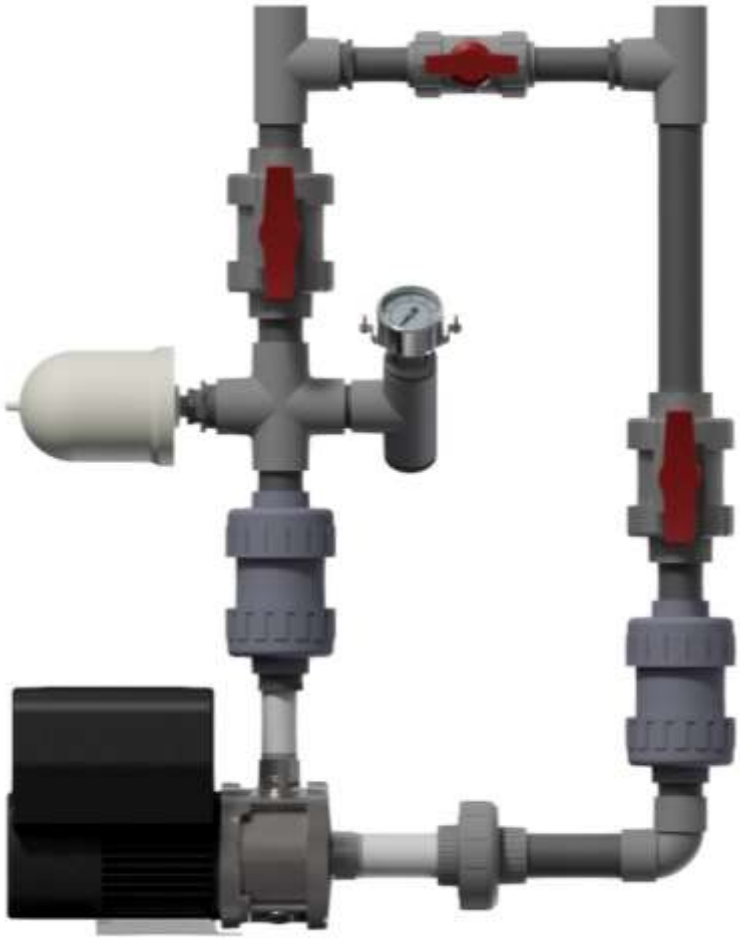
AmeriWater
The Water Purification Specialists

Operation & Maintenance Manual

CME Variable Speed Booster Pump System



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98-0139 Rev E
Manufactured With Pride in The USA

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1. THEORY OF OPERATION

The variable speed pump controls outgoing variable pressures of the water for better equipment operation by maintaining a constant pressure on the system.
The pump is capable of producing 25 GPM or more at a minimum of 40 PSI.

The variable speed pump system is controlled by **V**ariable **F**requency **D**rive. This (VFD) controller is mounted to the motor and the pump system is designed to stop at a set pressure if there is no flow. Frequency control enables continuously variable control of the motor speed, which makes it possible to set the pump to operation at any duty point. The aim of continuously variable control of the motor speed is to adjust the performance to a given requirement. The electronics will look at the pressure but will not start the motor until it sees a pressure drop.

2. INSTALLATION

The following guidelines should be met at installation:

1. Mount the variable speed booster pump system on a firm level foundation by using bolts through the .50 dia. pre drilled holes in the unistrut channel.

2. To insure sufficient cooling of the motor and electronics, the following conditions must be observed:

   a. Place the pump in such a way that limited obstructions occur.

   b. The cooling air temperature must not exceed 40 °C (104 °F).

   c. Cooling fins and fan blades must be kept clean.

3. The size of the inlet water supply piping should be no less than 1”.

4. The size of the outlet piping from the variable speed pump should be no less than 1”.

5. Install the sample port on the discharge side of the pump after the bypass. Make sure to install as to have the sample port facing toward the floor.

6. Follow all local plumbing and electrical codes. The pump is single-phase. The operating voltage and frequency are marked on the nameplate. Make sure the motor is suitable for the electrical supply on which it will be used.

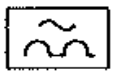
Note: The CME pump size is 1 x 1 x 3 (Discharge x Suction x Number of Stages).

Warning: **All electric supply circuits to the pump must be disconnected and the electrical panel properly locked and tagged out before working inside the pump terminal box. Never attempt to make any connections inside the pump terminal box until the electrical supply has been turned off for at least 5 minutes.**

7. A blade or service disconnect isn't provided. It must be installed. The pump must be connected to an external all-pole mains switch with a contact separation of at least 3 mm in each pole according to IEC 364.

Warning: **The pump must be earthed and protected against indirect contact in accordance with national regulations. Protective earth conductors must always have a yellow/green (PE) or yellow/green/blue (PEN) color marking.**

8. If the pump is connected to an electric installation where an earth leakage circuit breaker is used as additional protection, this circuit must be marked with the following symbol:



When selecting an earth leakage circuit breaker, the total leakage current of all the electrical equipment in the installation must be accounted for. **Earth leakage current** < 3.5 mA., (in accordance with EN 60 355-1)

9. No external motor protection required, the pump is overvoltage-protected.

10. **Supply voltage**: 1 x 208-230 V plus or minus 10%, 60 Hz, PE.
Cable: 0.5 – 1.5mm2 / 14-12 AWG.
See nameplate.

11. **Recommended fuse size**: Motor sizes from 0.37 to 1.1 kW: Max. 10 A.

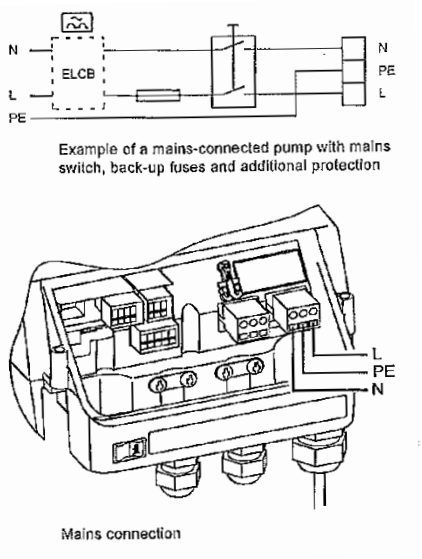
Standard as well as quick-blow or slow-blow fuses may be used

Warning: **If the supply cable is damaged, it must be replaced by the manufacturer, the manufacturer's service partner, or a similarly qualified person, in order to avoid a hazardous condition.**

12. The number of starts and stops by way of the mains voltage must not exceed 4 times per hour. When the pump is switched on by way of the mains, it will start after approximately 5 seconds. When the pump is started/stopped by way of an external on/off switch, it will start immediately.

13. Before operating the pump, verify the charge on the bladder tank is 50 psi ±3 psi using a pressure gauge. If the pressure is outside of this range, adjust accordingly.

