-White Industries at (714) 893-8529 or e-mail us at customerservice@blue-white.com

NOTES:

Blue-White®

Fluid metering solutions made simple

Users of electrical and electronic equipment (EEE) with the WEEE marking per Annex IV of the WEEE Directive must not dispose of end of life EEE as unsorted municipal waste, but use the collection framework available to them for the return, recycle, recovery of WEEE and minimize any potential effects of EEE on the environment and human health due to the presence of hazardous substances. The WEEE marking applies only to countries within the European Union (EU) and Norway. Appliances are labeled in accordance with European Directive 2002/96/EC.

Contact your local waste recovery agency for a *Designated Collection Facility* in your area.

P.N. 80000-748 CD1 Multi-Diaphragm Pump REV 2 202604021

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