

# FLEXFLO®

Peristaltic Metering Pump



# A3

|            |                                       |           |                                        |                                                         |           |
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# READ THE ENTIRE OPERATING MANUAL PRIOR TO INSTALLATION AND USE.



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5300 Business Drive  
Huntington Beach, CA 92649

Congratulations on purchasing the A3 FLEXFLO® variable speed Peristaltic Metering Pump.

Your FLEXFLO® A3 pump is pre-configured for the tubing that shipped with your metering pump. The tubing assembly has an Identification number printed for easy re-order.

**Please 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 pre-installed tube assembly. This is part of our stringent quality assurance program at Blue-White Industries.

For more information please visit us at: [www.blue-white.com](http://www.blue-white.com)

For videos and tutorials please visit as at:  
<https://www.blue-white.com/resources/videos>

## 1.1 What's In The Box

The following items are included with every A3 peristaltic metering pump:

A3 Peristaltic Pump  
With 6ft (1.8m) power cord



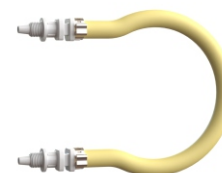
USB Flash Drive With Instruction Manual



Standard Mounting Brackets



Spare Tubing



Tube Installation Tool



Injection Fitting (with “S”, “M”, and “B” connections only)



Suction Tubing (with “S” connection only)



Discharge Tubing (with “S” connection only)



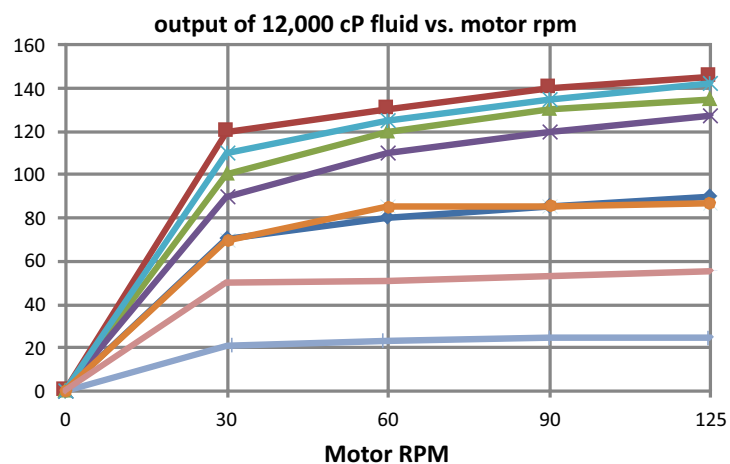
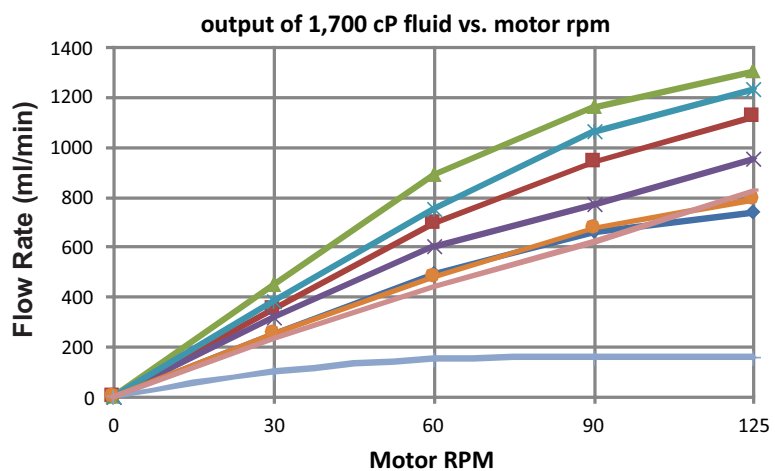
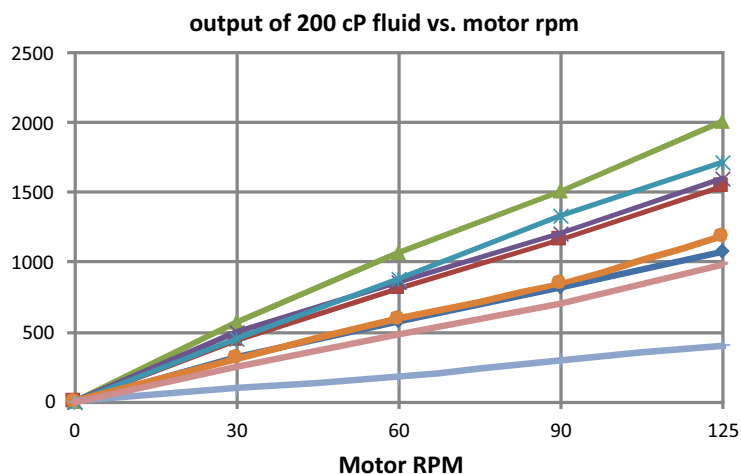
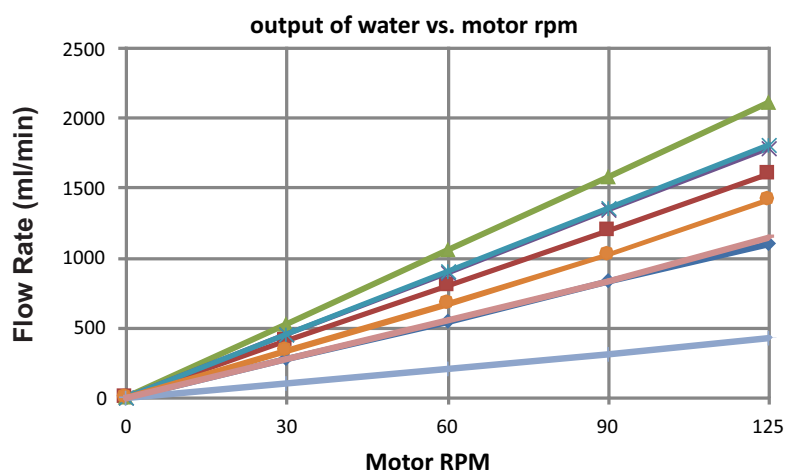
Suction Strainer (with “S”, “M” and “B” connections only)



|                                                         |                                                                                             |
|---------------------------------------------------------|---------------------------------------------------------------------------------------------|
| <b>Maximum Working Pressure (excluding pump tubes)</b>  | 125 psig (8.6 bar)<br><b>NOTE:</b> see individual pump tube assembly max. pressure ratings. |
| <b>Maximum Fluid Temperature (excluding pump tubes)</b> | 185 °F (85 °C)<br><b>NOTE:</b> see individual pump tube assembly max. temperature ratings.  |
| <b>Ambient Operating Temperature</b>                    | 14 °F to 115 °F (-10 °C to 46 °C)                                                           |
| <b>Ambient Storage Temperature</b>                      | -40 °F to 158 °F (-40 °C to 70 °C)                                                          |
| <b>Maximum Viscosity</b>                                | 12,000 Centipoise                                                                           |
| <b>Maximum Suction Lift</b>                             | 30 ft. Water, 0 psig (9.14 m, 0 bar)                                                        |
| <b>Operating Voltage</b>                                | 115VAC/60Hz, 1ph (2.0 Amp Maximum)                                                          |
|                                                         | 230VAC/60Hz, 1ph (1.0 Amp Maximum)                                                          |
|                                                         | 220VAC/50Hz, 1ph (1.0 Amp Maximum)                                                          |
|                                                         | 240VAC/50Hz, 1ph (1.0 Amp Maximum)                                                          |
|                                                         | 230VAC/50Hz, 1ph (1.0 Amp Maximum)                                                          |
| <b>Power Cord Options</b>                               | 115V60Hz = NEMA 5/15 (USA)                                                                  |
|                                                         | 230V60Hz = NEMA 6/15 (USA)                                                                  |
|                                                         | 220V50Hz = CEE 7/VII (EU)                                                                   |
|                                                         | 240V50Hz = AS 3112 (Australia/New Zealand)                                                  |
|                                                         | 230V50Hz = BS 1363/A (UK)                                                                   |
| <b>Motor</b>                                            | Brushless DC, 1/4 hp                                                                        |
| <b>Motor Speed Adjustment Range</b>                     | 2,500:1 (0.04% – 100%) Max rpm = 125 rpm                                                    |
| <b>Motor Speed Adjustment Resolution</b>                | 0.01% increments > 1% motor speed and < 100%                                                |
|                                                         | 0.04% increments < 1% motor speed                                                           |
| <b>Display</b>                                          | 5" touchscreen color LCD, UV resistant                                                      |
| <b>Display Languages</b>                                | English, Spanish, French, German, and Portuguese selectable                                 |
| <b>Security</b>                                         | Programmable 6-digit password                                                               |
| <b>Maximum Overall Dimensions</b>                       | 8-1/4"W x 11-3/4"H x 13-1/4"D (20.9W x 29.8H x 34.5D cm)                                    |
| <b>Product Weight</b>                                   | 25.4lb. (11.5 Kg)                                                                           |
| <b>Approximate Shipping Weight</b>                      | 30 lb. (13.6 Kg)                                                                            |
| <b>Enclosure</b>                                        | NEMA 4X (IP66), Polyester powder coated aluminum & Noryl                                    |
| <b>RoHS Compliant</b>                                   | Yes                                                                                         |
| <b>Standards</b>                                        | cETLus, CE                                                                                  |

## 2.1 OUTPUT VERSUS FLUID VISCOSITY

Fluid viscosity and motor RPM both have an effect on fluid output. For your reference the charts below display the various tubes we offer and their output at different viscosities and different motor RPM. All testing was conducted with a three foot suction lift.



### Tube Material

- ◆ MNH
- MNJ
- ▲ MNK
- ✕ MTK
- ✱ MGK
- MNGG
- + MNEE

### 3.1 Non-Wetted Components

#### Non-wetted Components:

**Enclosure:** 413 Aluminum (Polyester powder coated) & Noryl

**Pump Head:** Valox® (PBT) thermoplastic

**Pump Head Cover:** Polycarbonate

Permanently lubricated sealed motor shaft support ball bearing.

**Cover Screws:** Stainless steel, polypropylene cap

#### Roller Assembly:

Rotor: Valox® (PBT)

Rollers: Nylon

Roller Bearings: SS Ball bearings

**Motor Shaft:** Chrome plated steel

**TFD System Sensor:** Hastelloy C-276

**Power Cord:** 3 conductor, SJTW-A water-resistant

**Tube Installation Tool:** GF nylon

**Mounting Brackets and Hardware:** 316 Stainless steel

### 3.2 Wetted Components

#### Wetted Components:

**Pump Tube Assembly:** Tubing: Flex-A-Prene®, Flex-A-Chem or Flex-A-Thane®

Adapter Fittings: PVDF

Body & Insert: PVDF

Check Ball: Ceramic

**Injection / Back-Flow Check Valve:** Spring: Hastelloy C-276

Ball Seat O-Ring: TFE/P (optional EPDM)

Static Seal O-Ring: TFE/P (optional EPDM)

#### Ancillary Items Provided:

Suction Tubing: 3/8" OD x 1/4" ID x 10' Clear PVC

**With "S" Tubing Type Only:** Discharge Tubing: 3/8" OD x 1/4" ID x 10' Polyethylene

Suction Strainer: PVDF

**With "B" Tubing and "M" M/NPT Connections Only:** (Available on ND, NKL, NGG, and NEE)

Suction Strainer: PVDF

**With "C" Tri-clamp** (Available on ND, NKL, NGG, and NEE)

Suction Strainer: PVDF

\*\* Flex-A-Prene®, Flex-A-Thane®, and Flex-A-Chem® tubing comply with FDA 21 CFR, 117.2600 criteria for food processing.

4.1    Agency Listings



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



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 50082-1.

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

ENCLOSURE RATING

- NEMA 4X

Constructed for either indoor or outdoor use to provide a degree of protection to personnel against incidental contact with enclosed equipment; to provide a degree of protection against falling dirt, rain, sleet, snow, windblown dust, splashing water, and hose-directed water; and that will be undamaged by external formation of ice on enclosure.
- IP66

No ingress of dust; complete protection against contact. Water projected in powerful jets against enclosure from any direction shall have no harmful effects.

**CAUTION**

The pump should be serviced by qualified persons only. If equipment is used in a manner not specified in this manual, the protection provided by the equipment may be impaired.

**CAUTION**

Risk of chemical overdose. Be certain pump does not overdose chemical during backwash and periods of no flow in circulation system.

**CAUTION**

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 MSDS precautions from your solution supplier.

