FOAMPRO®

Precision foam every time

Sutphen Dealer Meeting

FOAMPRO®
Precision foam every time

Types of foam concentrates

- Class A,

  Normal combustibles 0.1% to 1.0% injection rate

- Class B

  Flammable liquids 1% 3% or 6% injection rates

- Wetting agents and emulsifiers

  A/B style concentrates, 0.1% to 6% injection rates

FOAMPRO
Precision foam every time

Sizing the FoamPro System

- **What Size of Proportioner needed?**
  - Determine Max. foam concentrate flow
    - 0.5% @ 1000 GPM = 5.0 GPM
- **What is Min. / Max. Water Flows?**
  - Determine the discharges requiring foam
  - Determine flowmeter tee size
    - 30 GPM Mop Up-Overhaul / 1000 GPM Deck Gun
- **Select Required Accessories**
- **Select Optional Accessories**

FOAMPRO
Precision foam every time

Determine Maximum Concentrate Flow

Model	Flow Rates
1600	0.1 to 1.7 gpm
1601	0.1 to 1.2 gpm
2001	0.1 to 2.6 gpm
2002	**0.1 to 5.0 gpm**
3012	0.1 to 12.0 gpm
3020	4.0 to 20.0 gpm
3040	4.0 to 40.0 gpm
3060	5.0 to 60.0 gpm
3090	6.0 to 90.0 gpm
3150	12.0 to 150 gpm
3300	12.0 to 300 gpm

FOAMPRO
Precision foam every time

Determine Flowmeter Tee or Manifold Size

Which Discharges Require Foam?

Size Tee	Max. Accuracy Flow Range	Max. Operating Flow Range
1**1/2”** x 1"	5 - 110 gpm	3 - 145 gpm
1**1/2**”	10 - 320 gpm	3 - 380 gpm
2”	15 - 520 gpm	5 - 625 gpm
2**1/2**”	20 - 750 gpm	8 - 900 gpm
3”	30 -1,150 gpm	12 -1,380 gpm
4”	55 -1,980 gpm	20 -2,380 gpm
	+/- 1%	+/- 3%

FOAMPRO
Precision foam every time

FoamPro 1600 & 1601

- Class A Foam ONLY
- Percentages 0.1% to 1% Max
- 11/2" x 1" bore, 1 1/2” or 2” Flowmeter Tee Or 1 ½”, 2” Manifold
- 1/3 hp sealed motor available 12 or 24 volts
- Maximum operating pressure 400 psi
- 1600 - 0.1 to 1.7 gpm concentrate pump
- 1601 - 0.1 to 1.2 gpm concentrate pump

FOAMPRO
Precision foam every time

FoamPro 2001 & 2002

- Class A & B Foam - Percentages 0.1% to 6%
- Flowmeter Tee or Manifold sizes 1 1/2” to 4”
- Maximum operating pressure 400 psi (HP 600 psi)
- Available in 12 or 24 volt
- 2001 – ½ hp motor with a 0.1 to 2.6 gpm pump
- 2002 – ¾ hp motor with a 0.1 to 5.0 gpm pump

FOAMPRO
Precision foam every time

Turbo Foam

- Class A & B Foam - Percentages 0.1% to 6%
- Flowmeter Tee, Weldments or Manifold sizes 1 1/2” to 4”
- Maximum operating pressure 400 psi (HP 600 psi)
- Available in 12 or 24 volt
- Available in 4 different series, TFC100, TFC200, TFC300, TFC400
- Available 5 sizes, 1.6 GPM, 2.6 GPM, 5.0 GPM, 6.2 GPM & 6.5 GPM(24 volt only)