Warning: **If the supply cable is damaged, it must be replaced by the manufacturer, the manufacturer's service partner, or a similarly qualified person, in order to avoid a hazardous condition.**

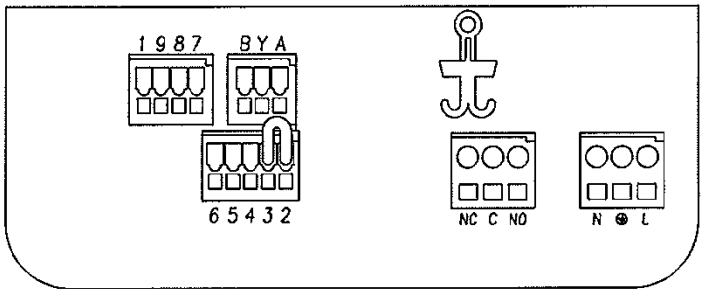


Example of a mains-connected pump with mains switch, back-up fuses and additional protection

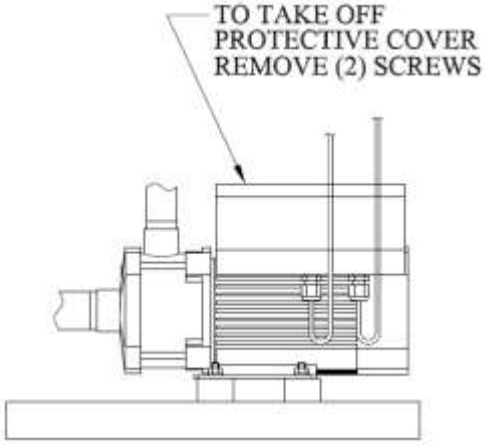
Mains connection

Note: **These steps are already completed at assembly for this product. For your information: The connection terminals inside the pump terminal box for the pressure sensor and blade or service disconnect cord are shown in the figure below with installation directions listed.**

Warning: **Never make connections in the pump terminal box unless the electricity supply has been switched off for at least 5 minutes.**

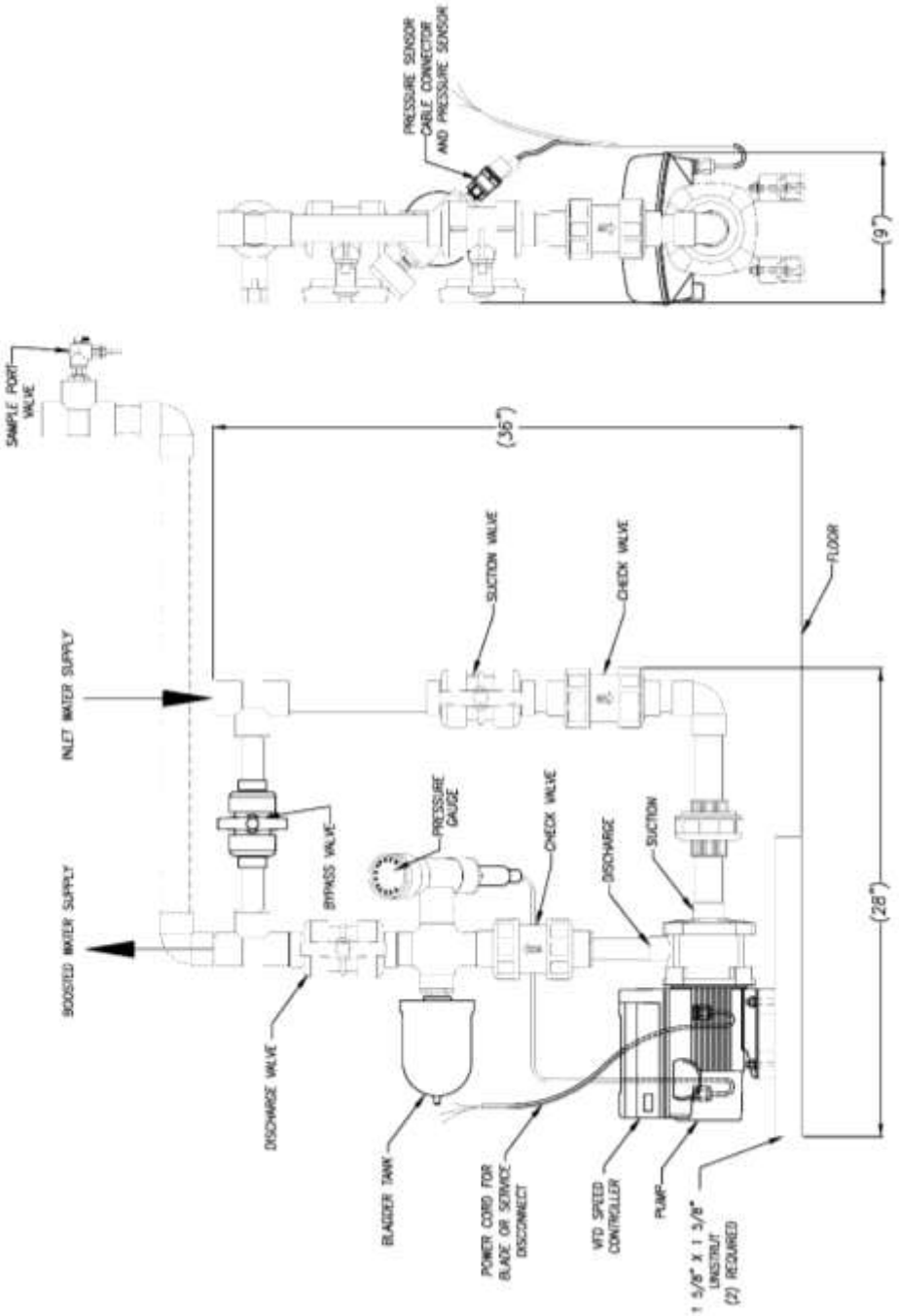


Pressure Sensor Installation: With the protective cover off, bring the wire from the pressure sensor into the motor through the strain relief in the middle. Connect the blue wire to terminal 4 and the brown wire to terminal 8. Clip the remaining wires as they are not used. Make sure remaining wires are isolated from ground. Replace the access cover after all connections have been made.



Blade or Service Disconnect Cord Installation: With the protective cover off, bring the line cord through the strain relief furthest from the pump inlet. Terminate the white wire into the connection marked N, the green wire to ground terminal and the black wire to L. Replace the grey protective cover after all connections have been made.

3. SYSTEM DESIGN DRAWING



4. START-UP

Warning: Do not touch the pump while running at high temperatures, as the pump can be extremely hot.

Priming: The pump must be filled with liquid and vented before startup, or if the pump has been drained.

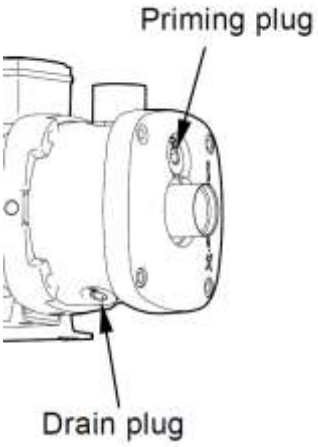
Proceed as follows:

- Close discharge valve and bypass valve (See System Design drawing).
- Remove priming plug in the pump sleeve. (See Plug Drawing).
- Slowly open the suction valve (See System Design drawing), in the inlet pipe until a steady stream of liquid runs out of the priming port.

Warning: Escaping liquid may be very hot; therefore, take care to ensure that the liquid does not cause personal injury or damage to other components.

- Replace priming plug and tighten securely.
- Start the pump and slowly open the discharge valve until it is fully open.
- Completely open the suction valve in the inlet pipe.