**CAUTION**

All diagrams are strictly for guideline purposes only. Always consult an expert before installing metering pump on specialized systems. Metering pump should be serviced by qualified persons only.

**CAUTION**

Be sure that installation does not constitute a cross connection with drinking water supply. Check your local plumbing codes.

**CAUTION**

The pump should be supplied by an isolating transformer or RCD (operating current less or equal 30 mA).

## 5.1 Mounting Location

1. Choose an area located near the chemical supply tank, chemical injection point, and electrical supply. Also, choose an area where the pump can be easily serviced.
2. Finding a secure surface and using the provided mounting hardware, mount the pump close to the injection point. Keep the inlet (suction) and outlet (discharge) tubing as short as possible. Longer discharge tubing increases back pressure at pump head.

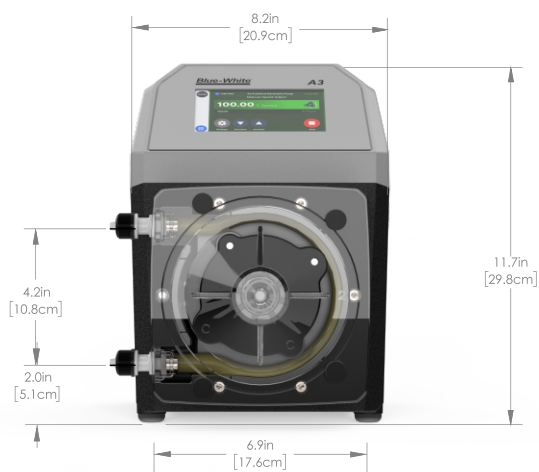
**NOTE:** Mounting the pump lower than the chemical container will gravity-feed chemical into it. This “flooded suction” installation will reduce output error due to increased suction lift. A shut-off valve, pinch-clamp, or other means to halt gravity-feed to the pump must be installed during servicing.

**NOTE:** Install a back flow prevention check valve at the discharge side of the pump to prevent the system fluid from flowing back through pump during tube replacement or during tube rupture.

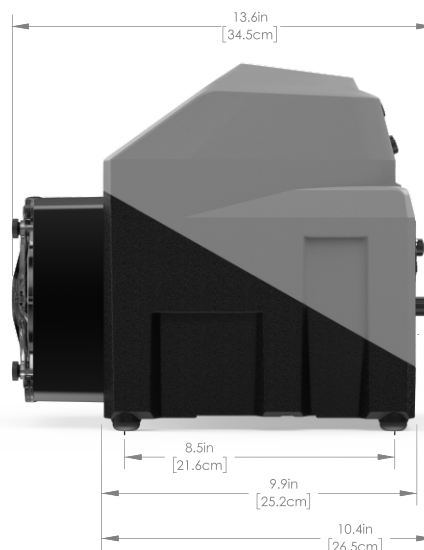
**NOTE:** It is recommended to have a pressure relief valve at the discharge side of the of pump to prevent premature wear and damage to the pump tube, in the event that the discharge line becomes blocked.

**NOTE:** The pump does not require back pressure. Keep the discharge pressure as low as possible to maximize the tube life.

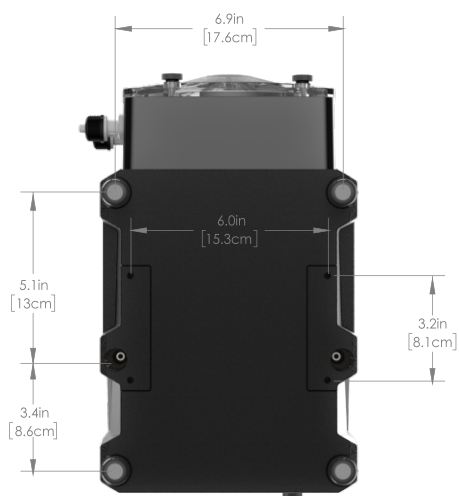
## 5.2 Pump Dimensions



Front View

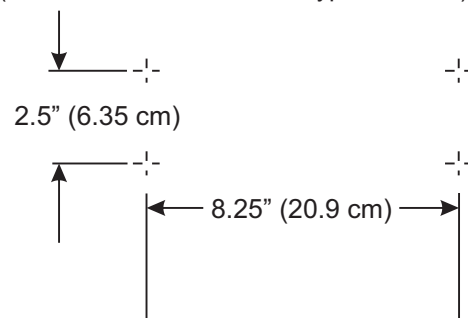


Side View



Bottom View

### Mounting Hole Spacings (for standard and extended type brackets)

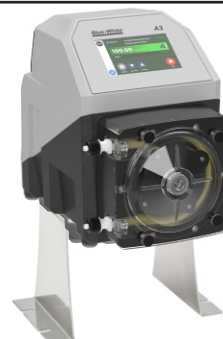


Maximum bolt hole size  
0.200" diameter (4 places)

### Extended Brackets

Stainless Steel extended brackets allow the pump to be securely mounted to most any surface; floor, shelf, or skid. Brackets lift the pump up 4-1/2 inches (11.43 cm), for easy pump access in hard to reach areas.

- Raise metering pump 4-1/2 inches (11.43 cm) off ground or a surface.
- Made out of tough Stainless Steel.
- Provides a stable mounting surface.



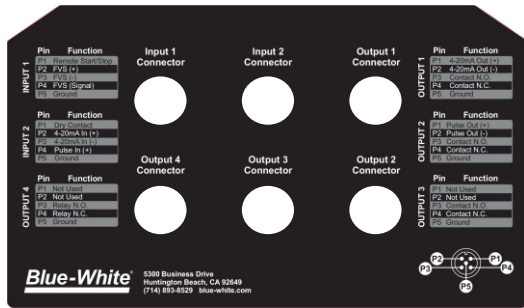
### 5.3 Input Power Connections

|                                                                                                     |                                                                                                                                                                                                                                                      |
|-----------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>WARNING</b><br> | Risk of electric shock – cord connected models 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. |
| <b>WARNING</b><br> | Electrical connections and grounding (earthing) must conform to local wiring codes.                                                                                                                                                                  |
| <b>WARNING</b><br> | Risk of electric shock - Disconnect electricity before removing the wiring compartment cover.                                                                                                                                                        |

- ! Be certain to connect pump to proper supply voltage. Using incorrect voltage will damage pump and may result in injury. Voltage requirement is printed on pump serial label.
- ! Input power range is 96VAC to 264VAC 50/60 Hz.
- ! Voltage Selection is automatically detected and adjusted by power supply. No mechanical switch necessary.
- ! Use voltage your power cord is rated for.
- ! Power cord models are supplied with a ground wire conductor and a grounding type attachment plug (power cord). To reduce risk of electric shock, be certain that power cord is connected only to a properly grounded, grounding type receptacle.
- ! Be sure all M12 wiring cable glands are properly installed and sealed.
- ! Never strap control (input / output) cables and power cables together.
- ! **Power Interruption:** This pump has a user programmable auto-restart feature which will can either restore the pump to the operating state it was in when power was lost or require a user action to restart.

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

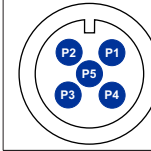
## 5.4 Wiring Terminals and I/O Schematics


**WARNING**


Risk of electric shock - All wiring must be insulated and rated 300V minimum.

### KIT-M12 WIRING INSTRUCTIONS

#### DIAGRAM



#### PIN #

PIN 1  
PIN 2  
PIN 3  
PIN 4  
PIN 5

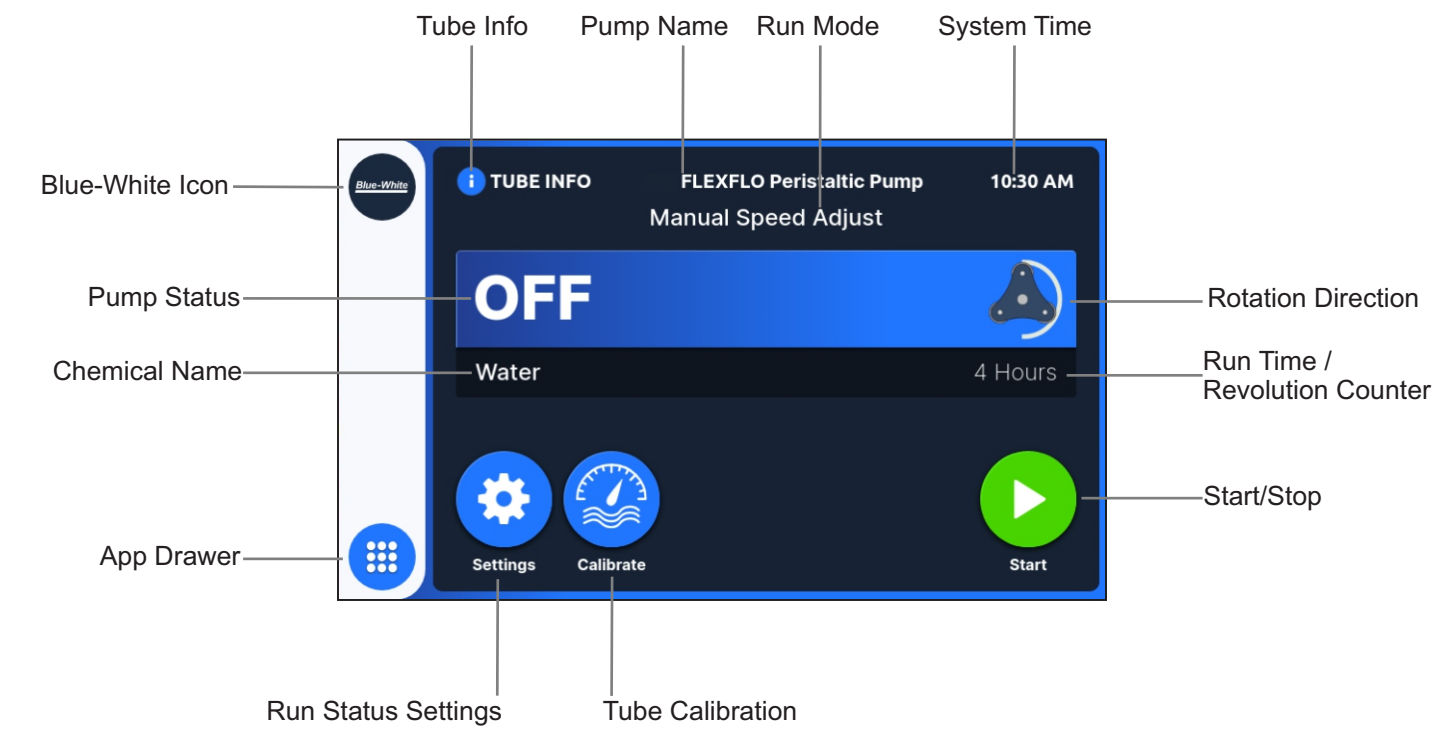
#### WIRE

BROWN  
WHITE  
BLUE  
BLACK  
GRAY

Shielded cables should be used on all input signal wires.