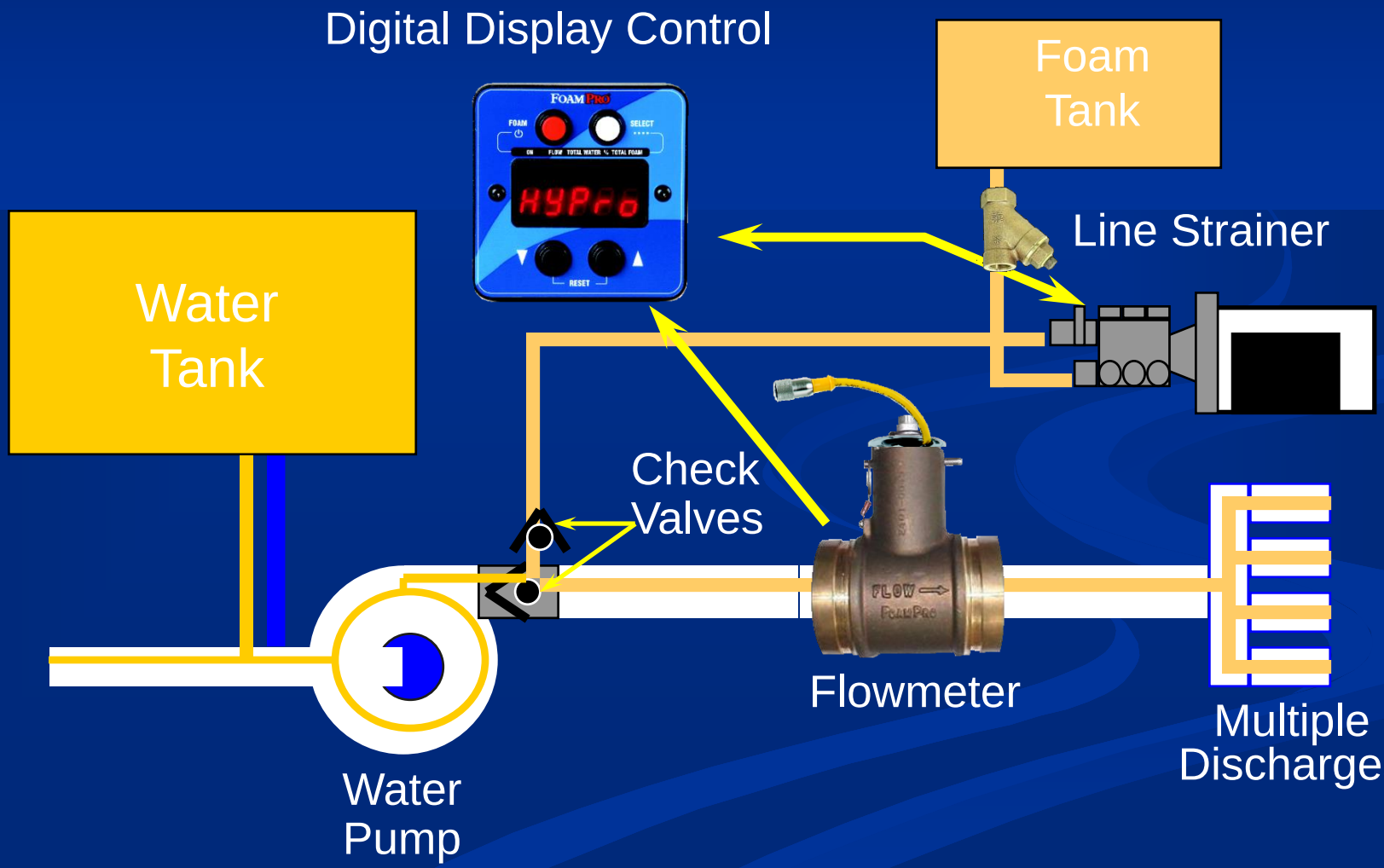
FOAMPRO
Precision foam every time

FoamPro 3012

- Class A & B Foam - Percentages 0.1% to 6%
- Flowmeter Tee or Manifold sizes 1 1/2” to 4”
- Maximum operating pressure 400 psi
- 3012 - Hydraulic drive 0.1 to 12 gpm pump

FOAMPRO
Precision foam every time

How the FoamPro System Works



FoamPro
Precision foam every time

Plumbing Component Installation

- **Discharge Relief Valve**
  - Installed on outlet port of the foam pump
  - Protect the foam pump for excessive pressures
  - Factory set at 400 psi

FOAMPRO
Precision foam every time

Plumbing Component Installation

- **Calibration/Inject Valve**
  - Mounted on the foam pump
  - 3 way valve:
    - Foam concentrate INJECT or CAL/FLUSH
  - 1/2” ID , 400 psi rated discharge hose from INJECT side to injection check valve
  - 1/2” or larger discharge hose from CAL/FLUSH side to under the apparatus
    - Extend to under pump area for filling a bucket or pumping out foam tank
    - Hose long enough to reach a container outside the truck for calibrating, and coiled for storage when not used

FOAMPRO
Precision foam every time

Plumbing Component Installation

- **Line “Y” Strainer**
  - 3/4” NPT female threads

  or
  - 1” NPT female threads
  - Arrow shows flow direction
  - Mounting location for easy access for maintenance

FOAMPRO
Precision foam every time

Low Level Tank Sensors

- Top or Bottom Mount Switch

- Requires One Per Foam Tank
- Side Mount Switch

FOAMPRO
Precision foam every time

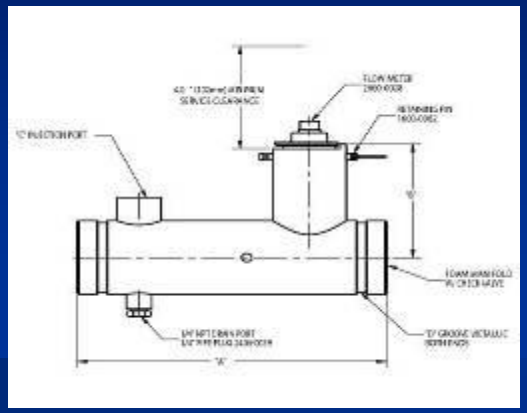
Flowmeter Tee

Tee Size	Max. Accuracy Flow Range	Max. Operating Flow Range
11/2 x 1"	5 - 110 gpm	3 - 145 gpm
11/2”	10 - 320 gpm	3 - 380 gpm
2”	15 - 520 gpm	5 - 625 gpm
21/2”	20 - 750 gpm	8 - 900 gpm
3”	30 -1,150 gpm	12 -1,380 gpm
4”	55 -1,980 gpm	20 -2,380 gpm
	+/- 1%	+/- 3%