Plug Drawing:



5. MODIFYING SYSTEM PRESSURE

- If the pressure at the RO is not acceptable, change the Setpoint by pressing the arrows on the booster pump until the pressure at the RO is at the desired pressure.

- If the Setpoint is changed, the bladder tank must be removed and recharged to a pressure of 0.7 x Setpoint pressure (+/- 3 psi). Use the pressure on the pump discharge pressure gauge as the Setpoint pressure in the bladder tank recharging calculation.

- To safely remove the bladder tank, stop the pump by hitting the Start/Stop button on the pump. Then close the pump suction and discharge valves. Next, relieve pressure in the discharge piping by opening the sample port valve located on the discharge piping. Close the sample port valve once pressure has been relieved. The bladder tank can now be safely removed.

- Once the bladder tank has been removed, it can be recharged using an air chuck with a pressure gauge or using another method such as a bicycle tire pump or air compressor available at a gas station.

- Once the bladder tank has been recharged to the proper pressure, thread it back into its location on the pump discharge assembly. Open the pump suction and discharge valves, and start the pump by hitting the Start/Stop button.

Note: For installing a bladder tank into an existing AmeriWater Booster Pump Assembly and/or for programming the CME booster pump with the Grundfos Dongle using the "GO Remote" app, see Appendix A.

6. MAINTENANCE

The pump and motor are maintenance free.

7. PRELIMINARY CHECKS: MEASURING VOLTAGE & CURRENT

When measuring voltage, use a volt meter (set to the proper scale) to measure the voltage at the pump terminal box or starter. Measure between power leads L1 and L2 or L1 and N for 115 volt units. When the motor is under load, the voltage should be within +6% to +10% of the nameplate voltage. Larger voltage variation may cause winding damage. Large variations in the voltage indicate a poor electrical supply and the pump should not be operated until these variations have been corrected. If the voltage constantly remains high or low, the motor should be changed.

When measuring current, use an ammeter (set on the proper scale) to measure the current on each power lead at the terminal box or starter. See the motor nameplate for amp draw information. Current should be measured when the pump is operating at a constant discharge pressure.

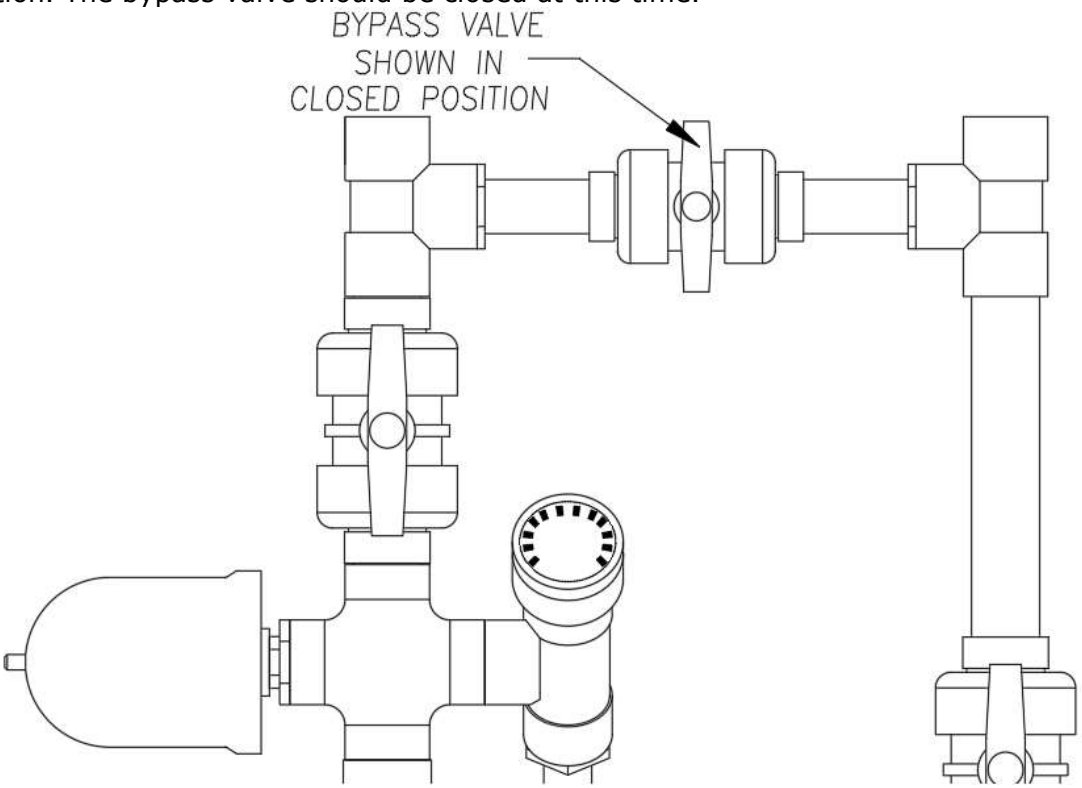
8. TROUBLESHOOTING THE PUMP

Before removing the terminal box cover, make sure the electrical supply is **disconnected** and the electrical box is properly locked and tagged out**.**

Warning: **The pumped liquid may be scalding hot and under high pressure. Before any removal or dismantling of the pump, the system must be drained or the suction & discharge valves must be closed.**

Fault	Cause(s)
Pump capacity not constant	-Pump inlet pressure is too low -Inlet pipe partially blocked by impurities -Pump takes in air
Pump runs but gives no water	-Inlet pipe partially blocked by impurities -Suction valve blocked in closed position -Leakage in inlet pipe -Air in inlet pipe or pump
Pump runs backwards when switched off	-Leakage in inlet pipe -Suction valve defective -Suction valve blocked in open position -Suction valve blocked in partly open position

Valves:
Do not run the pump without the suction or discharge valve completely open during normal operation. The bypass valve should be closed at this time.



9. "GRUNDFOS EYE" OPERATING CONDITION DISPLAY

16.7.1 Grundfos Eye

The operating condition of the Hydro Multi-E is indicated by the Grundfos Eye on the pump control panels. See fig. 45, pos. A.

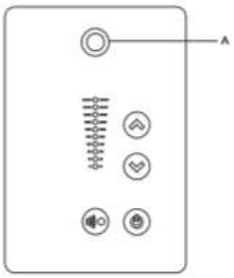
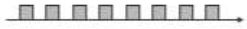
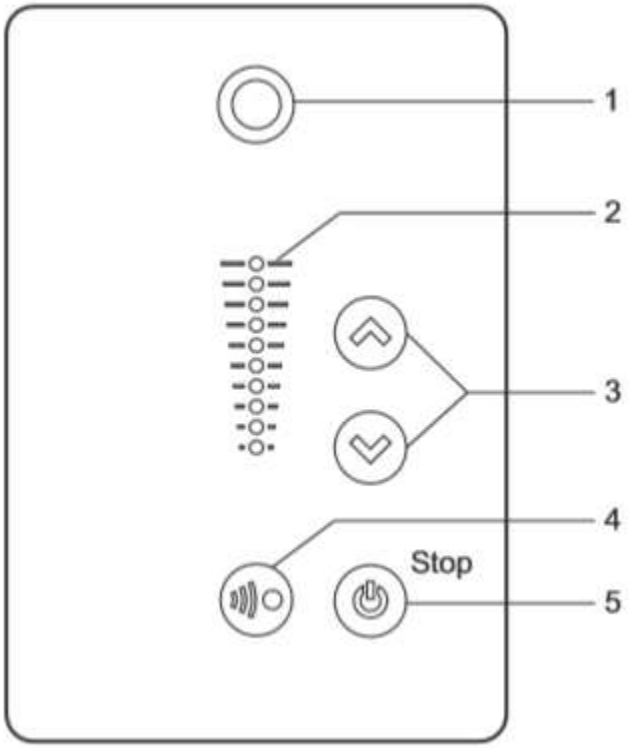