| FUNCTION                                                                                | M12 Connector | PIN # | RATING          | BLOCK DIAGRAM                                                                                                                                                   |
|-----------------------------------------------------------------------------------------|---------------|-------|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| INPUT:<br>4-20 mA                                                                       | INPUT #2      | 2     | (+) POSITIVE    | <p>(*) ACTIVE 4-20mA TRANSMITTER<br/>(-) SOURCE</p> <p>Single or dual pump (series) input. Loop voltage must not exceed 24 Volts.</p> <p>(OPTIONAL PUMP #2)</p> |
|                                                                                         |               | 3     | (-) NEGATIVE    |                                                                                                                                                                 |
| INPUT:<br>FREQUENCY, AC SINE WAVE, TTL, CMOS                                            | INPUT #2      | 4     | (+) POSITIVE    | <p>(-) FREQUENCY TRANSMITTER<br/>(+) SOURCE</p>                                                                                                                 |
|                                                                                         |               | 5     | (-) NEGATIVE    |                                                                                                                                                                 |
| INPUT:<br>FVS SYSTEM<br>(FLOW VERIFICATION SENSOR)<br>FV SENSOR ONLY                    | INPUT #1      | 2     | (+) POSITIVE    | <p>RED (+)<br/>BARE<br/>BLACK (-)</p> <p>BLUE-WHITE FVS SENSOR</p>                                                                                              |
|                                                                                         |               | 3     | (-) NEGATIVE    |                                                                                                                                                                 |
|                                                                                         |               | 4     | SIGNAL          |                                                                                                                                                                 |
| INPUT:<br>FVS SYSTEM<br>(FLOW VERIFICATION SENSOR)<br>FS or FP MICRO-FLO FLOWMETER ONLY | INPUT #1      | 2     | (+) POSITIVE    | <p>SIGNAL<br/>BLACK (-)</p> <p>BLUE-WHITE MICRO-FLO FLOWMETER PULSE OUTPUT</p>                                                                                  |
|                                                                                         |               | 3     | (-) NEGATIVE    |                                                                                                                                                                 |
|                                                                                         |               | 4     | SIGNAL          |                                                                                                                                                                 |
| INPUT:<br>REMOTE START/STOP<br>DRY CONTACT C PRIMARY                                    | INPUT #1      | 1     | (+) POSITIVE    | <p>(*) OPEN CIRCUIT<br/>IMPEDANCE MUST BE GREATER THAN<br/>(-) 50K OHM</p>                                                                                      |
|                                                                                         |               | 5     | (-) NEGATIVE    |                                                                                                                                                                 |
| INPUT:<br>AUTO-PRIME/<br>DRY CONTACT C SECONDARY                                        | INPUT #2      | 1     | (+) POSITIVE    | <p>(*) OPEN CIRCUIT<br/>IMPEDANCE MUST BE GREATER THAN<br/>(-) 50K OHM</p>                                                                                      |
|                                                                                         |               | 5     | (-) NEGATIVE    |                                                                                                                                                                 |
| OUTPUT:<br>4-20 mA                                                                      | OUTPUT #1     | 1     | (+) POSITIVE    | <p>(-) 4-20mA RECEIVER<br/>(+) 600 OHM LOAD MAX.</p>                                                                                                            |
|                                                                                         |               | 2     | (-) NEGATIVE    |                                                                                                                                                                 |
| OUTPUT:<br>FREQUENCY-<br>OPEN COLLECTOR                                                 | OUTPUT #2     | 1     | (+) POSITIVE    | <p>(-) DIGITAL PULSE<br/>RECEIVER CIRCUIT<br/>(+)</p> <p>EXTERNAL SOURCE<br/>1.5K OHM 6-30V DC</p>                                                              |
|                                                                                         |               | 2     | (-) NEGATIVE    |                                                                                                                                                                 |
| OUTPUT:<br>CONTACT CLOSURE #1                                                           | OUTPUT #1     | 3     | NORMALLY OPEN   | <p>NO<br/>C<br/>NC</p> <p>SWITCH LOAD<br/>1 AMP MAX @ 125V AC<br/>0.8 AMP MAX @ 30V DC</p>                                                                      |
|                                                                                         |               | 4     | NORMALLY CLOSED |                                                                                                                                                                 |
|                                                                                         |               | 5     | COMMON (GROUND) |                                                                                                                                                                 |
| OUTPUT:<br>CONTACT CLOSURE #2                                                           | OUTPUT #2     | 3     | NORMALLY OPEN   | <p>NO<br/>C<br/>NC</p> <p>SWITCH LOAD<br/>1 AMP MAX @ 125V AC<br/>0.8 AMP MAX @ 30V DC</p>                                                                      |
|                                                                                         |               | 4     | NORMALLY CLOSED |                                                                                                                                                                 |
|                                                                                         |               | 5     | COMMON (GROUND) |                                                                                                                                                                 |
| OUTPUT:<br>CONTACT CLOSURE #3                                                           | OUTPUT #3     | 3     | NORMALLY OPEN   | <p>NO<br/>C<br/>NC</p> <p>SWITCH LOAD<br/>1 AMP MAX @ 125V AC<br/>0.8 AMP MAX @ 30V DC</p>                                                                      |
|                                                                                         |               | 4     | NORMALLY CLOSED |                                                                                                                                                                 |
|                                                                                         |               | 5     | COMMON (GROUND) |                                                                                                                                                                 |
| OUTPUT:<br>RELAY<br>6 AMP                                                               | OUTPUT #4     | 3     | NORMALLY OPEN   | <p>NO<br/>C<br/>NC</p> <p>SWITCH LOAD<br/>6 AMP MAX @ 250V AC<br/>5 AMP MAX @ 30V DC</p>                                                                        |
|                                                                                         |               | 4     | NORMALLY CLOSED |                                                                                                                                                                 |
|                                                                                         |               | 5     | COMMON (GROUND) |                                                                                                                                                                 |

6.1    HOME SCREEN LAYOUT

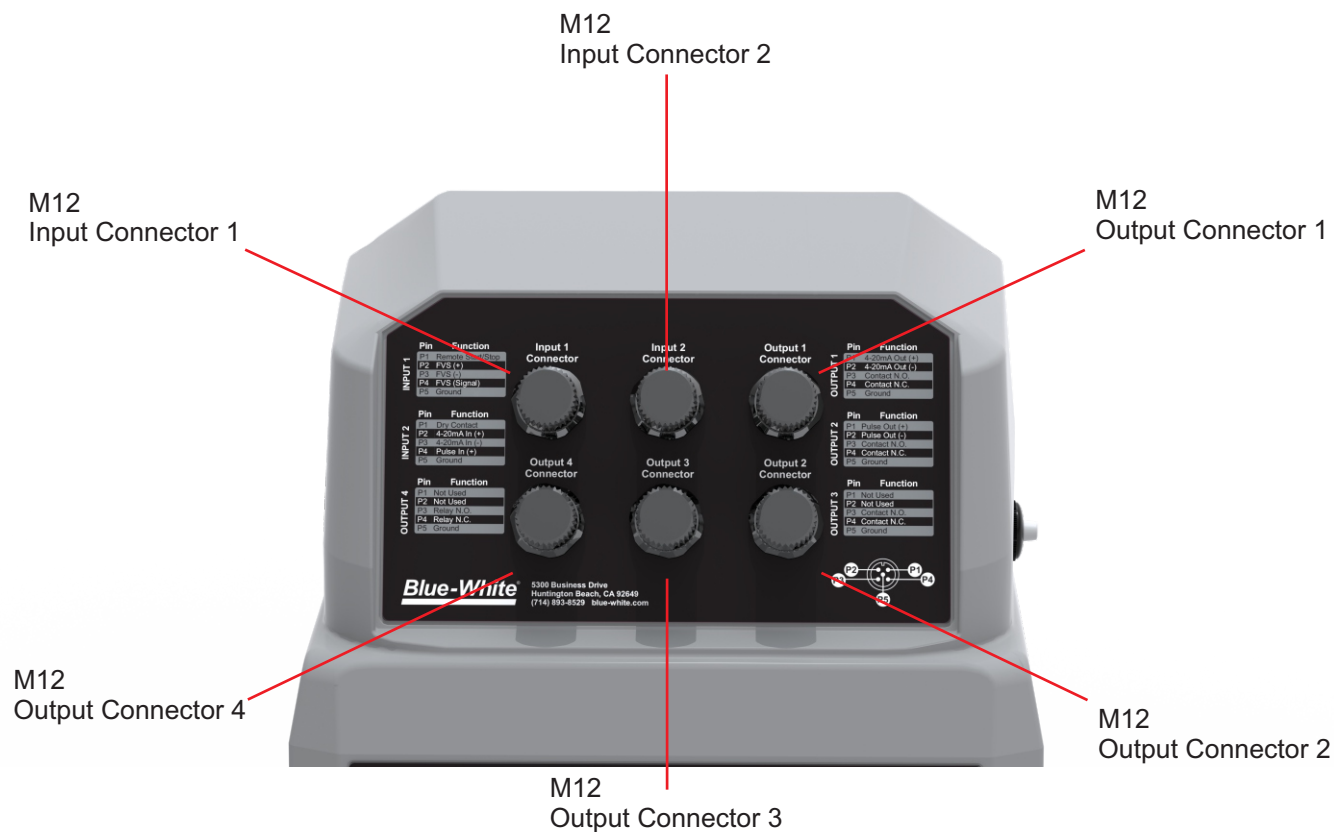


6.2    APP SCREEN LAYOUT



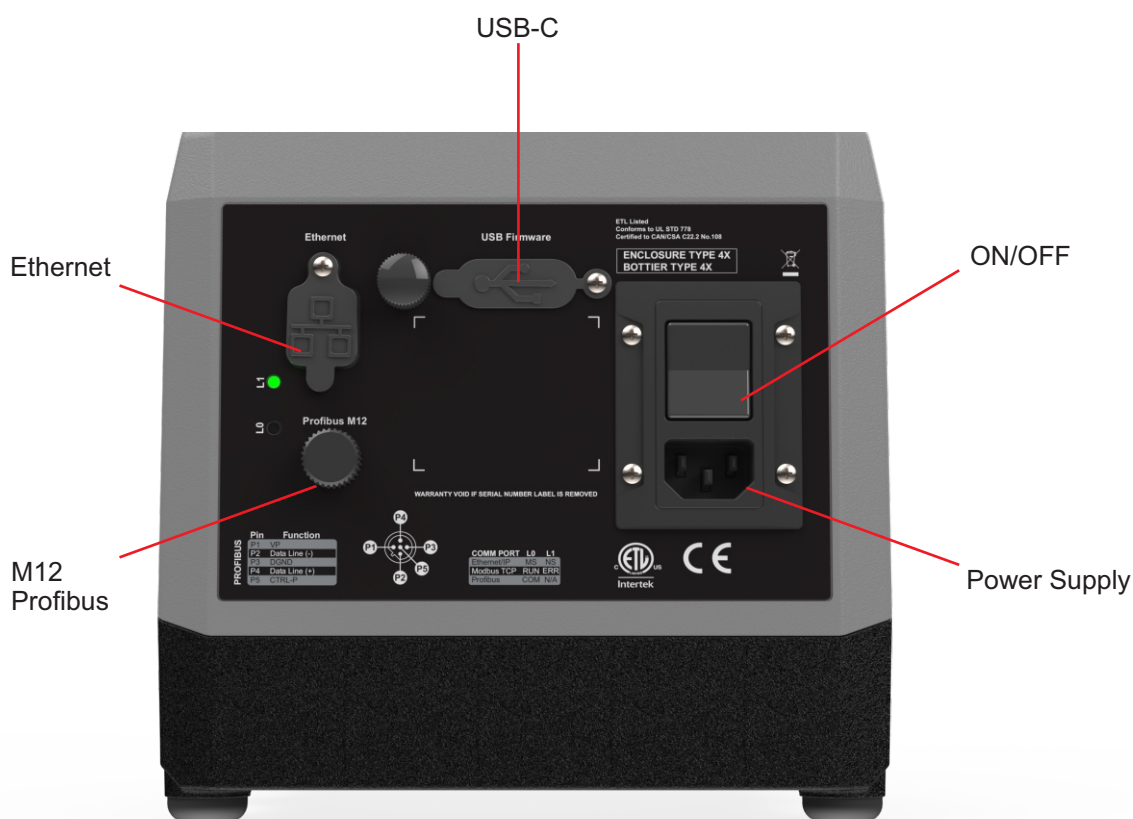
### 6.3 M12 Connector

#### Pump (Rear Upper Panel)

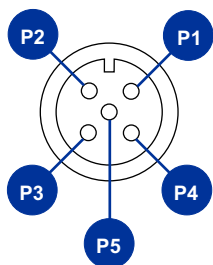


### 6.4 IO Connection

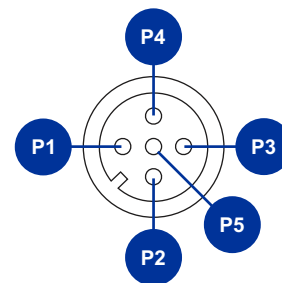
#### Pump (Rear Lower Panel)



## 6.5 M12 Connector



M12 Input/Output Connector



M12 Profibus Connector

### M12 Input Connector 1

| PIN | Function          | Specifications        | Reference        |
|-----|-------------------|-----------------------|------------------|
| P1  | Remote Start/Stop | No Voltage            |                  |
| P2  | FVS (+)           | 15 VDC @ 60 mA Supply | Power FVS Sensor |
| P3  | FVS (-)           | DC GND (0 VDC)        | FVS Ground Input |
| P4  | FVS (Signal)      | Input Signal          | FVS Input Signal |
| P5  | Ground            | DC Ground             | 0 VDC            |

### M12 Input Connector 2

| PIN | Function      | Specifications                             | Reference           |
|-----|---------------|--------------------------------------------|---------------------|
| P1  | Dry Contact   | N.O. Dry Contact Closure                   | Open= Stop Gnd= Run |
| P2  | 4-20mA In (+) | 120Ω Impedance Loop Ref. to Ground         |                     |
| P3  | 4-20mA In (-) | DC GND (0 VDC)                             |                     |
| P4  | Pulse In (+)  | 0-1000 Hz (AC. Square Wave) Ref. to Ground | FVS Input Signal    |
| P5  | Ground        | DC GND (0 VDC)                             |                     |