With Unrestricted Flows

FOAMPRO
Precision foam every time

Stainless Steel Manifold



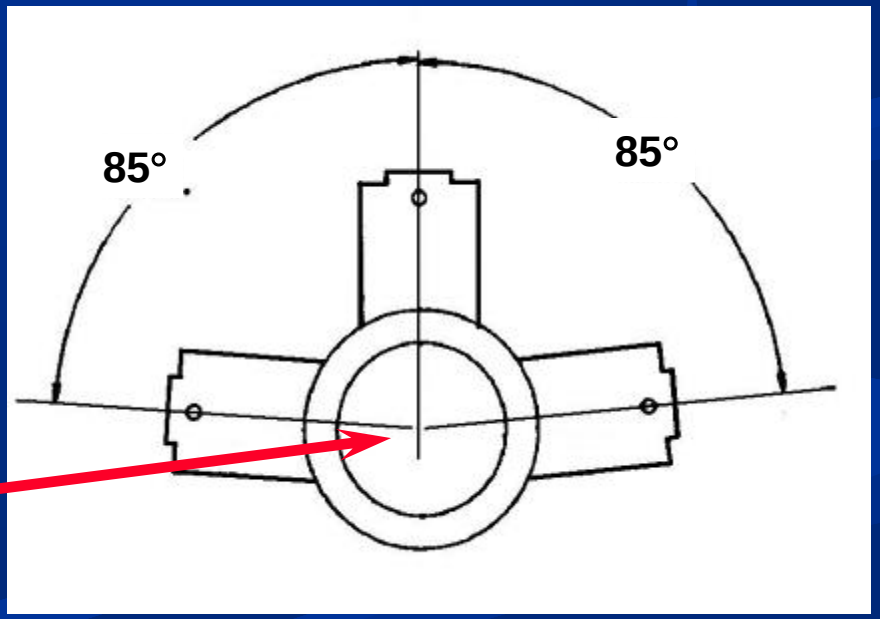
Part No.	“A”	“B”	“C”	“D”	Maximum Accuracy Flow Range	Maximum Operating Flow Range
2660-0051	8.5”	4.0”	½”	1-1/2”	7-210 gpm (27-795 L/min)	3-265 gpm (11-1,003 L/min)
2660-0052	8.5”	4.3”	½”	2”	10-320 gpm (38-1,211 L/min)	3-380 gpm (11-1,438 L/min)
2660-0053	9.5”	4.4”	¾”	2-1/2”	15-520 gpm (57-1,968 L/min)	5-625 gpm (19-2,366 L/min)
2660-0054	9.5”	4.8”	¾”	3”	20-750 gpm (76-2,839 L/min)	8-900 gpm (30-3,407 L/min)
2660-0055	11.5”	5.3”	1”	4”	30-1150 gpm (114-4,353 L/min)	12-1,380 gpm (45-5,224 L/min)

FOAMPRO®
Precision foam every time

Plumbing Component Installation

- **Flowmeter / Manifold**
  - A minimum of 5 times the pipe diameter upstream without any fittings is necessary

- Downstream plumbing is not as critical
- Do not mount a flowmeter after an elbow or valve
- Mount the flowmeter in an accessible area
- Mount vertically or within range

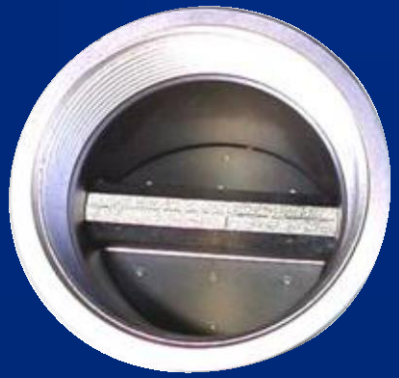


FOAMPRO
Precision foam every time

Waterway Check Valve

- **Rated for 450 psi**
- **Available in Stainless steel or Nickel plated for corrosion resistance**
- **Sizes available from 1 1/2” to 4”, female threads and Victaulic groves**

Stainless Steel Internals



Two 3/8” ports for the 1-1/2”and 2” and Two 1/2” ports for the
2-1/2” and larger check valves,
180 degrees apart for the foam injection check valve & a drain port

FOAMPRO
Precision foam every time

Plumbing Component Installation

- **Concentrate Injection Check Valve**
  - Prevents concentrate flow from foam tank due to static head pressure
  - 8 to 10 psi cracking pressure
  - DO NOT OVER TIGHTEN

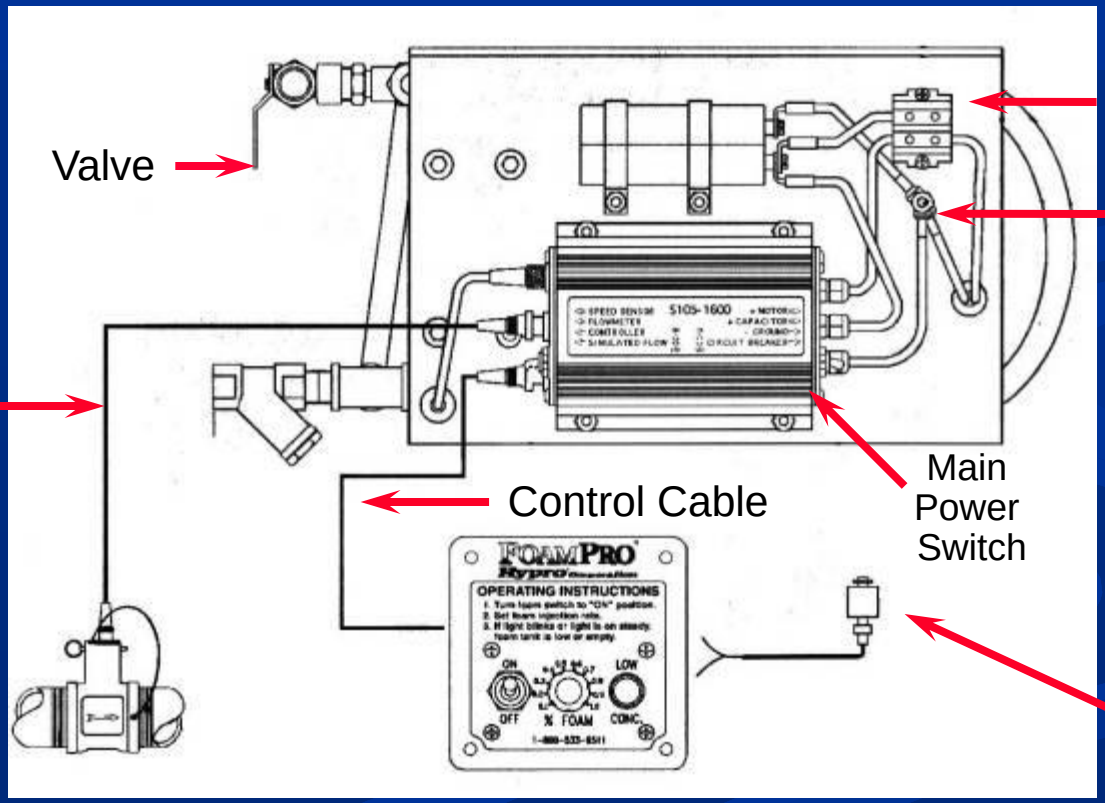
FOAMPRO
Precision foam every time

Plumbing Component Installation

- **Flushing System**
  - FoamPro does not recommend the foam pump to be flushed when using most Class A foam concentrate, please check the MSDS for the PH of your concentrate.
  - FoamPro recommends the foam pump to be flushed after using Class B foam concentrate