Fig. 45 Grundfos Eye

Grundfos Eye	Indication	Description
	No lights on.	Power off. Motor not running.
	Two opposite green indicator lights rotating in the direction of rotation of the motor when seen from the non-drive end.	Power on. Motor running.
	Two opposite green indicator lights permanently on.	Power on. Motor not running.
	One yellow indicator light rotating in the direction of rotation of the motor when seen from the non-drive end.	Warning. Motor running.
	One yellow indicator light permanently on.	Warning. Motor stopped.
	Two opposite red indicator lights flashing simultaneously.	Alarm. Motor stopped.
	The green indicator light in the middle flashes quickly four times. 	Remote control with the Grundfos Go Remote via radio. The motor is trying to communicate with the Grundfos Go Remote. The motor in question is highlighted in Grundfos Go Remote display to inform the user of the location of the motor.
	The green indicator light in the middle flashes continuously. 	When the motor in question is selected in Grundfos Go Remote menu, the green indicator light in the middle will flash continuously. Press ◀○ on the pump control panel to allow remote control and data exchange via Grundfos Go Remote.
	The green indicator light in the middle is permanently on. 	Remote control with the Grundfos Go Remote via radio. The motor is communicating with the Grundfos Go Remote via radio connection.
	The green indicator light in the middle flashes quickly while Grundfos Go Remote is exchanging data with the motor. It will take a few seconds. 	Remote control with the Grundfos Go Remote via infrared light. The motor is receiving data from Grundfos Go Remote via infrared communication.

10. CONTROL PANEL



1. "Grundfos Eye" Pump Operating Condition Display.
2. Pump Setpoint scale. The light lowest on the scale represents a 0 psi setpoint and the light highest on the scale represents a 145 psi setpoint. The scale is linear.
3. Arrows to adjust the Setpoint.
4. Radio communication button.
5. Start/Stop button. If the pump is in Stop mode, this button does nothing. If the pump is in Normal mode, this button will start and stop the pump.

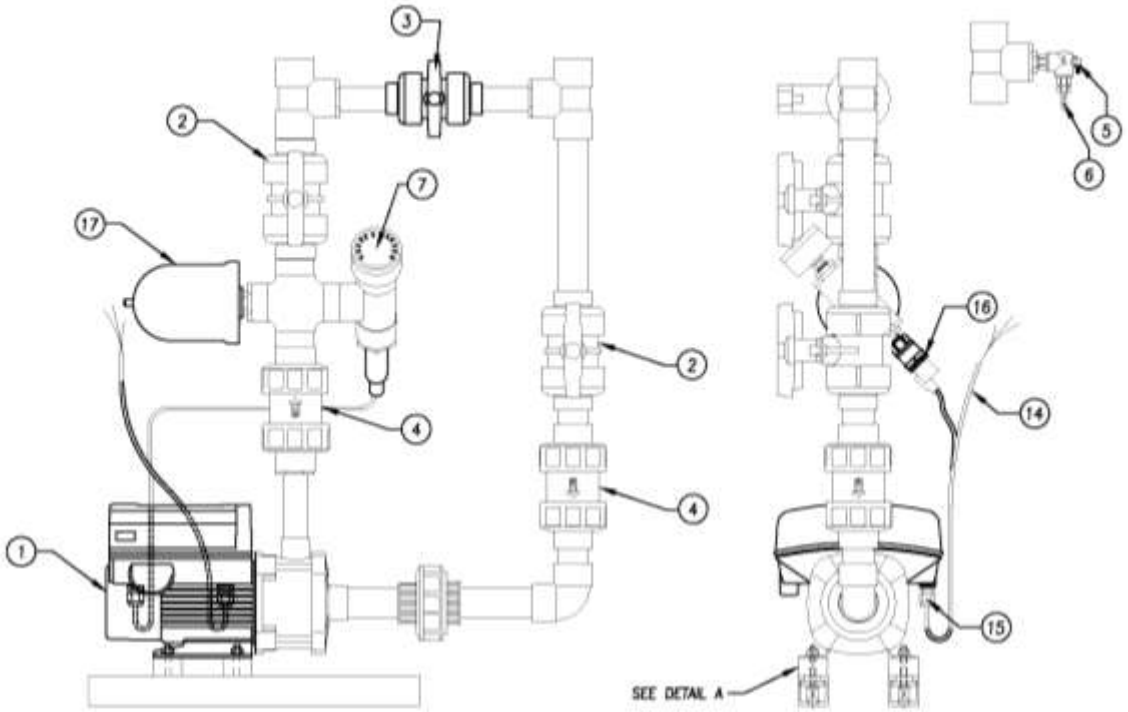
11. FAULT INDICATION RESETTING

A fault indication can be reset in one of the following ways:

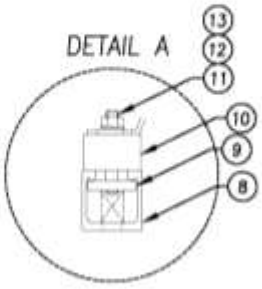
- By briefly pressing the up or down button on the pump. This will not change the Setpoint of the pump. A fault indication cannot be reset by means of the up or down button if the buttons have been locked.

- By switching off the electricity supply until the indicator lights are off.

12. REPLACEMENT PARTS DRAWING



AWI P/N	ITEM #	DESCRIPTION
85-0068	17	TANK, PRESSURE, DIAPHRAGM, 1 LITER
53-0015	16	PRESSURE TRANSMITTER, TYPE MBS 3000
66510621	15	STRAIN RELIEF, .5 NPT, 1 HOLE, .19-.47 ID
66-0027	14	WIRE, SJO CORD, 300 V, 14/3, BLACK SHEATH
92531904	13	WASHER,5/16 FLAT SS
92531907	12	WASHER,5/16 LOCK SS
92530125	11	NUT,FLANGE,5/17-18,HEX,SS
94725433	10	VIBRATION ISOLATORS,5/16-18
91730214	9	UNST,SPRING NUT,.31,PLTD
91730086	8	UNST,1.625,FIBERGLASS PE
43821445	7	GAU,0-160,.25,PAN,2.5,LF,SS/BR
14760335	6	ADPT,.25MPTX.25HB,PP
041004	5	VAL,BALL,EL,.25MPTXFPT,PVC80
041730384	4	VAL,CHECK,BALL,1.25,PVC80
041720169	3	VAL,BALL,1,TU,PVC80
041732001	2	VAL,BALL,1.25,TU,PVC80
80-0148	1	PUMP,GRUNDFOS CME,1.5HP,1PH,208-230V,PLUS TRANSDUCER



13. APPENDIX A – DIAPHRAGM TANK INSTALL AND PUMP PROGRAMMING WITH THE GRUNDFOS "GO REMOTE" APP.

REQUIRED ITEMS:

PARTS LIST			
ITEM	**QTY**	**AmeriWater PART NUMBER***	**DESCRIPTION**
1	1	044531102	NIPPLE,.25XCL,SST304
2	2	041530200	BUSH,.5x.25,THRD,PVC80
3	1	041531509	TEE,.5,THRD,PVC80,CHEMTROL
4	1	85-0068	TANK,PRESSURE,DIAPHRAGM,1 LITER
5	1	-	AIR CHUCK WITH PRESSURE GAUGE**
6	1	97-0003	GRUNDFOS DONGLE, GRUNDFOS PART# MI 301
7	1	-	SMARTPHONE OR iPod® WITH GRUNDFOS "GO Remote" APP INSTALLED
8	N/A	-	PROPER PPE FOR WORKING WITH PNEUMATIC TOOLING
9	AS NEEDED	94650118	TAPE TEFLON .5, WHITE

*Equivalent to AmeriWater part may be used.