### M12 Output Connector 1

| PIN | Function       | Specifications                                            | Reference                             |
|-----|----------------|-----------------------------------------------------------|---------------------------------------|
| P1  | 4-20mA Out (+) |                                                           | 250Ohm max load                       |
| P2  | 4-20mA Out (-) | DC GND (0 VDC)                                            |                                       |
| P3  | N.O.           | Contact closure output #1<br>N.O. Contact 1 Amp @ 125 VAC | .8 Amp Max @ 30VDC<br>1 Amp @ 125 VAC |
| P4  | N.C.           | Contact closure output #1<br>N.C. Contact                 | .8 Amp Max @ 30VDC<br>1 Amp @ 125 VAC |
| P5  | Ground         | Contact closure output #1<br>COM Contact                  |                                       |

### M12 Output Connector 2

| PIN | Function      | Specifications                             | Reference                             |
|-----|---------------|--------------------------------------------|---------------------------------------|
| P1  | Pulse Out (+) | 0-1000 Hz (AC. Square Wave) Ref. to Ground |                                       |
| P2  | Pulse Out (-) | DC GND (0 VDC)                             |                                       |
| P3  | N.O.          | Contact closure output #2<br>N.O. Contact  | .8 Amp Max @ 30VDC<br>1 Amp @ 125 VAC |
| P4  | N.C.          | Contact closure output #2<br>N.C. Contact  | .8 Amp Max @ 30VDC<br>1 Amp @ 125 VAC |
| P5  | Ground        | Contact closure output #2<br>COM Contact   |                                       |

**M12 Output Connector 3**

| PIN | Function | Specifications                            | Reference                             |
|-----|----------|-------------------------------------------|---------------------------------------|
| P1  | Not Used |                                           |                                       |
| P2  | Not Used |                                           |                                       |
| P3  | N.O.     | Contact closure output #3<br>N.O. Contact | .8 Amp Max @ 30VDC<br>1 Amp @ 125 VAC |
| P4  | N.C.     | Contact closure output #3<br>N.C. Contact | .8 Amp Max @ 30VDC<br>1 Amp @ 125 VAC |
| P5  | Ground   | Contact closure output #3<br>COM Contact  |                                       |

**M12 Output Connector 4**

| PIN | Function | Specifications          | Reference                                |
|-----|----------|-------------------------|------------------------------------------|
| P1  | Not Used |                         |                                          |
| P2  | Not Used |                         |                                          |
| P3  | N.O.     | Relay Out, N.O. Contact | 6 Amp Max @ 250VAC,<br>5 Amp MAX @ 30VDC |
| P4  | N.C.     | Relay Out, N.C. Contact | 6 Amp Max @ 250VAC,<br>5 Amp MAX @ 30VDC |
| P5  | Ground   | Relay Out, COM Contact  |                                          |

**M12 Profibus Connector**

| PIN | Function  | Specifications | Reference                            |
|-----|-----------|----------------|--------------------------------------|
| P1  | VP        |                | +5V supply for terminating resisters |
| P2  | RxD/TxD-N |                | Data line minus (A-line)             |
| P3  | DGND      |                | Data ground                          |
| P4  | RxD/TxD-P |                | Data line plus (B-line)              |
| P5  | Shield    |                | Ground connection                    |

*Note:*

*M12 connectors not included with product.*

*Input/Output Connectors requires any A-Type M12 connector with 5 position female sockets*

*Profibus Connectors requires any B-Type M12 connector with 5 position female sockets*

*If the pump is the last bus device connected to the PROFIBUS cable it must be terminated using terminating resistor (PROFIBUS standard EN 50170).*

## 7.1 Powering On The Pump

The A3 is equipped with a rocker switch to power ON/OFF the pump. Ensure that the power cord is securely plugged into the corresponding power source before powering on the pump.

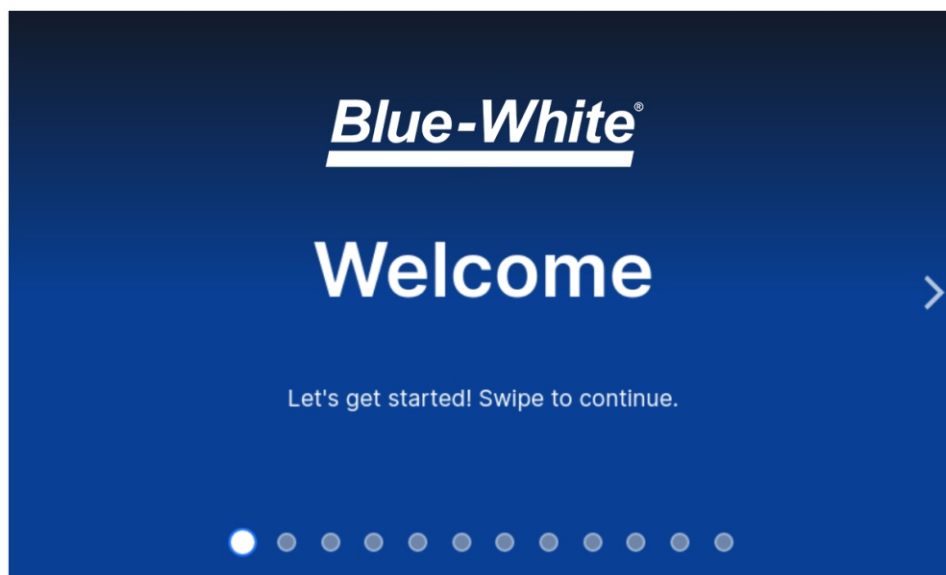


"I" is pressed to turn on the pump

"O" is pressed to turn off the pump

## 7.2 Welcome Screen

The first time the pump is powered on, or after a factory reset, the pump will boot up to the Welcome Screen. Follow the onscreen instructions to configure your A3 pump. Refer to section 11 of this manual to change any of these options after you have finished the initial configuration.



### Welcome Screen Configuration

1

Local Language

2

Set Time  
& Local Date  
& Local Time Zone  
& Local Time

3

Set Name  
& Pump Name  
& Chemical Name

4

Set Units  
& Unit of Volume  
& Unit of Time

5

Set Tube Type

6

Set User Password

### 8.1    Manual Speed Adjust

This input mode allows the user to set a specific speed and the pump will run at that speed until stopped. There are up and down arrows on the home screen to incrementally adjust the speed of the motor.

Default:                      Percent motor speed.

Also Available:            RPM  
                                  Flow rate

---

#### To Enable Manual Speed Adjust:

- 1



Open the **App Drawer**
- 2



Select **Manual Speed Adjust**
- 3



Select **Start** to enable Manual Speed
- 4



Tap on the feed rate to cycle through to the option you want to manually adjust  
!Percent motor speed  
  
!RPM  
  
!Flow rate
- 5



Adjust manual speed by selecting **Increase** or **Decrease**

*Option: Stop pump and select settings to input desired motor speed.* 

*Confirm by pressing “Save”*

## 8.2 4-20mA Input

This input mode allows the user to set a range of mA input signals to a given motor speed, flow rate or rpm. Used to remotely control the pump with an incoming 4-20mA signal.

Four points on the slope must be defined:

- 1) a low mA value
- 2) an output rate at the low mA value
- 3) a high mA value
- 4) an output rate at the high mA value

Default settings:                      4mA = 0% motor speed  
                                                 20mA = 100% motor speed

---

### To Enable 4-20mA Input:

**1**   
Open the **App Drawer**

**2**   
Select **4-20mA Input**

**3**   
Select **Settings** to adjust  
4-20mA input values

**4**  
Confirm by selecting **Save**

**5**   
Select **Start** to enable 4-20mA  
Input

*Option: Stop the pump and select the graph icon to easily adjust sliders to desired settings*

Confirm by pressing “Save”



### 8.3 Frequency Input

This input mode is used to remotely control the pump with an incoming high speed frequency signal.

Four points on the slope must be defined:

- 1) a low Hz value
- 2) an output rate at the low Hz value
- 3) a high Hz value
- 4) an output rate at the high Hz value

Default settings:            0 (Hz) = 0% motor speed  
                                     1000 (Hz) = 100% motor speed

---

#### To Enable Frequency Input:

**1**   
Open the **App Drawer**

**2**   
Select **Frequency Input**

**3**   
Select **Settings** to adjust  
Frequency Input

**6**  
Confirm by pressing **Save**

**5**   
Select **Start** to enable  
Frequency Input

*Option: Stop pump and select graph icon to easily adjust sliders to desired settings*



Confirm by pressing "Save"

## 8.4 Pulse Input

This input mode allows the user to trigger the pump to dispense a measured amount of chemical (Amount Per Trigger) over a specific period of time (Pump On Time), after a specific number of pulses (Pulses Count Trigger). Used to remotely control the pump with an incoming pulse signal.

Default settings: Pulse Count Trigger = 1

Pump On Time = 2.5 seconds

Amount Per Trigger = Fluid supplied per trigger

---

### To Enable Pulse Input:

**1**   
Open the **App Drawer**

**2**   
Select **Pulse Input**

**3**   
Select **Settings** to adjust Pulse Input

!Input value for Pulse Count Trigger

!Input value for Amount Per Trigger

!Input value for Pump On Time

**4**  
Confirm by pressing **Save**

**5**   
Select **Start** to enable

**6**  
Pump will be in **Standby Mode**

## 8.5 Remote Start/Stop

This input mode is used to remotely start and stop the pump using a close=stop or open=stop signal.

Primary Remote Switch - Used to Start/Stop the pump

Secondary Remote Switch - Used in conjunction with a pressure switch or level switch

Default settings: Disabled

Dry Contact Closure (no voltage required)

---

### To Enable Remote Start/Stop:

**1**   
Open the **App Drawer**

**2**   
Select **Settings**

**3**   
Select **Remote Start/Stop**

**4**  
**Set Remote Switch**

!Disable

!Normally Open (Closed to stop the pump)

!Normally Closed (Open to stop the pump)

**5**  
**Set Secondary Remote Switch**

& Disable

& Enable

**6**  
Confirm by pressing **Save Pump** will be in Standby Mode.

---

**IMPORTANT:** To begin operation, press the START button to place pump in STANDBY. The display background will turn yellow indicating the pump has been stopped remotely. When the pump is started by the remote contact, the display background will turn green.

**IMPORTANT:** If the Remote Start/Stop Input is enabled, the pump will display STANDBY if the pump has been stopped by the Remote Start/Stop. **Please use caution in this mode as the pump may Start at anytime. If you must perform maintenance to the pump, Press STOP button.**

## 8.6 Set FVS (Flow Verification System)

This input mode is used to monitor the pump fluid input. If the pump does not dispense fluid when pump head rotor is turning, the pump will go into an alarm mode and stop. FVS requires a sensor that is connected to the inlet of the pump to monitor the fluid input. Blue-White offers two flow verification sensors: [The S6A](#) & [The MICRO-FLO Flow Meter](#) that easily install into the inlet of the A3.

Default settings: Disabled

When enabled set trigger display (in seconds)

---

### To Enable FVS:

**1**   
Open the **App Drawer**

**2**   
Select **Settings**

**3**   
Select **FVS**

**4**  
Enable **FVS Input**

**5**  
Set **Desired Trigger Delay**  
(1-1000 seconds)

**6**  
Confirm by pressing **Save**

## 8.7 Prime

This mode allows the user to prime the pump at 100% motor speed for sixty seconds. After the prime is complete the pump will remain in this mode ready to be primed again.

To exit: select another input method.

---

### To Prime The Pump:



Open the **App Drawer**



Select **Prime**



Select **Start** to Prime the pump

4

Pump will run at 100% motor speed for sixty seconds

5

Pump will remain in **Prime Input**

## 8.8 Manual Cycle Adjust

This input mode allows the user to run the pump at a set motor speed (Pump Speed) for a set amount of time (Duty Time) after which the pump will pause for a set amount of time (Cycle Time). This cycle will repeat until the user presses the STOP button.

Default settings: Pump Speed = 100% Motor Speed  
Duty Time = 1.5 Seconds  
Cycle Time = 4.0 Seconds

---

### To Enable Manual Cycle Adjust:

**1**   
Open the **App Drawer**

**2**   
Select **Manual Cycle Adjustment**

**3**   
Select **Settings** to configure Manual Cycle Adjustment settings

**4**  
Set **Pump Speed**  
(0.04 - 100 percent)

**5**  
Set **Duty Time**  
(1 - 1,000,000 seconds)

**6**  
Set **Cycle Time**  
(1 - 1,000,000 seconds)

**7**  
Confirm by pressing **Save**

## 8.9 Dispensing

This input mode allows the user to dispense a set amount of fluid (in milliliters) at a set rate (Motor % Speed).