Electrical Equipment Installation 1600 Series

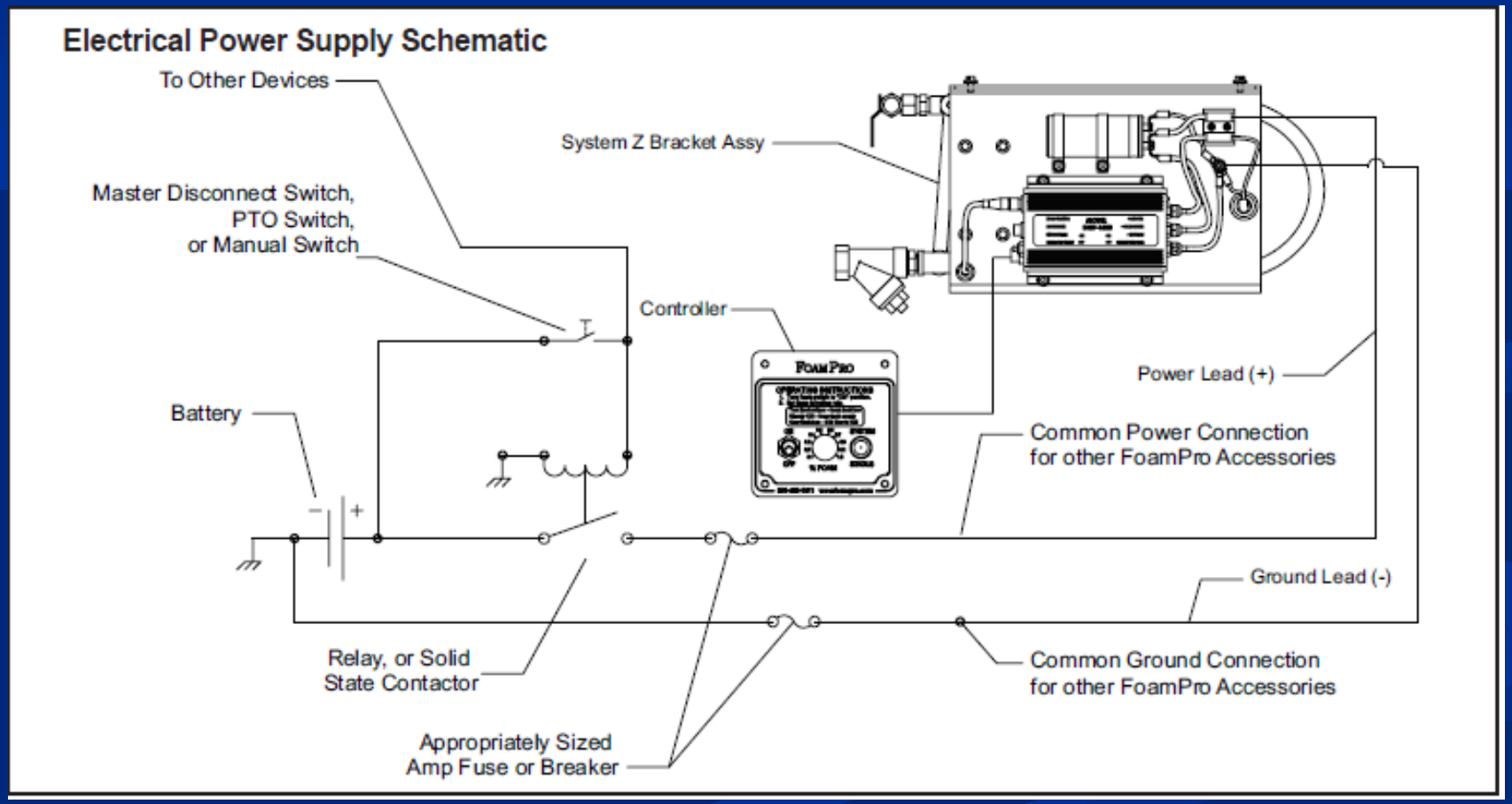
- **Electrical Connections**
  - Follow system electrical diagram for proper hookup