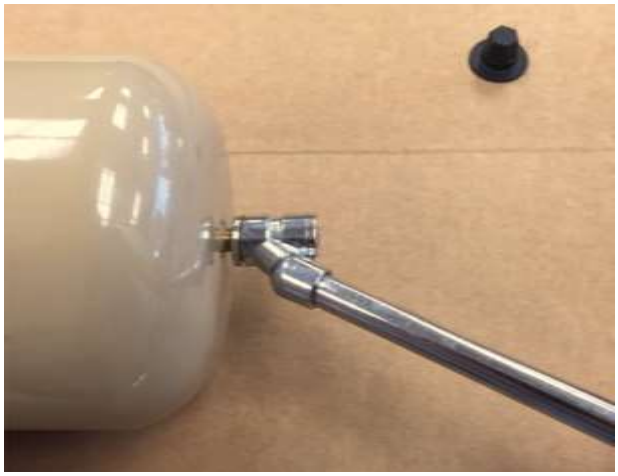
** If there is not an air chuck with attached pressure gauge readily available, other non-conventional methods such as an air compressor at a gas station or a bicycle tire pump may be used.

13.1. Charging the Bladder Tank

1) To charge the bladder tank, first remove the black cap on top of the tank as shown:

2) Plug the air chuck into a pneumatic line.

3) Place the end valve of the air chuck overtop of the valve on the bladder tank as shown:



4) Hold the air chuck in place until the pressure is in the range of ((0.7*Setpoint) +/- 3) psi on the pressure gauge and then remove.

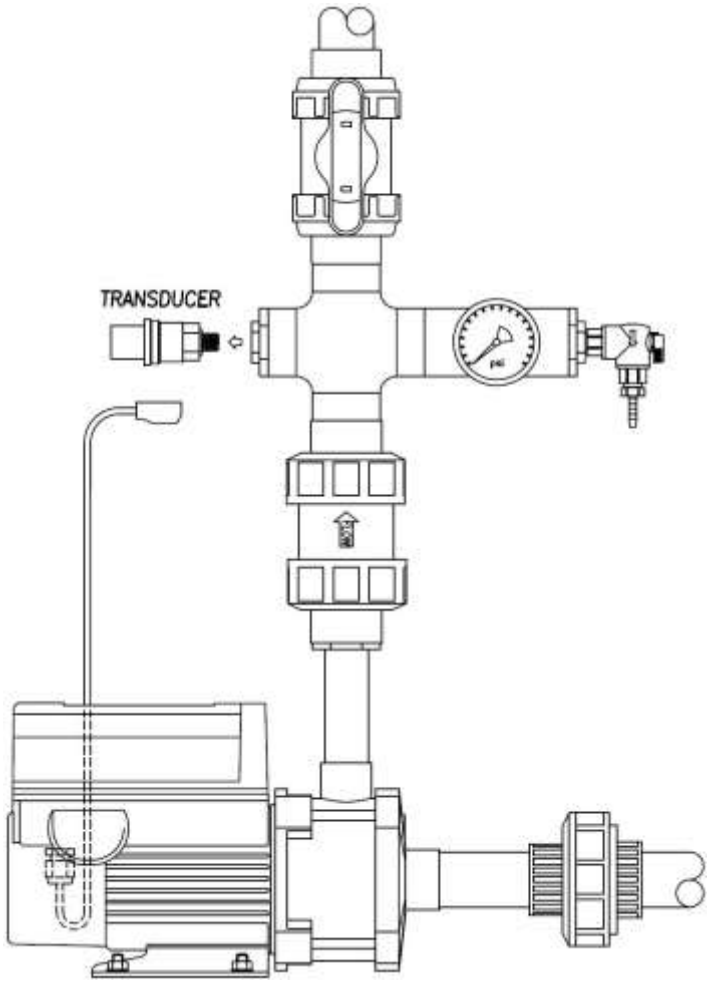
Note: If it is not known ahead of time what the Setpoint will need to be in the pump settings to get the desired pressure at the RO, initially charge the bladder tank to 50 psi. Once the Setpoint is finalized via adjustment and inspection, the bladder tank will need re-charged to the proper pressure.

5) Screw the black cap back onto the top of the bladder tank valve.

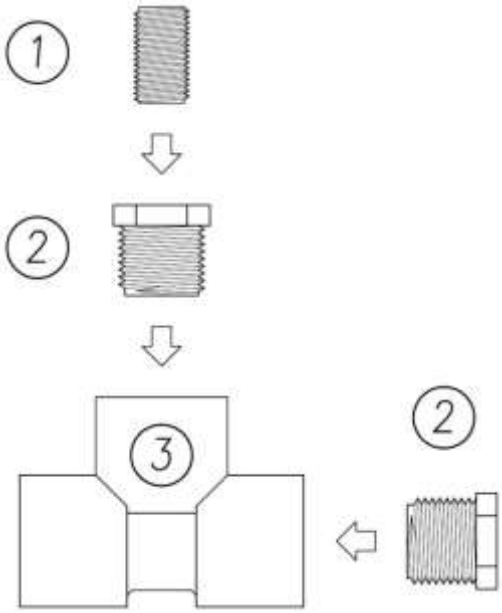
6) Move the electrical disconnect switch to the "Off" position on the electrical box which powers the pump. Properly lock and tag out the electrical disconnect switch before proceeding to the next step.