Default settings:                      Amount Per Dispense = 1,000 mL  
                                                 Motor % Speed = 50%

---

### To Enable Dispensing:

- 1**  Open the **App Drawer**
- 2**  Select **Dispensing**
- 3**  Select **Settings** to configure Dispensing settings
- 4** Set **Amount Per Dispense** (in milliliters)
- 5** Set **Motor % Speed** (0.04 -100)
- 6** Dispense Run Time will be displayed.  
Confirm by pressing **Save**

*Note: If your Dispense run time is shorter than 1 second the pump will generate a “Run Time Too Short!” ERROR. Please reconfigure dispensing settings to be greater than 1 second*

## 9.1 Relay

This feature is used to assign alarms to relay & contact closures

One value to be defined:

1) Relay Output

---

### To Enable the Relay:

1



Open the **App Drawer**

2



Select **Outputs**

3



Select **Relay & Contacts**

4

Set **Desired Values**  
(refer to chart below)

!Contact #1  
!Contact #2  
!Contact #3  
!Relay Output

5

Confirm by pressing **Save**

| Selection:          | Contact energizes when:                                                   |
|---------------------|---------------------------------------------------------------------------|
| Pump Run/Stop       | Motor turning (roller assembly is rotating)                               |
| Monitor Run/Fail    | Motor fails to respond to commands                                        |
| Manual Speed Active | Manual Speed mode is running                                              |
| Prime Active        | Prime mode is running                                                     |
| FVS                 | After the programmed delay time pulses are not received from flow sensor. |
| TFD                 | Tube failure is detected by sensors in the head                           |
| Both TFD/FVS        | Either TFD or FVS system triggers                                         |

## 9.2 Frequency Output

This output sends a configurable high speed frequency signal. This feature can be used to control other pumps (in sync / proportionally), data logging systems, and other external devices for plant automation.

Four points on the slope must be defined:

- 1) a low Hz value
- 2) an output rate at the low Hz value
- 3) a high Hz value
- 4) an output rate at the high Hz value

Default settings:                      0 Frequency (Hz) = 0 percent motor speed  
                                                 1000 Frequency (Hz) = 100 percent motor speed

---

### To Enable Frequency Output:

**1**   
Open the **App Drawer**

**2**   
Select **Outputs**

**3**   
Select **Frequency Output**

**4**  
Enable **Frequency Output**

**5**  
Set **Desired Values**

**6**  
Confirm by pressing **Save**

*Option: Stop the pump and select the graph icon to easily adjust sliders to desired settings*

Confirm by pressing “Save”



### 9.3 Set 4-20mA Output

This output sends a configurable 4-20mA. This feature can be used to control other pumps (in sync / proportionally), data logging systems, and other external devices for plant automation.

Four points on the slope must be defined:

- 1) a low mA value
- 2) an output rate at the low mA value
- 3) a high mA value
- 4) an output rate at the high mA value

Default settings:                      4mA = 0 percent motor speed  
                                                 20mA = 100 percent motor speed

---

#### To Enable 4-20mA Output:

**1**   
Open the **App Drawer**

**2**   
Select **Outputs**

**3**   
Select **4-20mA Output**

**4**  
Enable **4-20mA Output**

**5**  
Set desired values for the four points that is required.

**6**  
Confirm by pressing **Save**

*Option: Stop the pump and select the graph icon to easily adjust sliders to desired settings*

Confirm by pressing “Save”



## 9.0 Relay & Contacts

This feature is used to assign alarms to relay & contact closures

Four values to be defined:

- 1) Contact #1
- 2) Contact #2
- 3) Contact #3
- 4) Relay Output

### To Enable Relay & Contacts:

**1**   
Open the **App Drawer**

**2**   
Select **Outputs**

**3**   
Select **Relay & Contacts**

**4**  
Set **Desired Values**  
(refer to chart below)

!Contact #1  
!Contact #2  
!Contact #3  
!Relay Output

**5**  
Confirm by pressing **Save**

| Selection:          | Contact energizes when:                                                   |
|---------------------|---------------------------------------------------------------------------|
| Pump Run/Stop       | Motor turning (roller assembly is rotating)                               |
| Monitor Input       | Incoming analog or digital signal is not received or out of range         |
| Monitor Output      | Outgoing analog or digital signal not transmitted or out of range         |
| Monitor Run/Fail    | Motor fails to respond to commands                                        |
| 4-20 In Active      | 4-20mA mode is running                                                    |
| Frequency In Active | Frequency mode is running                                                 |
| Manual Speed Active | Manual Speed mode is running                                              |
| Pulse In Active     | Pulse In mode is running                                                  |
| Prime Active        | Prime mode is running                                                     |
| FVS                 | After the programmed delay time pulses are not received from flow sensor. |
| TFD                 | Tube failure is detected by sensors in the head                           |
| Both TFD/FVS        | Either TFD or FVS system triggers                                         |

## 10.1 Control and Status Mapping for Profibus and Ethernet/IP

### Ethernet/IP and Profibus: Output Data ( PLC to Pump) - Pump Control

| Offset Name                | Description                                                                                                                                                                        |
|----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0 - 1 Motor Percent Speed  | Up to 2 decimal places, with most significant Offset representing the whole number and least significant Offset representing the decimal number. (Eg. 50.15 => MSB = 50, LSB = 15) |
| 2 Motor Direction          | 0 = Clockwise, 1 = Counter-clockwise.                                                                                                                                              |
| 3 Run State                | Set the current run state of the pump by toggling the corresponding bits, where 0 = deactivated and 1 = activated. Bit 0 = Prime, Bit 1 = Start, Bit 2 = Stop                      |
| 4 Reset Alarms             | Reset alarms (TFD, FVS) on the pump. 0 = nothing, 1 = reset alarms. Only reset on a 0 -> 1 transition                                                                              |
| 5 Reset Tube Stats         | Reset tube revolutions counter and hours ran                                                                                                                                       |
| 6 Cyclic Counter Direction | Cyclic counter direction (debugging purpose only). 0 = count up, 1 = count down                                                                                                    |
| 7 Cyclic Counter Speed     | Cyclic counter speed (debugging purpose only).<br>0 = counter not incremented/decremented. Values > 0 = number of cycles it takes to increment/decrement the counter by one        |

### Ethernet/IP and Profibus: Input Data ( Pump to PLC) - Pump Status

| Offset Name                 | Description                                                                                                                                                                                                                   |
|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0 Run Status                | Current run state of the pump represented by each bit, where 0 = Deactivated and 1 = Activated. Bit 0 = Prime, Bit 1 = Control Active, Bit 2 = Motor Running                                                                  |
| 1 Cover Status              | 0 = Cover Attached, 1 = Cover Detached                                                                                                                                                                                        |
| 2 Motor Direction           | 0 = Clockwise, 1 = Counter-clockwise                                                                                                                                                                                          |
| 3 TFD status                | 0 = No TFD alarm, 1 = TFD alarm                                                                                                                                                                                               |
| 4 FVS status                | 0 = No FVS alarm, 1 = FVS alarm                                                                                                                                                                                               |
| 5 Relay Output              | Relay output statuses represented by each bit, where 0 = not triggered, and 1 = triggered.<br>Bit 0 = Dry Contact 1, Bit 1 = Dry Contact 2,<br>Bit 3 = Dry Contact 3, Bit 4 = Standard Relay                                  |
| 6 - 7 4-20 mA Output        | Range: 400 - 2000 mA, where MSB represents the whole number and LSB represents the decimal number.<br>Eg. 4.50 mA => Offset 6 = 4, Offset 7 = 50                                                                              |
| 8 - 9 Frequency Output      | Range: 0 - 1000 Hz, where the MSB represent thousands and hundreds digits and LSB represents the tens and ones digits.<br>Eg. 985 Hz => Offset 8 = 85, Offset 9 = 09                                                          |
| 10 - 11 Motor Percent Speed | Up to 2 decimal places, with most significant Offset representing the whole number and least significant Offset representing the decimal number. (Eg. 50.15 => MSB = 50, LSB = 15)                                            |
| 12 - 15 Firmw are Version   | Firmw are version in semantic versioning format.<br>Channel can be one of three values: 0 = stable, a(0x61) = alpha, b(0x62) = beta.<br>Example: (1.0.5-beta => Offset 15: 1, Offset 14: 0, Offset 13: 5, Offset 12: b(0x62)) |
| 16 - 19 Tube Revolutions    | Current tube revolution counter                                                                                                                                                                                               |
| 20 - 23 Tube Hours          | Number of hours ran for current tube                                                                                                                                                                                          |
| 24 - 25 Cyclic Counter      | Cyclic counter (debugging purpose only)                                                                                                                                                                                       |

## 10.2 Control and Status Mapping for Modbus TCP

### Modbus TCP: Holding Registers (4x Reference, PLC to Pump) - Pump Control

| Modbus Data Address | Name                     | Description                                                                                                                                                                    |
|---------------------|--------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0000 - 0001         | Motor Percent Speed      | Up to 2 decimal places, with most significant byte representing the whole number and least significant byte representing the decimal number. (Eg. 50.15 => MSB = 50, LSB = 15) |
| 0002                | Motor Direction          | 0x00 = Clockwise, 0x01 = Counter-clockwise.                                                                                                                                    |
| 0003                | Run State                | Set the current run state of the pump by toggling the corresponding bits, where 0 = deactivated and 1 = activated. Bit 0 = Prime, Bit 1 = Start, Bit 2 = Stop                  |
| 0004                | Reset Alarms             | Reset alarms (TFD, FVS) on the pump. 0x00 = nothing, 0x01 = reset alarms. Only reset on a 0 -> 1 transition                                                                    |
| 0005                | Reset Tube Stats         | Reset tube revolutions counter and hours ran                                                                                                                                   |
| 0006                | Cyclic Counter Direction | Cyclic counter direction (debugging purpose only). 0 = count up, 1 = count down                                                                                                |
| 0007                | Cyclic Counter Speed     | Cyclic counter speed (debugging purpose only).<br>0 = counter not incremented/decremented. Values > 0 = number of cycles it takes to increment/decrement the counter by one    |

### Modbus TCP: Input Registers (3x Reference, Pump to PLC) - Pump Status

| Modbus Data Address | Name                | Description                                                                                                                                                                                                          |
|---------------------|---------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0000                | Run Status          | Current run state of the pump, represented by each bit, where 0 = Deactivated and 1 = Activated. Bit 0 = Prime, Bit 1 = Control Active, Bit 2 = Motor Running                                                        |
| 0001                | Cover Status        | 0 = Cover Attached, 1 = Cover Detached                                                                                                                                                                               |
| 0002                | Motor Direction     | 0 = Clockwise, 1 = Counter-clockwise                                                                                                                                                                                 |
| 0003                | TFD status          | 0 = No TFD alarm, 1 = TFD alarm                                                                                                                                                                                      |
| 0004                | FVS status          | 0 = No FVS alarm, 1 = FVS alarm                                                                                                                                                                                      |
| 0005                | Relay Output        | Relay output statuses represented by each bit, where 0 = not triggered, and 1 = triggered.<br>Bit 0 = Dry Contact 1, Bit 1 = Dry Contact 2,<br>Bit 3 = Dry Contact 3, Bit 4 = Standard Relay                         |
| 0006 - 0007         | 4-20 mA Output      | Range: 400 - 2000 mA, where MSB represents the whole number and LSB represents the decimal number.<br>Eg. 4.50 mA => Byte 6 = 4, Byte 7 = 50                                                                         |
| 0008 - 0009         | Frequency Output    | Range: 0 - 1000 Hz, where the MSB represent thousands and hundreds digits and LSB represents the tens and ones digits.<br>Eg. 985 Hz => Byte 8 = 85, Byte 9 = 09                                                     |
| 000A - 000B         | Motor Percent Speed | Up to 2 decimal places, with most significant byte representing the whole number and least significant byte representing the decimal number. (Eg. 50.15 => MSB = 50, LSB = 15)                                       |
| 000C - 000F         | Firmware Version    | Firmware version in semantic versioning format.<br>Channel can be one of three values: 0 = stable, a(0x61) = alpha, b(0x62) = beta.<br>Example: (1.0.5-beta => Byte 15: 1, Byte 14: 0, Byte 13: 5, Byte 12: b(0x62)) |
| 0010 - 0013         | Tube Revolutions    | Current tube revolution counter                                                                                                                                                                                      |
| 0014 - 0017         | Tube Hours          | Number of hours ran for current tube                                                                                                                                                                                 |
| 0018 - 0019         | Cyclic Counter      | Cyclic counter (debugging purpose only)                                                                                                                                                                              |