Ref to 16001601 I/O Pg.12 fig.12

FOAMPRO
Precision foam every time

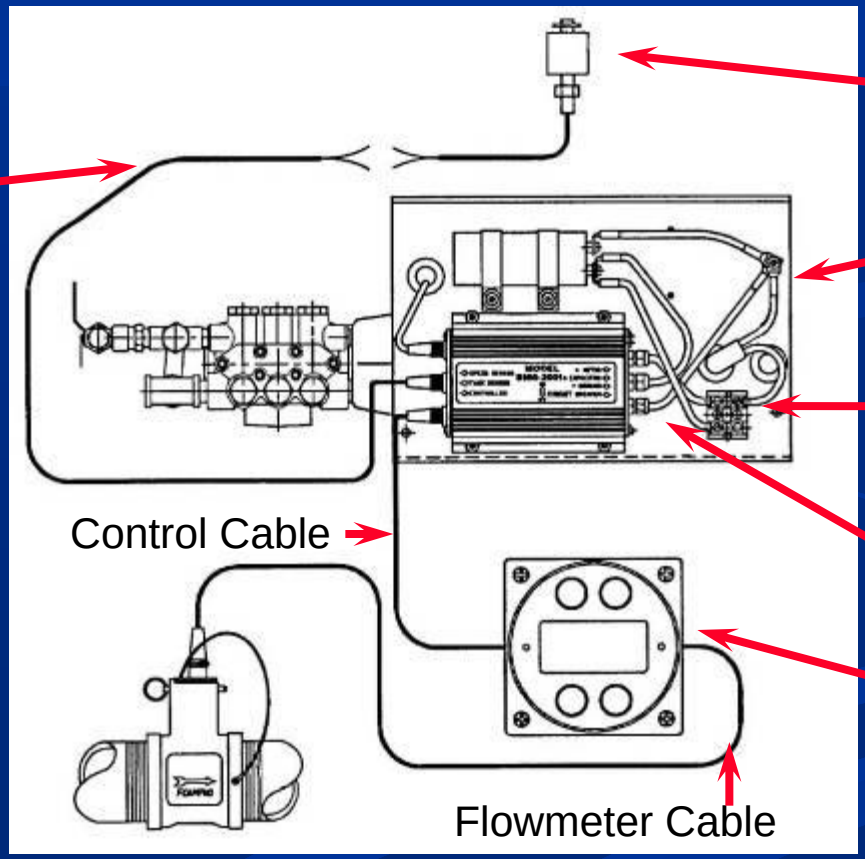
Electrical Equipment Installation 1600 Series



FOAMPRO
Precision foam every time

Electrical Equipment Installation 2000 Series

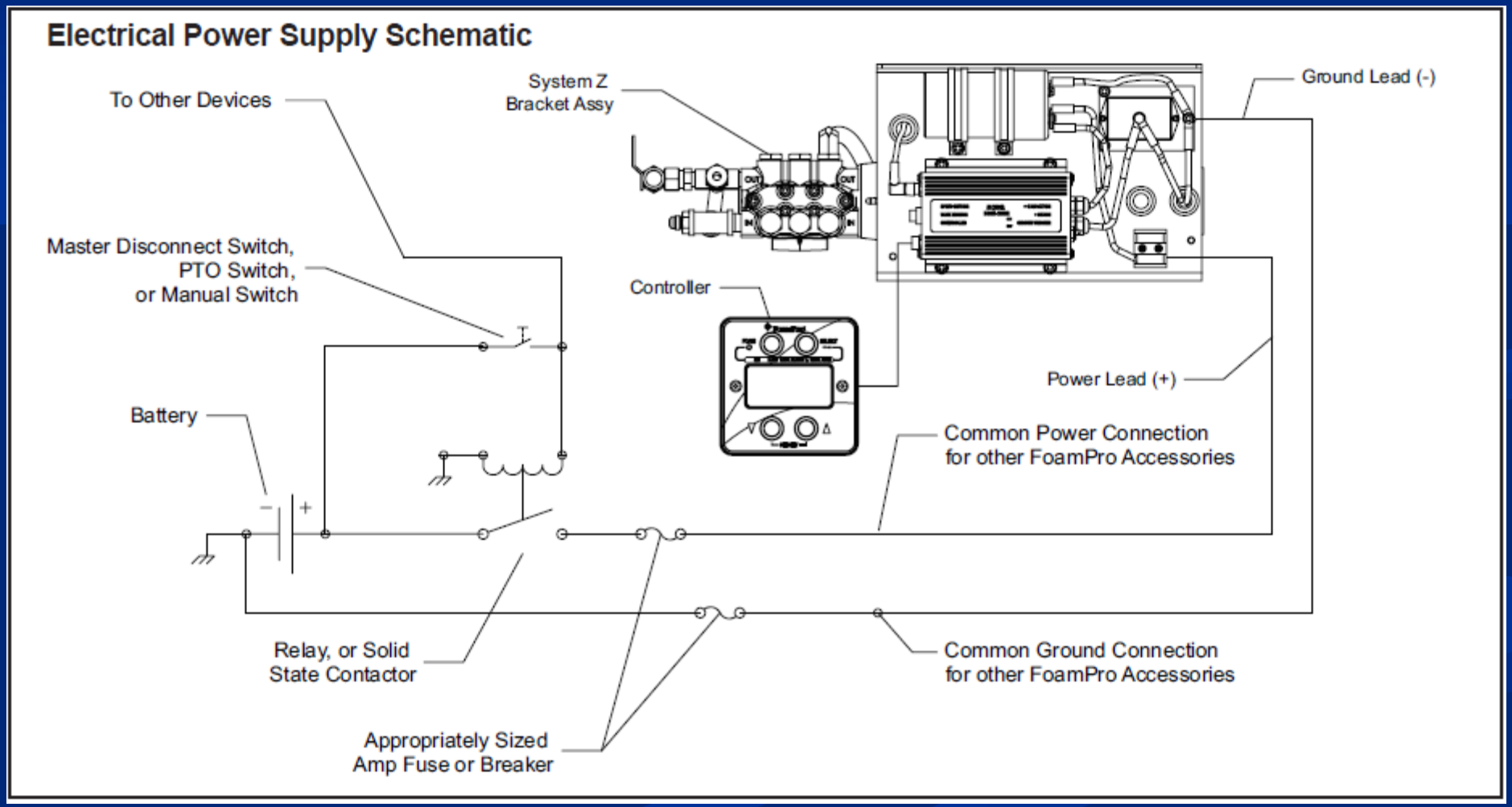
- **Electrical Connections**
  - Follow system electrical diagram for proper hookup