13.2. Reconfiguring the Pump Assembly using Bladder tank Retrofit kit 0185-0167

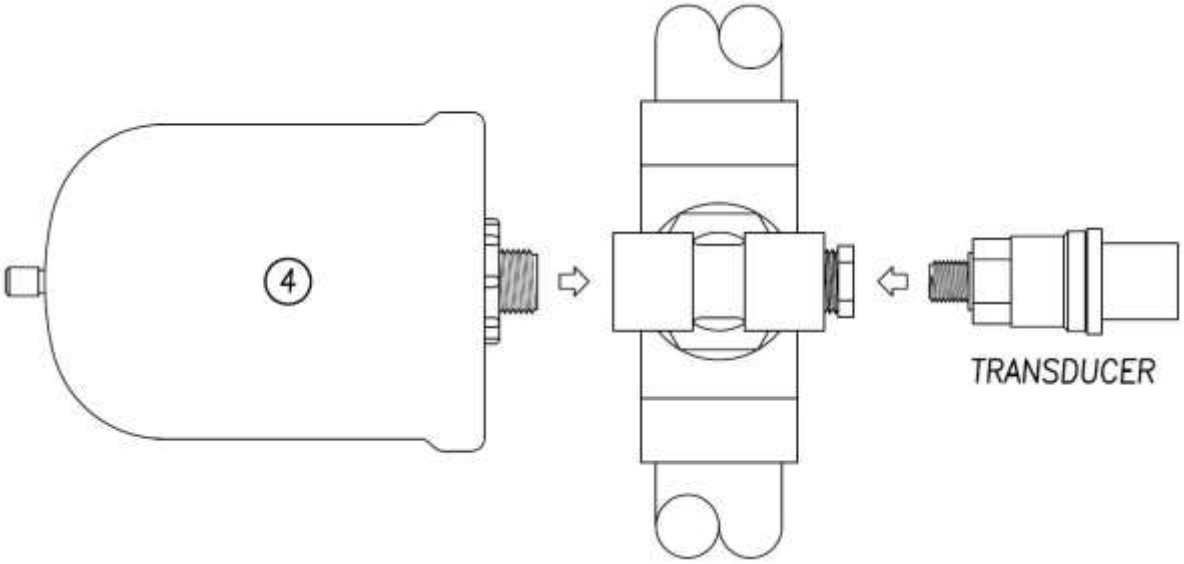
- The following steps are only needed for pump assemblies that **DID NOT** have an existing bladder tank assembly.
- Disconnect the electrical wires from the pressure transducer. Remove the transducer as shown below and set it aside.



- Assemble fittings supplied in installation kit (0185-0167) as shown in the illustration.

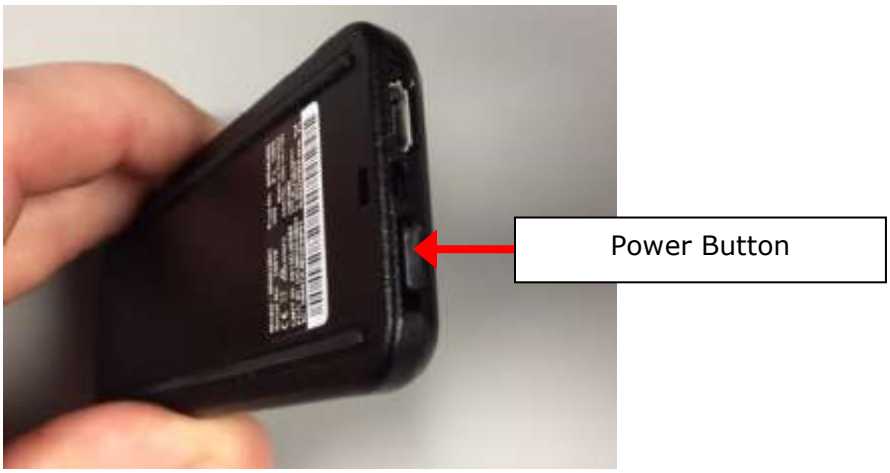


- Install assembly created in step 2 into the transducer port on the product header making sure that the tee is positioned as shown. Reinstall transducer and mount tank.



13.3. Changing Booster Pump Parameter Programming

- If the pump motor is currently running, press the motor "Stop" button so that it will not run while changing the pump settings.
- On the smartphone or iPod® that has the Grundfos "GO Remote" app, enable Bluetooth.
- Turn on Grundfos Dongle, part MI 301, by pressing the power button on the top of the device. A green power button illumination light will signal the activation of the Dongle, and will continue blinking every few seconds while the Dongle is on:

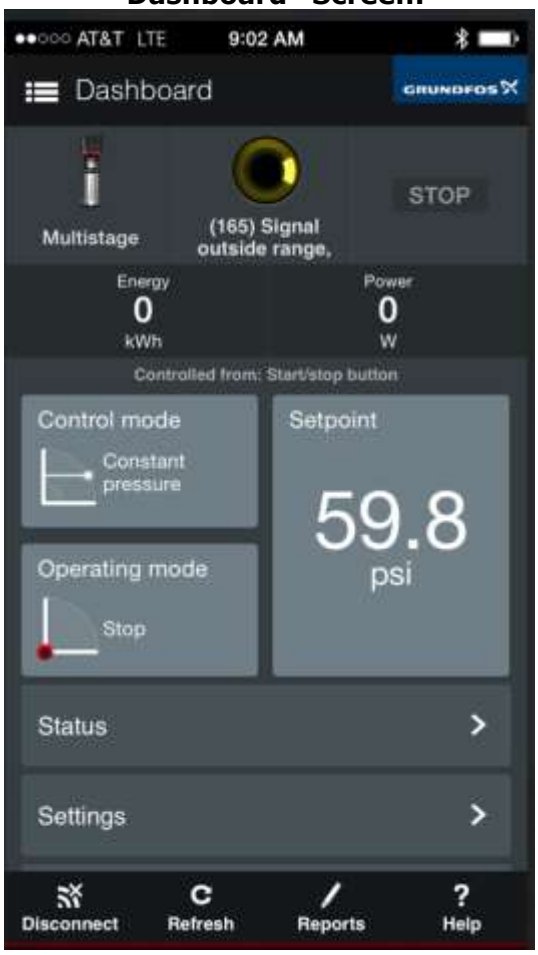


- Connect the smartphone or iPod® to the Grundfos dongle via Bluetooth.
- Open the "GO Remote" app. For instructions on getting the "GO Remote" app installed on a device, see ***Grundfos"GO Remote" App Download and Installation*** after this procedure.

- To connect the smartphone or iPod® to the pump, hold the Dongle end opposite of the power button close to the pump Infrared Receiver (see picture below) and go to the "Connect" tab in the Grundfos "GO Remote" app and connect via the "IR" connection option. This first screen the user sees in the "GO Remote" app after connecting to the pump is known as the "Dashboard".

IR receiver on the pump

"Dashboard" Screen:



- Ensure that the CME Booster Pump parameters are set according to the table after this procedure titled ***Summary of Parameter Inputs for CME Booster Pump***. Use the ***CME Booster Pump Programming Interface Structure*** shown after this procedure as a guide for navigation in the "GO Remote" app. Note that the parameters listed in the summary table have been highlighted in the interface structure for your convenience.

*Note: For common pressure unit conversions see **Common Pressure Unit Conversions from PSI** after this procedure.*

- After the appropriate parameters have been set in the pump, turn off the Grundfos Dongle by pressing and holding the power button on the top of the device until the green power button illumination light goes off.