### 10.3 EtherNet/IP

This is used to configure the EtherNet/IP

Three values to be defined:

- 1) IP Address
  - 2) Subnet Mask
  - 3) Gateway
  - 4) Always on
- 

#### To Enable EtherNet/IP:



1  
Open the **App Drawer**



2  
Select **Industrial Protocols**



3  
Select **EtherNet/IP**

4

Pump will go to home screen



5  
Select **Settings** to input:

!IP Address  
!Subnet Mask  
!Gateway  
!Always on

6

Confirm by pressing **Save**

## 10.4 Modbus TCP/IP

This is used to configure the Modbus TCP/IP

Three values to be defined:

- 1) IP Address
  - 2) Subnet Mask
  - 3) Gateway
  - 4) Always on
- 

### To Enable Modbus TCP:

**1**   
Open the **App Drawer**

**2**   
Select **Industrial Protocols**

**3**   
Select **Modbus TCP/IP**

**4**  
Pump will go to home screen

**5**   
Select **Settings** to input:  
!IP Address  
!Subnet Mask  
!Gateway  
!Always on

**6**  
Confirm by pressing **Save**

## 10.5 Profibus

This is used to configure the Profibus

Three values to be defined:

- 1) IP Address
- 2) Subnet Mask
- 3) Gateway
- 4) Always on

---

### To Enable Profibus:

**1**   
Open the **App Drawer**

**2**   
Select **Industrial Protocols**

**3**   
Select **Profibus**

**4**  
Pump will go to home screen

**5**   
Select **Settings** to input:  
!IP Address  
!Subnet Mask  
!Gateway

**6**  
Confirm by pressing **Save**

## 11.1 Tube Info

This feature will display information regarding the tubing within the pump including:

- ! Tube type
  - ! Tube installation date
  - ! Tube run time
  - ! Current maximum tube flow rate
- 

### To View The Tube Info:

1

Tap on the **Tube Info** text in the top portion of the screen

2

Tube info will be displayed

3

Click “reset” to reset the tube hours and revolutions

## 11.2 Tube Calibration

This feature allows the user to calibrate the pump's indicated flow rate to the system

---

### To Calibrate Your Tube:

1

On the home screen select the **Calibration Icon**



2

Enter values:

!Pump Speed (% Speed)

!Run Time (seconds)

3

Select **Start** to begin

4

Select **Start**

5

Enter the measured flow rate into the field

6

Confirm by selecting **Save**

## 12.1 Pump Name

This is to change the name of the pump that is displayed on the home screen.

---

To Input Pump Name:

**1**   
Open the **App Drawer**

**2**   
Open **Settings**

**3**   
Open **System**

**4**  
Select "**Pump Name**"

**5**  
Enter desired **Pump Name**

**6**  
Confirm by pressing **OK**

## 12.2 Unit of Volume

This is to change the units of volume that is displayed.

---

To Input Units of Volume:

**1**   
Open the **App Drawer**

**2**   
Open **Settings**

**3**   
Open **System**

**4**  
Select **Unit of Volume**

**5** Select desired **Units of Volume**

- !Milliliters
- !Ounces
- !Liters

**6** Confirm by pressing **OK**

## 12.3 Unit of Time

This will change the Unit of Time that is displayed for the flow rate

---

To Input Unit of Time:

**1**   
Open the **App Drawer**

**2**   
Open **Settings**

**3**   
Open **System**

**4**  
Select **Unit of Time**

**5**  
Select **Desired Time**  
!Minutes (mL & ounces only)  
!Hours  
!Days (Gallons only)

**6**  
Confirm by pressing **OK**

## 12.4 Chemical Name

This is used to change the Chemical Name that is displayed on the home screen.

---

To Input a Chemical Name:

1   
Open the **App Drawer**

2   
Open **Settings**

3   
Open **System**

4  
Select "**Chemical Name**"

5  
Enter desired **Chemical Name**

6  
Confirm by pressing **OK**

## 12.5 Set Language

This setting is used to change the system language.

---

To Input a Language:

1



Open the **App Drawer**

2



Open **Settings**

3



Open **System**

4

Select **Locale**

5

Select **Desired Language**

!English  
!Deutch  
!Español  
!Français  
!Portugues

6

Confirm by pressing **OK**

## 12.6 Pump Rotation Direction

This setting is used to change the rotational direction of pump. In most applications, the tube will fail by developing a small leak in the outlet side (pressure side) of the tube assembly. By reversing the roller rotation, the wear point in the tube is moved to the opposite side to the pump tube assembly, increasing the life of the tube.

**Important!** Changing the rotational direction of the pump reverses the inlet & outlet sides.

---

### To Change The Direction Of The Pump Rotation

**1**   
Open the **App Drawer**

**2**   
Open **Settings**

**3**   
Open **System**

**4**  
Select **Pump Direction**

**5**  
Select **Desired Rotation**  
!Clockwise  
!Counter Clockwise

**6**  
Confirm by pressing **OK**

**IMPORTANT!** Swap sides of the suction (inlet) and discharge (outlet) tubing/piping. There is no need to remove the pump head cover.

**NOTE:** The pump tube will form a natural U-shaped curve. Do not attempt to install the pump tube against the natural U-shape direction as damage to the tube can result.

## 12.7 System Time

This setting is used to change the local time that is displayed.

---

### To Input The System Time:

1



Select the **Time** in the upper right hand corner

2

Select **Desired Hour**

3

Select **Desired Minute**

4

Select **AM or PM**

5

Confirm by pressing **OK**

## 12.8 Passcode

This setting is used to enable/disable the passcode, adjust the passcode time out and set or change the User Passcode.

Default settings: Pump will lockout after 30 seconds

---

### To Input a Passcode:

**1**   
Open the **App Drawer**

**2**   
Open **Settings**

**3**  
Open **Passcode**

**4**  
Enable Passcode

**5**  
Select **User Passcode** and  
create new a six digit code.

**6**  
Confirm by pressing **Save**

Lost password? Email [customerservice@blue-white.com](mailto:customerservice@blue-white.com) to have your password reset

## 12.9 Factory Reset

This setting is used to factory reset the pump. This will erase all of the configurations and restore the pump to it's original configuration when it left Blue-White factory.

---

### To Conduct A Factory Reset:

**1**   
Open the **App Drawer**

**2**   
Open **Settings**

**3**   
Open **System**

**4**  
Select **Reset to Factory Defaults**

**5**  
Confirm by pressing **Continue**

**6**  
Pump will **Reboot** and run through the initial setup process

## 13.1 SYSTEM INFORMATION

This is to view the System Information

Information to be displayed:

!Serial Number

!Pump Name

!Chemical Name

!Model

!Firmware Version

!I/O Port Firmware Version

!System Build

!Motor Firmware Version

!Manufactured Data & Time

!Industrial Protocol Firmware Version

---

To View The System Information:

1



Open the **App Drawer**

2



Select **System Information**

## 13.2 Firmware Update

To update the firmware for your pump you first need to download and install Blue-Central® which is available at:

<https://www.blue-white.com/resources/>

---

### To Update The System Firmware:

- 1**  
Plug pump into a computer via USB and open Blue-Central® program
- 2**  
Select firmware tab and select “Start Upgrade”
- 3**  
The firmware upgrade box will appear showing the progress of the install.
- 4**  
Once the install is complete select “Close” to exit screen.

**CAUTION**

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 MSDS precautions from your solution supplier.

### 14.1 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 aggressive 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 first week of operation are signs of severe chemical attack. If this occurs, immediately remove chemical from pump. Determine which parts are being attacked and replace them with parts that have been manufactured using more suitable materials.

### 14.2 How to Clean and Lubricate the Pump

When changing the pump tube assembly, the pump head chamber, roller assembly and pump head cover should be wiped free of any dirt and debris.

100% silicon lubrication may be used on the roller assembly. Refer to [www.blue-white.com/resources/videos](http://www.blue-white.com/resources/videos) for roller assembly maintenance video instructions.

Periodically clean the back flow prevention check valve assembly, especially when injecting fluids that calcify such as sodium hypochlorite. These lime deposits and other build ups can clog the fitting, increasing the back pressure at the pump (reducing tube life) and interfering with check valve operation.

The motor does not require maintenance or lubrication.

### 14.3 Removing Pump Head and Tubing

The pump requires very little maintenance. However, the pump and all accessories should be checked weekly. This is especially important when pumping aggressive chemicals.

Remove the **Pump Head Cover** by unscrewing the four **Thumb Screws**. Pull out the **Pump Head Cover**.

The pump will detect that the **Pump Head Cover** is removed and enter MAINTENANCE MODE.

Rotor will rotate at a maximum of 6 RPM for your safety.

Pull out the suction side of **Tubing Assembly**.

Press the START button. While the rotor is rotating, pull out the old **Tube Assembly**.

TIP! Let the pump do the work for you. Just guide the tubing out between the two rollers located on the **Rotor**.

Press the STOP button at any time to stop the pump.

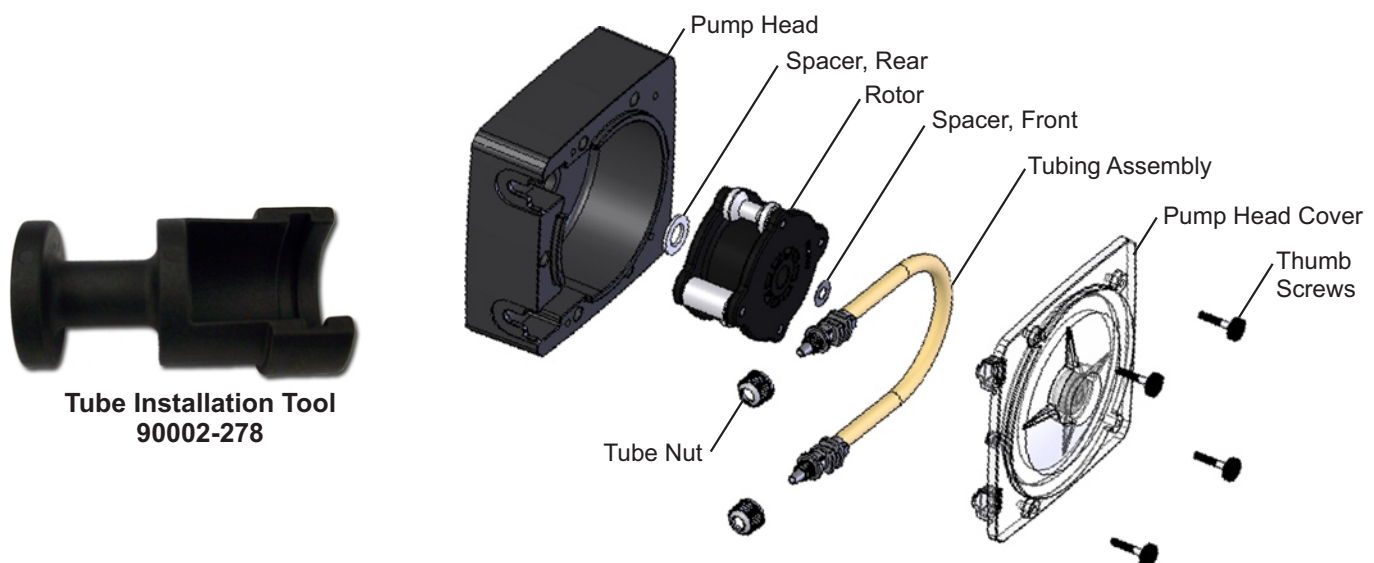
Pull out the suction line adapter from the Pump Head. Pull out the **Tubing Assembly** as the **Rotor** rotates around.

Stop the pump by pressing the STOP button.

Thoroughly clean the **Pump Head** and **Rotor**. The **Rotor** can be removed by pulling it straight out. After the cleaning process, push the **Rotor** back on the shaft. See the drawing above for proper assembly. Be sure the front and rear rotor spacers are in place. IMPORTANT! **Rotor** direction; the word "FRONT" on **Rotor** must face the front of the pump.