Ref to 2001/2002 I/O Pg.13 fig.16A

FOAMPRO
Precision foam every time

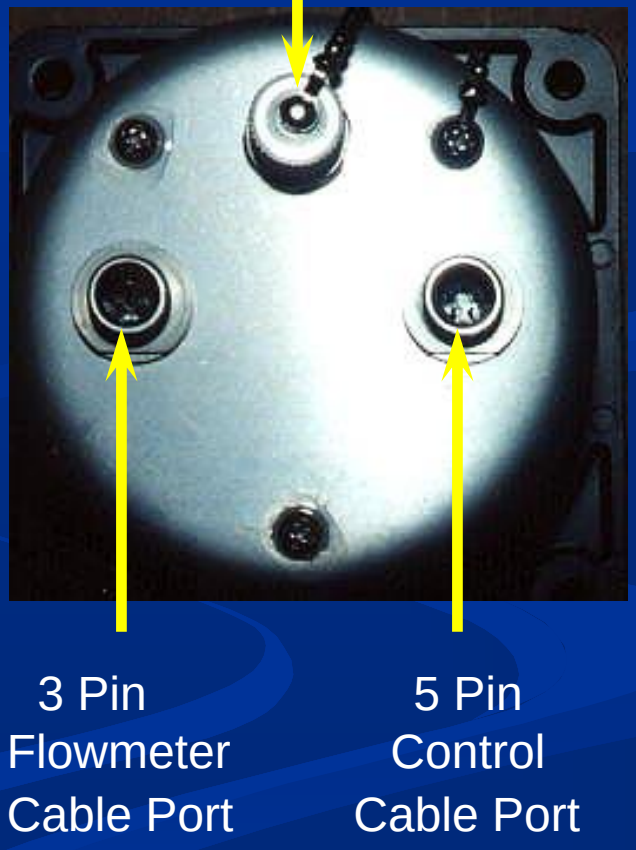
Electrical Equipment Installation
2000 Series



FOAMPRO
Precision foam every time

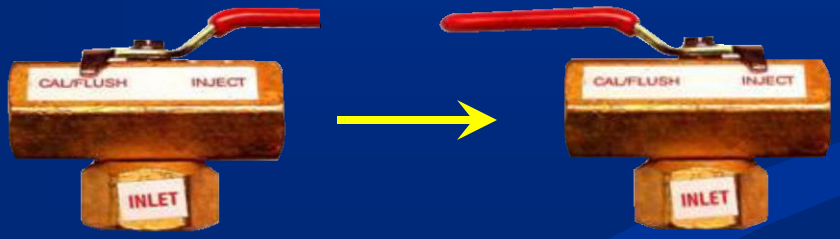
Electrical Equipment Installation

- **Standard Digital Display Controller**
  - Designed to be mounted on the operators panel
  - Cut out in panel 3 7/8” for mounting
  - Display requires min. 5” space behind the module for cables
  - Secure display with (4) # 10 stainless steel bolts
  - Ensure operators panel is properly grounded



FOAMPRO
Precision foam every time

Model 1600 & 1601
Purging Air From Foam Pump



- Enter Simulated Flow mode
  - Turn the switch to the ON position located on the left side of the motor driver box
- Turn Cal/Injection valve to Cal/Flush position
- Turn switch on the control panel to the ON position to run
- The light on the control module will blink once per second
- Run until foam concentrate is flowing steadily out the flush line
- Turn the switch OFF on the control panel to stop
  - this also automatically turns off the simulated mode feature
- Turn Cal/Injection valve back to Inject

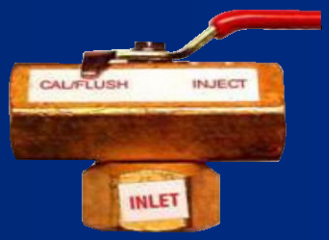
FOAMPRO
Precision foam every time

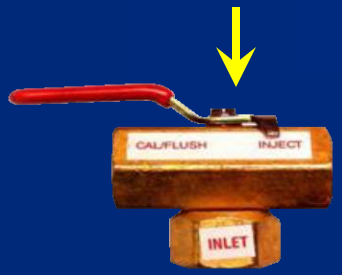
Operating Instructions
Simulated Flow

- Adjust the percentage, using the knob on the control module
- Turn the system ON using the on switch on the control module
- The light on the control module will blink once per second
- Turning the system off at the control module or disconnecting power to the system will automatically turn off the simulated flow feature

FOAMPRO
Precision foam every time

Model 2001 & 2002
Purging Air From Foam Pump





- Enter Simulated Mode:
  - In Flow mode push <u>both bottom buttons simultaneously</u>
- Turn Cal/Injection valve to Cal/Flush position
- Push <u>RED</u> button to run
- Run until foam concentrate is flowing steadily out the Cal/Flush line
- Push <u>RED</u> button to stop
- Turn Cal/Injection valve back to Inject
- Exit Simulated Flow mode
  - In Flow mode push <u>both bottom buttons simultaneously</u>

FOAMPRO
Precision foam every time

TurboFoam
Purging Air From Foam Pump

- Push the manual mode by push and hold the ON/OFF & PRESET after 3 seconds and the display change.
- Turn cal/inject valve to calibrate flush.
- Using the +/- you can change the water flow and injection rate.
- Turn system on and run till air has been purged from system.
- Press both the +/- and hold for 3 seconds to exit

FOAMPRO
Precision foam every time

Model 1600 & 1601 Calibration and Setup

- **System Setup Procedure**
  - Calibration process will make adjustment for the flowmeter and foam pump
  - Calibrate to any units of measurement
    - U.S., Metric, Imperial, etc
    - Use the same measure through entire process

FOAMPRO
Precision foam every time

Calibration and Setup

- Turn the CAL/INJECT valve to the CAL/FLUSH position, provide a container to collect the output from the foam pump
- Start the main known water flow
- Accurately measure the water flow with a pitot gauge if possible
- Set the injection rate
- Turn ON the system and run it for 5 minutes