Summary of Parameter Inputs for CME Booster Pump

GRUNDFOS 'GO' PROGRAM SETUP			
PARAMETER	**VALUE**	**PARAMETER**	**VALUE**
SETPOINT	70 PSI	>SENSOR UNIT	PSI
OPERATING MODE	NORMAL	>MINIMUM	0.0
CONTROL MODE	CONSTANT PRESSURE	>MAXIMUM	145.0
PIPE-FILLING FUNCTION	NOT ACTIVE	ANALOG INPUT 2	NOT ACTIVE
BUTTONS ON PRODUCT	ACTIVE	DIGITAL INPUT 1	EXT STOP
STOP FUNCTION		DIGITAL INPUT/OUTPUT	
>LOW FLOW STOP	HIGH-COMFORT MODE	>MODE	DIGITAL INPUT
>SET ON/OFF BAND	20%	>FUNCTION IF INPUT	NOT ACTIVE
>DIAPHRAGM TANK VOLUME	1 ltr	>FUNCTION IF OUTPUT	NOT ACTIVE
CONTROLLER		PULSE FLOWMETER	
>Kp	3.0	>VOLUME PER PULSE	0 ltr
>TI	5.0 s	PREDEFINED SET POINT	NOT SET
OPERATING RANGE		EXTERNAL SETPOINT FUNCTION	NOT ACTIVE
>MINIMUM	13%	SIGNAL RELAY 1	NOT ACTIVE
>MAXIMUM	100%	SIGNAL RELAY 2	NOT ACTIVE
RAMPS		LIMIT 1 EXCEEDED	NOT ACTIVE
>RAMP UP TIME	1.0 s	LIMIT 2 EXCEEDED	NOT ACTIVE
>RAMP DOWN TIME	1.0 s	STANDSTILL HEATING	NOT ACTIVE
NUMBER	1	MOTOR BEARING MONITOR	ACTIVE
RADIO COMMUNICATION	ACTIVE		
ANALOG INPUT1			
>FUNCTION	FEEDBACK SENSOR		
>MEASURED	DISCHARGE PRESSURE		
>SIGNAL TYPE	4-20 mA		

*NOTE: THE SETPOINT WILL BE CLOSE TO 70 PSI, BUT NOT EXACT, DUE TO THE COARSE ADJUSTMENT OF THE SETPOINT FEATURE

13.4. CME Booster Pump Programming Interface Structure

Note: The parameters to be set in CME Booster Pump are underlined.

1. Dashboard
    - Control mode
        - Constant pressure
        - Constant temperature
        - Constant diff. pressure
        - Constant diff. temperature
        - Constant flow
        - Constant level
        - Constant other value
        - Constant curve
    - Operating mode
        - Stop
        - Min.
        - Normal*
        - Max.
        - Manual

    Setting the pump to an Operating mode of "Normal" will start the pump. Hit the Start/Stop button on the pump in order to stop the pump from running during pump programming but keep it in "Normal" mode. Once the programming of the pump is done, hit the Start/Stop button again to restart the pump and allow it to operate.
2. Setpoint (Set to desired pressure)
3. Status
4. Settings
    - Setpoint (Set to desired pressure. If units are in ft. of head reference ***"Common Pressure Unit Conversions from PSI"*** below.
    - Operating Mode
        - Stop
        - Min.
        - Normal*
        - Max.
        - Manual

    Setting the pump to an Operating mode of "Normal" will start the pump. Hit the Start/Stop button on the pump in order to stop the pump from running during pump programming but keep it in "Normal" mode. Once the programming of the pump is done, hit the Start/Stop button again to restart the pump and allow it to operate.
    - Control mode
        - Constant pressure
        - Constant temperature
        - Constant diff. pressure
        - Constant diff. temperature
        - Constant flow
        - Constant level
        - Constant other value
        - Constant curve
    - Pipe filling function
        - Function
            - Active
            - Not active
        - Filling speed

    - Filling pressure
    - Max. filling time
    - Max. time reaction
        - Warning
        - Alarm
    - Pressure build-up time
- Buttons on product
    - Active
    - Not active
- Stop function
    - Low-flow stop
        - Not active
        - Energy-optimal mode
        - High-comfort mode
        - User-defined mode
    - ΔH=20%
    - Diaphragm tank volume=1.0 Ltr
- Controller
    - K_P (set to 3.0)
    - T_i (set to 5.0 seconds)
- Operating range
    - Minimum (set to 13%)
    - Maximum (set to 100%)
- Ramps
    - Ramp-up time (set to 1 second)
    - Ramp-down time (set to 1 second)
- Number (set to 1)
- Radio communication
    - Active
    - Not active
- Analog Input 1
    - Function
        - Not active
        - Feedback sensor
        - Setpoint influence
        - Other function
    - Measured
        - Inlet pressure
        - Diff. pressure, inlet
        - Discharge pressure
        - Diff. pressure, outlet
        - Diff. pressure, pump
        - Pressure 1, external
        - Pressure 2, external
        - Diff. press., external
        - Feed tank level
        - Storage tank level
        - Flow, pump
        - Flow, external
        - Liquid temp.
        - Temperature 1
        - Temperature 2
        - Diff. temp., external

        - Ambient temp.
        - Other parameter
    - Signal type
        - 0-10 V
        - 4-20 mA
        - 0-20 mA
        - 0-5 V
        - 0.5-3.5 V
    - Units
        - kPa
        - bar
        - psi
        - m
        - ft
        - in
    - Min (set to 0 psi)
    - Max (set to 145 psi)
- Analog Input 2
    - Function
        - Not active
        - Feedback sensor
        - Setpoint influence
        - Other function
    - Measured
        - Inlet pressure
        - Diff. pressure, inlet
        - Discharge pressure
        - Diff. pressure, outlet
        - Diff. pressure, pump
        - Pressure 1, external
        - Pressure 2, external
        - Diff. press., external
        - Feed tank level
        - Storage tank level
        - Flow, pump
        - Flow, external
        - Liquid temp.
        - Temperature 1
        - Temperature 2
        - Diff. temp., external
        - Ambient temp.
        - Other parameter
    - Signal type
        - 0-10 V
        - 4-20 mA
        - 0-20 mA
        - 0-5 V
        - 0.5-3.5 V
    - Units
        - kPa
        - bar
        - psi
        - m

        - ft
        - in
    - Min
    - Max
- Digital input 1
    - Not active
    - Ext. stop
    - Min.
    - Max.
    - External fault
    - Flow switch
    - Alarm resetting
    - Dry running
    - Accumulated flow
- Digital input/output 3
    - Mode
        - Digital input
        - Digital output
    - Function if input
        - Not active
        - Ext. stop
        - Min.
        - Max.
        - External fault
        - Flow switch
        - Alarm resetting
        - Dry running
        - Accumulated flow
        - Predef. setp. digit 2
    - Function if output
        - Not active
        - Ready
        - Alarm
        - Operating
        - Running
        - Warning
        - Limit 1 exceeded
        - Limit 2 exceeded
- Pulse flowmeter
    - Volume per pulse (set to 0 L)
- Predefined setpoint
    - Predefined setpoint 1 (set to 0)
    - Predefined setpoint 2 (set to 0)
    - Predefined setpoint 3 (set to 0)
    - Predefined setpoint 4 (set to 0)
    - Predefined setpoint 5 (set to 0)
    - Predefined setpoint 6 (set to 0)
    - Predefined setpoint 7 (set to 0)
    - No predef. setpoint active
        - Stop
        - Setpoint from other source
- External setpoint funct.
    - External setpoint funct.