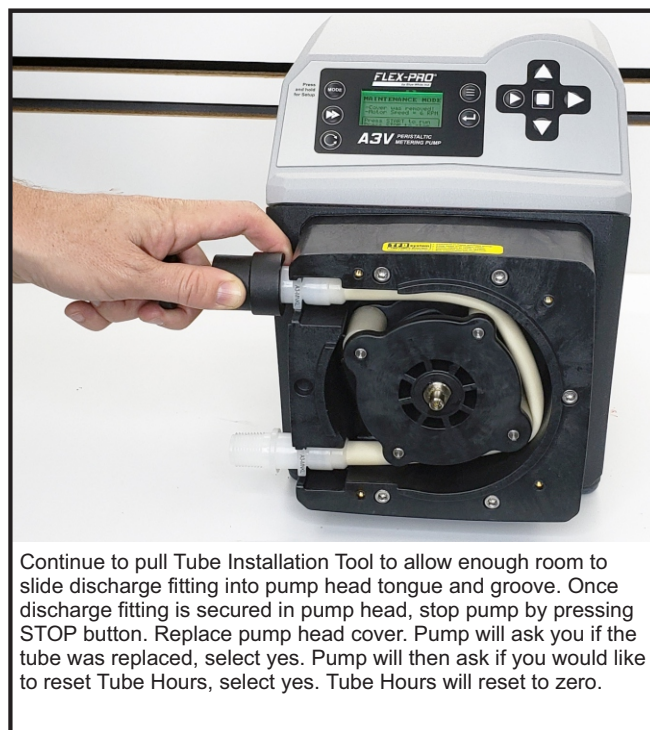
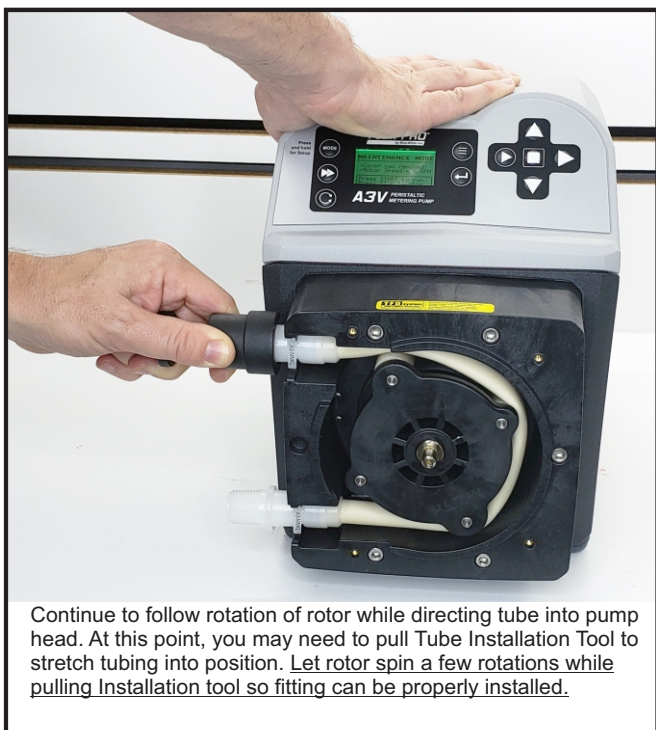
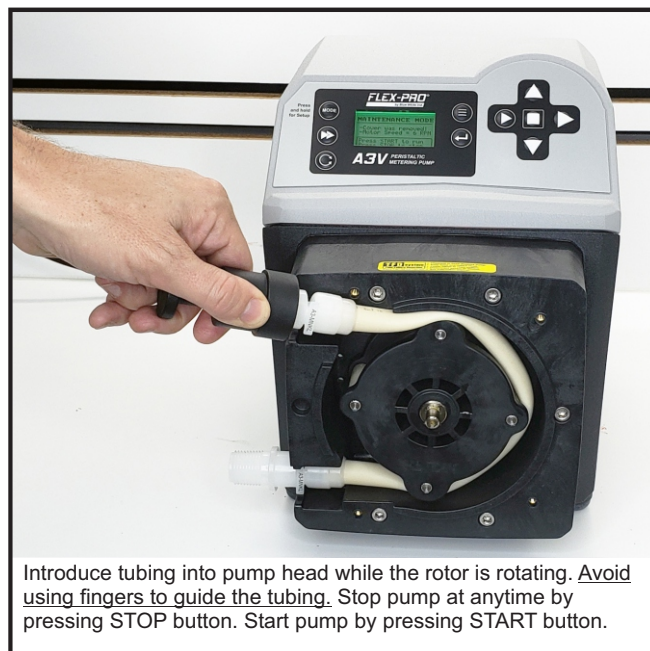
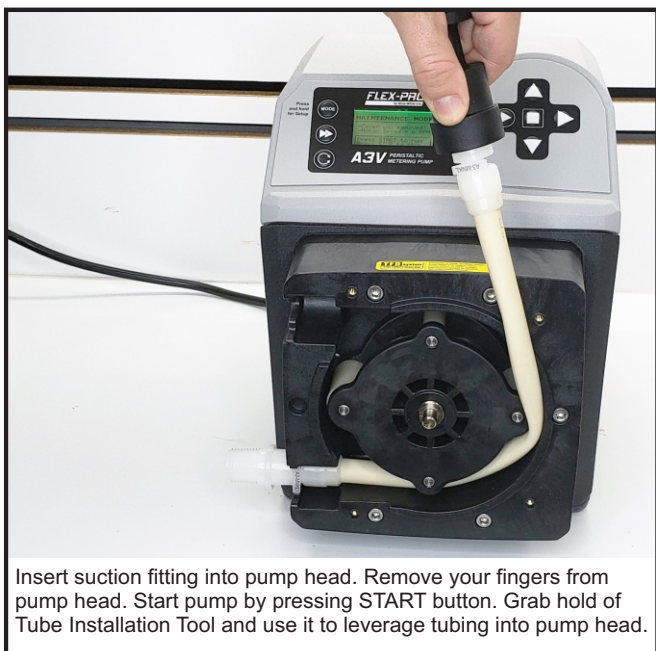
Locate your new tubing and Tube Installation Tool. See the next page to install new **Tube Assembly** into **Pump Head**.

### 14.4 Pump Head Exploded View



## 14.5 Tube Replacement

|                                                                                                     |                                                                                                                                                                                                                                                       |
|-----------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>CAUTION</b><br> | Prior to service, pump clean water through the pump and suction / discharge line to remove chemical.                                                                                                                                                  |
| <b>CAUTION</b><br> | 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 MSDS precautions from your solution supplier. |
| <b>CAUTION</b><br> | Use provided Tube Installation Tool to leverage tubing into pump head, <u>NOT YOUR FINGERS</u> .                                                                                                                                                      |
| <b>CAUTION</b><br> | Use extreme caution when replacing pump tube. Be careful of your fingers and <u>DO NOT place fingers near rollers</u> .                                                                                                                               |

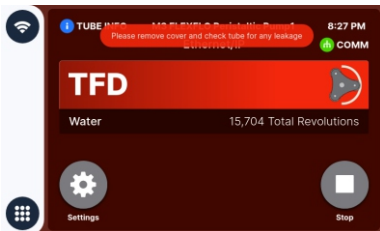


## 14.6 TFD

This pump is equipped with a Tube Failure Detecting System which is designed to stop the pump and provide an output alarm (see Output menu) in the event pump the tube should rupture and 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 system will not be triggered by water (rain, condensation, etc.) or silicone oil (roller and tubing lubricant).

If a TFD alarm occurs, the pump will stop and the screen will turn red with “TFD”



If TFD alarm occurs:

1

Remove the pump head cover, pump tube and roller assembly

2

Check for fluids at the bottom of the pump head

3

Carefully clean the chemical out of the pump head. Especially the sensor probes.

4

Replace the tubing

5

Reinstall only the pump head cover

6

Turn on the pump by pressing the START button

7

Reinstall the roller assembly and tubing.

8

Reinstall the pump head cover

9

Press the START button to clear the alarm condition

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15.1 Replacement Parts

| Pump Head Components |                                         | Part No.  | QTY Req'd |
|----------------------|-----------------------------------------|-----------|-----------|
| 1                    | Spacer                                  | 90011-217 | 1         |
| 2                    | Complete Roller Assembly                |           | 1         |
|                      | GE / GG / GH / GK                       | A3-SGE-R  |           |
|                      | ND                                      | A3-SND-R  |           |
|                      | TH / NKL                                | A3-STH-R  |           |
|                      | NGG / NK / NHL / NEE / TK               | A3-SNGG-R |           |
| 3                    | Tubing (Reference Tubing Matrix)        |           | 1         |
| 4                    | Pump Head Cover                         | A3-SXX-C  | 1         |
| 5                    | Thumb Screws                            | 90011-183 | 4         |
| 6                    | Tube Nut, Compression, For 3/8" Tubing* | C-330-6   | 2         |

\*Tube nutes for 'S' type tubing only

| Quick Disconnect Fittings* |                                        | Part No. | QTY Req'd |
|----------------------------|----------------------------------------|----------|-----------|
| 7                          | Quick Disconnect Fittings              |          | 1         |
|                            | .50" M/NPT FKM                         | KIT-QMV  |           |
|                            | .50" M/NPT EP                          | KIT-QME  |           |
|                            | .50" Barb FKM                          | KIT-QBV  |           |
|                            | .50" Barb EP                           | KIT-QBE  |           |
|                            | 3/8" OD, 1/4" ID Tube Compression, FKM | KIT-QSV  |           |
|                            | 3/8" OD, 1/4" ID Tube Compression, EP  | KIT-QSE  |           |

\*Only available for Q tubes

| Miscellaneous Parts* |                                             | Part No.  | QTY Req'd |
|----------------------|---------------------------------------------|-----------|-----------|
| A                    | Stainless Steel Mounting Bracket            | 72000-379 | 1         |
| B                    | Stainless Steel Mounting Bracket (Extended) | 72000-380 | 1         |
| C                    | Rubber Feet                                 | 90003-561 | 4         |
| D                    | Tube Installation Tool                      | 90002-278 | 1         |

\*Sold Separately



## 15.2 Tube Replacement

### FLEXFLO® Model Number

A3Tubing

Inlet/Outlet Connection Size, Connection Type, Connection Material

|    |                                                                                                           |
|----|-----------------------------------------------------------------------------------------------------------|
| S  | 3/8" OD x 1/4" ID Tube Compression Fitting, Natural PVDF (Kynar)                                          |
| M  | 1/2" Male NPT Fitting, Natural PVDF (Kynar)                                                               |
| B  | 1/2" Hose Barb, Natural PVDF (Kynar), available for ND, NEE, NGG, and NKL only                            |
| C  | 1/2" - 3/4" Tri-clamp connections, Natural PVDF (Kynar), available for ND, NEE, NGG, and NKL only         |
| Q  | Quick Disconnect, Natural PVDF (Kynar), available for ND, NEE, NGG, and NKL only (valves sold seperately) |
| MB | 1/2" Male BSPT Fitting, Natural PVDF (Kynar)                                                              |

Pump Tube Material, Pump Tube Size, Output Range

|     |                       |     |                       |    |                      |
|-----|-----------------------|-----|-----------------------|----|----------------------|
| ND  | Flex-A-Prene® .075 ID | NKL | Flex-A-Prene® .375 ID | TH | Flex-A-Chem® .250 ID |
| NEE | Flex-A-Prene® .093 ID | GE  | Flex-A-Thane® .125 ID | TK | Flex-A-Chem® .375 ID |
| NGG | Flex-A-Prene® .187 ID | GG  | Flex-A-Thane® .187 ID |    |                      |
| NHL | Flex-A-Prene® .250 ID | GH  | Flex-A-Thane® .312 ID |    |                      |
| NK  | Flex-A-Prene® .375 ID | GK  | Flex-A-Thane® .375 ID |    |                      |

A3- S ND - T

Sample Model Number

| Tube Material / Size      | Feed Rate  |            |            | Max Speed | Max Pressure | Max Temperature |
|---------------------------|------------|------------|------------|-----------|--------------|-----------------|
|                           | GPH        | LPH        | mL/Min     | RPM       | PSI (bar)    | °F (°C)         |
| <b>Flex-A-Thane® Tube</b> |            |            |            |           |              |                 |
| GE                        | Up to 4.60 | Up to 17.4 | Up to 290  | 125       | 65 (4.5)     | 130 (54)        |
| GG                        | Up to 10.1 | Up to 38.4 | Up to 637  | 125       | 65 (4.5)     | 130 (54)        |
| GH                        | Up to 24.9 | Up to 94.2 | Up to 1570 | 125       | 65 (4.5)     | 130 (54)        |
| GK                        | Up to 28.5 | Up to 108  | Up to 1800 | 125       | 65 (4.5)     | 130 (54)        |
| <b>Flex-A-Prene® Tube</b> |            |            |            |           |              |                 |
| ND                        | Up to 2.10 | Up to 7.92 | Up to 132  | 125       | 125 (8.6)    | 185 (85)        |
| NHL                       | Up to 17.4 | Up to 65.8 | Up to 1097 | 125       | 65 (4.5)     | 185 (85)        |
| NK                        | Up to 33.3 | Up to 126  | Up to 2100 | 125       | 125 (8.6)    | 185 (85)        |
| NKL                       | Up to 33.3 | Up to 126  | Up to 2100 | 125       | 30 (2.1)     | 185 (85)        |
| NEE                       | Up to 4.76 | Up to 18.0 | Up to 300  | 125       | 110 (7.6)    | 185 (85)        |
| NGG                       | Up to 19.0 | Up to 72.0 | Up to 1200 | 125       | 110 (7.6)    | 185 (85)        |
| <b>Flex-A-Chem® Tube</b>  |            |            |            |           |              |                 |
| TH                        | Up to 15.1 | Up to 57.0 | Up to 950  | 125       | 50 (3.4)     | 130 (54)        |
| TK                        | Up to 28.5 | Up to 108  | Up to 1800 | 125       | 50 (3.4)     | 130 (54)        |

16.0 ACCESSORIES

The following accessories are available for the A3 FLEXFLO® Peristaltic Metering Pump. Please visit [Blue-white.com](http://Blue-white.com) for more information. All accessories are sold separately.