FOAMPRO
Precision foam every time

Calibration and Setup

- **Measure the amount of output and compare it to the calculated amount, (main flow rate, times injection rate, times minutes flowed) 100 gpm, X 0.005 (0.5%) injection rate, X 2 minutes = 1.0 gal. out**
- **If the amount is significantly different**
  - Remove the small black screw on the side of the motor driver box with a 3/32 allen wrench

Model 1600 & 1601
Features & Operation Instructions

- **1600 Series Controller**
  - Operating Instructions
  - Low concentrate light

- **1600 Series Motor Driver Box**
  - Circuit breaker
  - Simulated flow

FOAMPRO
Precision foam every time

Operating Instructions Display Messages

- The Light blinks twice per second
  - LOW concentrate in foam tank
- The light is on solid after a successful start-up, and has been operating
  - System has been out of concentrate for more then two minutes and the foam systems is not operating
- The light blinks once per second
  - Simulated flow feature is turned on
- The Light blinks five times per second
  - No pump feed back from the speed sensor

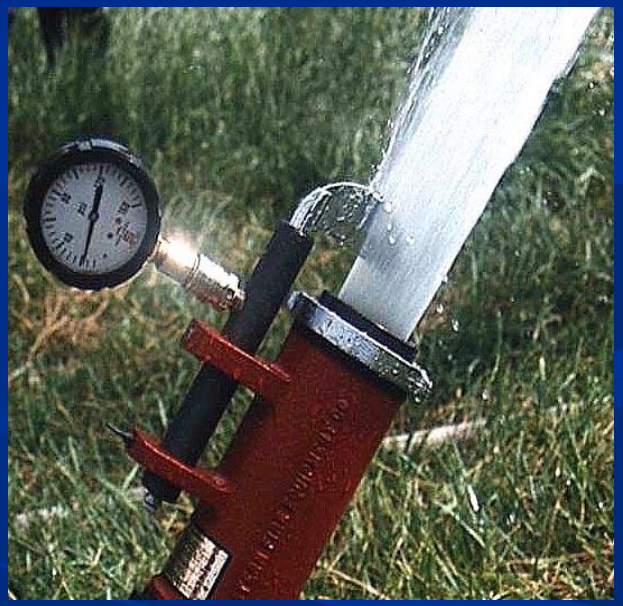
FOAMPRO
Precision foam every time

Model 2001 & 2002 Calibration and Setup

- **System Setup Procedure**
  - Calibration process will make adjustments to flowmeter(s) and foam pump display readings
  - Calibration to any unit of measure:
    - U.S., Metric, Imperial, etc
    - Use same measure through entire process
  - IMPORTANT: Both the foam pump and flowmeter settings must be calibrated

Calibration and Setup

- Accurately measure the water flow with a pitot gauge
- Press the UP or Down button to match the exact flow
- Increase or decrease flows, recheck gpm and adjust
- Exit Calibration and Setup mode



FOAMPRO
Precision foam every time

Calibration and Setup

- Place a graduated measure container beneath the outlet of the hose
- Use a minimum of a 5 gallon container for 2000 series system
- Press the RED FOAM button

FOAMPRO
Precision foam every time

Operating Instructions

- **Display Information**

- **FLOW**
  - Current flow rate or foam solution in gpm
- **TOTAL WATER**
  - Total amount of water or foam solution flowed
- **% (Percent)**
  - Foam concentrate injection rate and selected tank PA or Pb
- **TOTAL FOAM**
  - Total amount of foam concentrate pump by selected tank

FOAMPRO
Precision foam every time

Operating Instructions
Display Messages

- **When <u>Lo con</u> is Displayed**
  - Selected foam concentrate tank is getting low
  - If foam concentrate is added within 2 minutes <u>Lo con</u> goes out
  - If no foam concentrate is added within 2 minutes <u>no con</u> is displayed
- **When <u>no con</u> is Displayed**
  - Foam concentrate pump will not run
  - Add foam concentrate until <u>no con</u> display goes out then push Red Foam button to start the foam pump

FOAMPRO
Precision foam every time

Operating Instructions
Display Messages

- **Hi Flo display**
  - Occurs when the water flow and selected foam concentrate injection percentage exceeds the foam pump capabilities
  - Informs pump operator when this situation occurs
  - Lower the foam concentrate injection percentage or water flow to stop the flashing Hi Flo display
  - The system is still injecting concentrate, it is at a rate of 100 % of it maximum capability

Operating Instructions
Display Messages

- Pump error; if pump motor does not run or stalls for 10 seconds the display shows “ERR.EL,” indicating no pump feedback to the digital control head.
- See section 12 of the OIPM for the Diagnostic procedure

Diagnostics

- **Entering Diagnostic Mode**
  - Enter the diagnostic mode:
    - With a 3/32” Allen wrench remove right cover screw
    - With the Allen wrench, depress and release the switch inside the screw opening
    - Digital Display Control Module will show HELLO
  - Exit the calibration and setup mode:
    - With the Allen wrench depress and release the switch again inside the screw opening
    - The word HYPRO will appear followed by a 0

Diagnostics

- **Diagnostic Mode Functions**
  - Enter diagnostic mode
    - SELECT will select the various modes
    - NONE pressing the UP button will display segments and status indicator lights,
    - FLOW shows the current number of flow pulses being received each second, from the flowmeter
    - TOTAL WATER tests the low level tank sensor, Lo con indicates tank empty, HI con indicates foam in tank

FOAMPRO
Precision foam every time

Diagnostics

- % (Percent) reflect the duty cycle to run the foam pump. Press the FOAM button, the pump will run at a selected speed, this tests the motor control box and pump hook up. Press TOTAL FOAM button to see reading
- TOTAL FOAM the value shown is the current number of pump pulses being received per second. This tests the pump feedback speed sensor and wiring
- Exit diagnostic mode