        - Not active
        - Linear function
        - Linear with Stop
        - Linear with Min.
        - Inverse function
        - Inverse with Stop
        - Inverse with Min.
        - Influence table
        - Infl. table, Stop Min.
        - Infl. table, Stop Max.
    - Number of points in table
    - Influence table, setup
        - External input value 1
        - Setpoint influence 1
        - External input value 2
        - Setpoint influence 2
- Signal relay 1
    - Not active
    - Ready
    - Alarm
    - Operating
    - Running
    - Warning
    - Limit 1 exceeded
    - Limit 2 exceeded
    - External fan control
- Signal relay 2
    - Not active
    - Ready
    - Alarm
    - Operating
    - Running
    - Warning
    - Limit 1 exceeded
    - Limit 2 exceeded
    - External fan control
- Limit 1 exceeded
    - Measured
        - Inlet pressure
        - Diff. pressure, inlet
        - Discharge pressure
        - Diff. pressure, outlet
        - Diff. pressure, pump
        - Pressure 1, external
        - Pressure 2, external
        - Diff. press., external
        - Feed tank level
        - Storage tank, level
        - Flow, pump
        - Flow, external
        - Liquid temp.
        - Flow-pipe temp.
        - Return-pipe temp.

        - Diff. temp., external
        - Temperature 1
        - Temperature 2
        - Ambient temp.
        - Motor winding temp.
        - Bearing temp., DE
        - Bearing temp., NDE
        - Other parameter
        - Actual controlled value
        - Speed
        - Motor load
        - Motor current
        - Not active
    - Limit
    - Hysteresis band
    - Limit exceeded when
        - above limit
        - below limit
    - Action
        - Not active
        - Warning/alarm
        - Stop
        - Min.
        - Max.
        - Detection delay
        - Reset delay
- Limit 2 exceeded
    - Measured
        - Inlet pressure
        - Diff. pressure, inlet
        - Discharge pressure
        - Diff. pressure, outlet
        - Diff. pressure, pump
        - Pressure 1, external
        - Pressure 2, external
        - Diff. press., external
        - Feed tank level
        - Storage tank, level
        - Flow, pump
        - Flow, external
        - Liquid temp.
        - Flow-pipe temp.
        - Return-pipe temp.
        - Diff. temp., external
        - Temperature 1
        - Temperature 2
        - Ambient temp.
        - Motor winding temp.
        - Bearing temp., DE
        - Bearing temp., NDE
        - Other parameter
        - Actual controlled value
        - Speed

        - Motor load
        - Motor current
        - Not active
    - Limit
    - Hysteresis band
    - Limit exceeded when
        - above limit
        - below limit
    - Action
        - Not active
        - Warning/alarm
        - Stop
        - Min.
        - Max.
        - Detection delay
        - Reset delay
- Standstill heating
    - Not active
    - Active
- Motor bearing monitoring
    - Not active
    - Active
- Service
    - Time to next service
    - Bearing replacements
- Store settings
- Recall settings
- Undo
- Pump name
- Connection code
- Unit configuration
    - Head/distance
        - Grundfos GO Settings
        - Product defaults, SI
        - Product defaults, US
        - m
        - cm
        - ft
        - in
    - Pressure/head
        - Grundfos GO Settings
        - Product defaults, SI
        - Product defaults, US
        - bar
        - kPa
        - MPa
        - mbar
        - psi
        - m
        - ft
    - Flowrate
        - Grundfos GO Settings
        - Product defaults, SI

        - Product defaults, US
        - m^3/h
        - m^3/s
        - l/s
        - gpm
        - yd^3/s
        - yd^3/min
        - yd^3/h
    - Volume
        - Grundfos GO Settings
        - Product defaults, SI
        - Product defaults, US
        - m^3
        - ltr
        - gal
        - yd^3
    - Temperature
        - Grundfos GO Settings
        - Product defaults, SI
        - Product defaults, US
        - °C
        - °F
        - K
    - Power
        - Grundfos GO Settings
        - Product defaults, SI
        - Product defaults, US
        - W
        - kW
        - MW
        - Hp
    - Energy
        - Grundfos GO Settings
        - Product defaults, SI
        - Product defaults, US
        - J
        - kWh
        - MWh
        - BTU
        - Hph
    - Electrical resistance
        - Grundfos GO Settings
        - Product defaults, SI
        - Product defaults, US
        - Ω
        - kΩ
        - MΩ
5. Alarms and warnings
6. Assist

13.5. Grundfos "GO Remote" App Download and Installation

- Touch the Icon on your device for the appropriate App Store:

Google Play App Store:

Apple OS App Store:

- Search for "grundfos go" in the App search bar.
- The "Grundfos GO Remote" app should be in the search results.
- Download the app to your device.
- Once the app is downloaded to your device, simply tap on the "GO Remote" icon to access it.

13.6. Common Pressure Unit Conversions from PSI

Pressure in PSI	Pressure Unit Conversions			
-	***Feet of Head (ft)***	***Meters of Head (m)***	***Bar***	***Kilopascals (kPa)***
5	11.5	3.5	0.3	34.5
10	23.1	7.0	0.7	68.9
15	34.6	10.5	1.0	103.4
20	46.1	14.1	1.4	137.9
25	57.7	17.6	1.7	172.4
30	69.2	21.1	2.1	206.8
35	80.7	24.6	2.4	241.3
40	92.3	28.1	2.8	275.8
45	103.8	31.6	3.1	310.3
50	115.3	35.2	3.4	344.7
55	126.9	38.7	3.8	379.2
60	138.4	42.2	4.1	413.7
65	149.9	45.7	4.5	448.2
70	161.5	49.2	4.8	482.6
75	173.0	52.7	5.2	517.1
80	184.5	56.2	5.5	551.6
85	196.1	59.8	5.9	586.1
90	207.6	63.3	6.2	620.5
95	219.1	66.8	6.6	655.0
100	230.7	70.3	6.9	689.5
105	242.2	73.8	7.2	723.9
110	253.7	77.3	7.6	758.4
115	265.3	80.9	7.9	792.9
120	276.8	84.4	8.3	827.4
125	288.3	87.9	8.6	861.8
130	299.9	91.4	9.0	896.3
135	311.4	94.9	9.3	930.8
140	322.9	98.4	9.7	965.3
145	334.5	101.9	10.0	999.7
150	346.0	105.5	10.3	1034.2

WARNING

This product can expose you to chemicals such as vinyl chloride (used in the production of PVC) or Nickel (used in the production of stainless steel), that are known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

Dear Valued Customer,

California Proposition 65 (Prop 65) is the Safe Water and Toxic Enforcement Act of 1986. The State of California began enforcing amendments to California Prop 65 at the end of August 2018. Prop 65 requires manufacturers to provide a clear and reasonable warning to residents of California about chemicals used in products that they purchase that are included on the Prop 65 Chemical List. The chemicals included on the list are chemicals that are known to the State of California to cause cancer, birth defects, or other reproductive harm. One such chemical is Vinyl Chloride, a compound used to produce Polyvinyl Chloride (PVC). The AmeriWater system you have purchased may contain PVC or stainless steel parts.

While warnings are only required in the State of California, AmeriWater has initiated the use of Prop 65 labeling for all products to ensure compliance with California regulations. Please note that the above warning does not necessarily mean that the product that you have purchased is unsafe. Products that have been cleared for market by FDA have been determined to be safe and effective by the United States Food and Drug Administration. The warning is simply a requirement by the State of California. If you wish to obtain additional information, please visit: p65warnings.ca.gov. You may also contact your AmeriWater representative if you have any questions.

Thank you for your understanding and we look forward to continuing to serve you.