**KIT-M12**  
TWO M12 CABLES

\*KIT-M12-3 for 3 Cables  
\*KIT-M12-6 for 6 Cables

KIT-M12

Kit contains: Two M12 cables.  
Cable Length: 10 ft  
(Contact factory for other cable lengths)

| 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



**CABLE-UAC**  
USB A-C CABLE

CABLE-UAC

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



**KIT-PB3**  
One 3ft Profibus Cable

KIT-DP3

Kit contains: One 3' profibus cable.



**KIT-QMV**  
.50" M/NPT QUICK CONNECT

\*KIT-QME for EP O-rings

KIT-QMV

Kit contains: One Quick Connect Inlet with .50" M/NPT (assembled with FKM O-rings) and One Quick Connect Outlet with .50" M/NPT (assembled with FKM O-rings)



**KIT-QSV**  
.37" T QUICK CONNECT

\*KIT-QSE for EP O-rings

KIT-QSV

Kit contains: One Inlet Quick Connect for 3/8 Tubing (assembled with FKM O-rings), One Outlet Quick Connect with 3/8 Tubing (assembled with FKM O-rings) and Two Tube Nuts.



**KIT-QBV**  
**.50" BARB QUICK CONNECT**

\*KIT-QBE for EP O-rings

## KIT-QBV

Kit contains: One Quick Connect Inlet with .50" hose barb connection (assembled with FKM O-rings), One Quick Connect Inlet with .50" hose barb connection (assembled with FKM O-rings) and two #5 Clamps.



**KIT-MVM**  
**M-TUBE FITTINGS KIT**

## KIT-MVM

Kit contains: One Tube Install Tool, One Foot Strainer, One injection valve



**KIT-MTVB**  
**B-TUBE FITTINGS KIT**

## KIT-MTVB

Kit contains: 10ft Suction Tube, 10ft Discharge tube, One Tube Install Tool, One Injector fitting, One Foot Strainer, and Two Stainless Steel Clamps #5



**KIT-MTVS**  
**S-TUBE FITTINGS KIT**

## KIT-MTVS

Kit contains: 10ft Suction Tube, 10ft Discharge Tube, One Tube Install Tool, One Injection Valve, One Tube Strainer, Two Tube Nuts,



**C-342-6**  
**Tube Strainer 1/4" ID**

## C-342-6

One Tube Strainer 1/4" ID



**KIT-PSM**  
**WALL MOUNT BRACKET, HDPE**

## KIT-PSM

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

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## 17.0 WARRANTY

### 17.1 LIMITED WARRANTY

Your new FLEXFLO pump is a quality product and is warranted for 24 months from date of purchase (proof of purchase is required). The pump 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 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.

Pump Head and roller assembly is warranted against damage from chemical attack when proper TFD (Tube Failure Detection) system instructions and maintenance procedures are followed.

### 17.2 WHAT IS NOT COVERED

- Pump Tube Assemblies and rubber components – They are perishable and require periodic replacement.
- Pump removal, or re-installation, and any related labor charge.
- Freight to the factory, or service center.
- Pumps that have been tampered with, or in pieces.
- Damage to the pump that results from misuse, carelessness such as chemical spills on the enclosure, abuse, lack of maintenance, or alteration which is out of our control.
- Pumps damaged by faulty wiring, power surges or acts of nature.

### 17.3 PROCEDURE FOR IN WARRANTY REPAIR

Contact the factory to obtain a RMA (Return Material Authorization) number. Carefully pack the pump to be repaired. It is recommended to include foot strainer and injection/check valve fitting since these devices may be clogged and part of the problem. Please enclose a brief description of the problem as well as the original invoice or sales receipt, or copy showing the date of purchase. Prepay all shipping costs. COD shipments will not be accepted. Warranty service must be performed by the factory or an authorized service center. Damage caused by improper packaging is the responsibility of the sender. When In-Warranty repair or replacement is completed, the factory pays for return shipping to the dealer or customer.

### 17.4 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 UNSUITABILITY FOR A GIVEN PURPOSE OR APPLICATION.**

### 17.5 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.**

**APPENDIX A: ACRONYMS**

|       |                                     |       |                                           |
|-------|-------------------------------------|-------|-------------------------------------------|
| °C    | Celsius                             | RMA   | Return Material Authorization             |
| °F    | Fahrenheit                          | RPM   | Revolutions per minute                    |
| AC    | Alternating current                 | SIP   | Steam-in-place                            |
| bar   | Unit of pressure                    | SS    | Solid state                               |
| CIP   | Clean-in-place                      | TFD+  | Enhanced Tube Failure Detection           |
| cm    | Centimeters                         | TFE/P | Tetrafluoroethylene propylene             |
| COD   | Cash on Delivery                    | UL    | Underwriters Laboratories                 |
| D     | Depth                               | US    | United States                             |
| DC    | Direct current                      | V     | Volt                                      |
| EEE   | Electrical and electronic equipment | W     | Watt                                      |
| EP    | Ethylene propylene                  | W     | Width                                     |
| ETL   | Electrical Testing Labs/Intertek    | WEEE  | Waste Electrical and Electronic Equipment |
| EU    | European Union                      |       |                                           |
| FDA   | Food and Drug Administration        |       |                                           |
| FKM   | Fluoroelastomer                     |       |                                           |
| FVS   | Flow Verification Sensor            |       |                                           |
| GF    | Glass fiber                         |       |                                           |
| GPD   | Gallons per day                     |       |                                           |
| GPH   | Gallons per hour                    |       |                                           |
| H     | Height                              |       |                                           |
| Hz    | Hertz                               |       |                                           |
| ID    | Inside diameter                     |       |                                           |
| IO    | Input/Output                        |       |                                           |
| Kg    | Kilogram                            |       |                                           |
| lb.   | Pound                               |       |                                           |
| LLDPE | Linear low-density polyethylene     |       |                                           |
| LPH   | Liters per hour                     |       |                                           |
| mA    | Milliampere                         |       |                                           |
| min   | Minute                              |       |                                           |
| mL    | Milliliters                         |       |                                           |
| MSDS  | Material Safety Data Sheet          |       |                                           |
| N.C.  | Normally Close                      |       |                                           |
| N.O.  | Normally Open                       |       |                                           |
| NPT   | National Pipe Thread                |       |                                           |
| NSF   | National Sanitation Foundation      |       |                                           |
| OD    | Outside diameter                    |       |                                           |
| P.N.  | Part Number                         |       |                                           |
| PBT   | Polybutylene Terephthalate          |       |                                           |
| PE    | Polyethylene                        |       |                                           |
| PSI   | Pounds per Square Inch              |       |                                           |
| PVC   | Polyvinyl chloride                  |       |                                           |
| PVDF  | Polyvinylidene fluoride             |       |                                           |
| RCD   | Residual-current device             |       |                                           |
| Rev.  | Revision                            |       |                                           |

## Model Number Matrix

A3

## FLEXFLO® Model Number

## A3 FLEXFLO® A3 Peristaltic Metering Pump

## Power Cord (operating voltage requirement 96VAC to 264VAC)

|          |                                                       |
|----------|-------------------------------------------------------|
| <b>4</b> | 115V / 60HZ, power cord NEMA 5/15 plug (US)           |
| <b>5</b> | 230V / 60HZ, power cord NEMA 6/15 plug (US)           |
| <b>6</b> | 220V / 50HZ, power cord CEE 7/VII plug (EU)           |
| <b>8</b> | 240V / 50HZ, power cord AS 3112 plug (AU/New Zealand) |
| <b>9</b> | 230V / 50HZ, power cord BS 1363 plug (UK)             |
| <b>X</b> | No Power Cord                                         |

## Inlet/Outlet Connection Size, Connection Type, Connection Material

|           |                                                                                                 |
|-----------|-------------------------------------------------------------------------------------------------|
| <b>S</b>  | 3/8" OD x 1/4" ID Tube Compression Fitting, Natural PVDF (Kynar)                                |
| <b>M</b>  | 1/2" Male NPT Fitting, Natural PVDF (Kynar)                                                     |
| <b>B</b>  | 1/2" ID Tubing Barb Fitting, Natural PVDF (Kynar), available for ND, NEE, NGG, and NKL only     |
| <b>C</b>  | 1/2"–3/4" Tri-clamp connections, Natural PVDF (Kynar), available for ND, NEE, NGG, and NKL only |
| <b>Q</b>  | Quick Disconnect, Natural PVDF (Kynar): ND, NEE, NGG, and NKL only (Valves sold separately)     |
| <b>MB</b> | 1/2" Male BSPT Fitting, Natural PVDF (Kynar)                                                    |

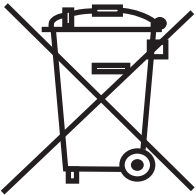
## Pump Tube Material, Pump Tube Size

|             |                                                  |           |                                                |
|-------------|--------------------------------------------------|-----------|------------------------------------------------|
| <b>ND</b>   | Flex-A-Prene® .075 ID   .001–2.1 GPH   125 PSI   | <b>GE</b> | Flex-A-Thane® .125 ID   .002–4.60 GPH   65 PSI |
| <b>NEE*</b> | Flex-A-Prene® .093 ID   .002–4.76 GPH   110 PSI  | <b>GG</b> | Flex-A-Thane® .187 ID   .004–10.1 GPH   65 PSI |
| <b>NGG*</b> | Flex-A-Prene® .187 ID   .007–19.02 GPH   110 PSI | <b>GH</b> | Flex-A-Thane® .312 ID   .010–24.9 GPH   65 PSI |
| <b>NK</b>   | Flex-A-Prene® .375 ID   .013–33.3 GPH   125 PSI  | <b>GK</b> | Flex-A-Thane® .375 ID   .011–28.5 GPH   65 PSI |
| <b>NKL</b>  | Flex-A-Prene® .375 ID   .013–33.3 GPH   30 PSI   | <b>TH</b> | Flex-A-Chem® .250 ID   .006–15.06 GPH   50 PSI |
| <b>NHL</b>  | Flex-A-Prene® .250 ID   .006–17.39 GPH   65 PSI  | <b>TK</b> | Flex-A-Chem® .375 ID   .011–28.5 GPH   50 PSI  |

## Options (leave this blank for standard model with left facing head)

|          |                                                                                       |
|----------|---------------------------------------------------------------------------------------|
| <b>1</b> | TI40-6V Threadless injection check valve, replaces A-014NK-6A threaded check valve    |
| <b>2</b> | C340A Foot valve, replaces standard C-342 inlet strainer (no check valve)             |
| <b>R</b> | Right facing pump head, input / output (Left facing fluid input / output is standard) |
| <b>D</b> | Down facing pump head, input / output (Left facing fluid input / output is standard)  |
| <b>E</b> | EP O-Rings                                                                            |

|    |   |   |   |   |   |   |    |   |                     |
|----|---|---|---|---|---|---|----|---|---------------------|
| A3 | S | V | 2 | 4 | - | S | ND | 1 | Sample Model Number |
|----|---|---|---|---|---|---|----|---|---------------------|



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.

**Blue-White**<sup>®</sup>

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