FOAMPRO
Precision foam every time

Plumbing Component Installation

- **Foam Pump/Motor Base Assembly**
  - After mounting remove RED shipping plug and replace with vented BLACK oil dipstick
  - Check dipstick and/or sight glass for oil level

FOAMPRO
Precision foam every time

Unit 8
Service

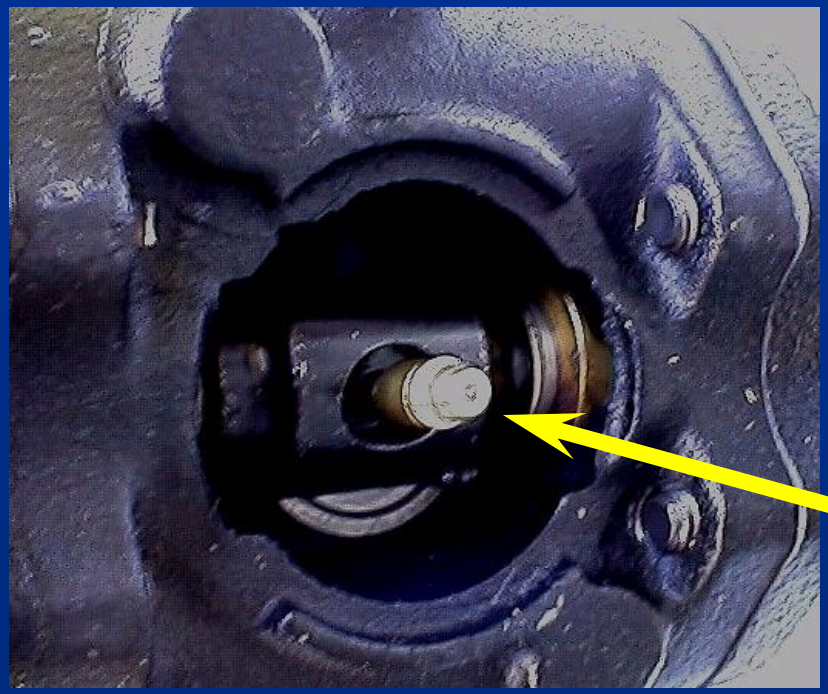
FOAMPRO
Precision foam every time

Hypro - FoamPro Maintenance of Strainer

- **Foam Concentrate Strainer**
  - Cleaned out regularly

FOAMPRO
Precision foam every time

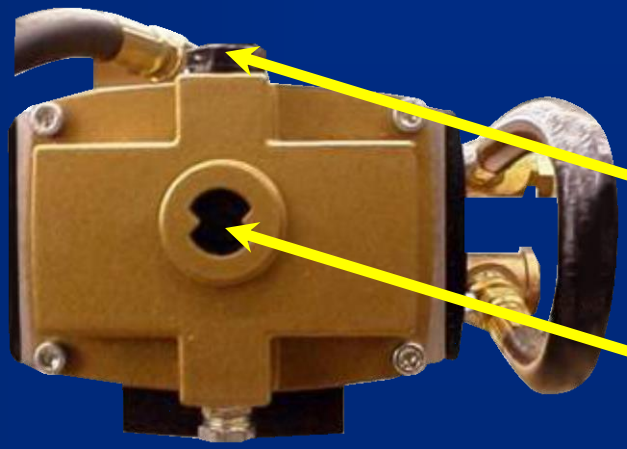
Maintenance of the 1600 Series



- **1600 Series Maintenance**
  - Grease Fitting (under protective cap)
  - Grease once a year

FOAMPRO
Precision foam every time

Maintenance of the 2000 Series



- **Foam Concentrate Strainer**
  - Cleaned out regularly
  - When the foam pump is running and a little or no foam concentrate is being injected, check for clogged strainer
  - Always after cleaning strainer purge all air from the foam system
- **Foam Concentrate Pump Oil**
  - Check dip stick at top of pump

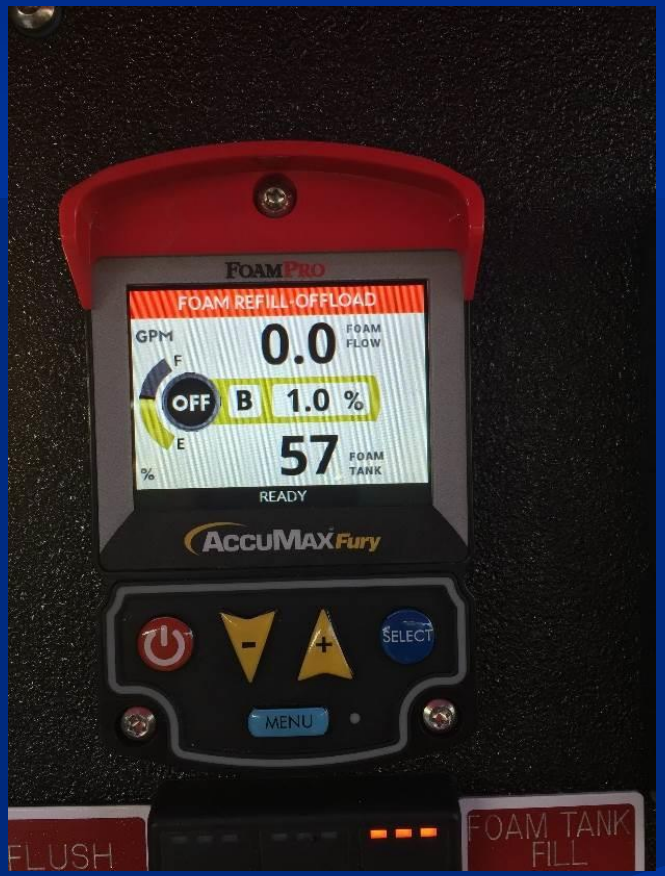
    Or
  - Check site glass to see if full

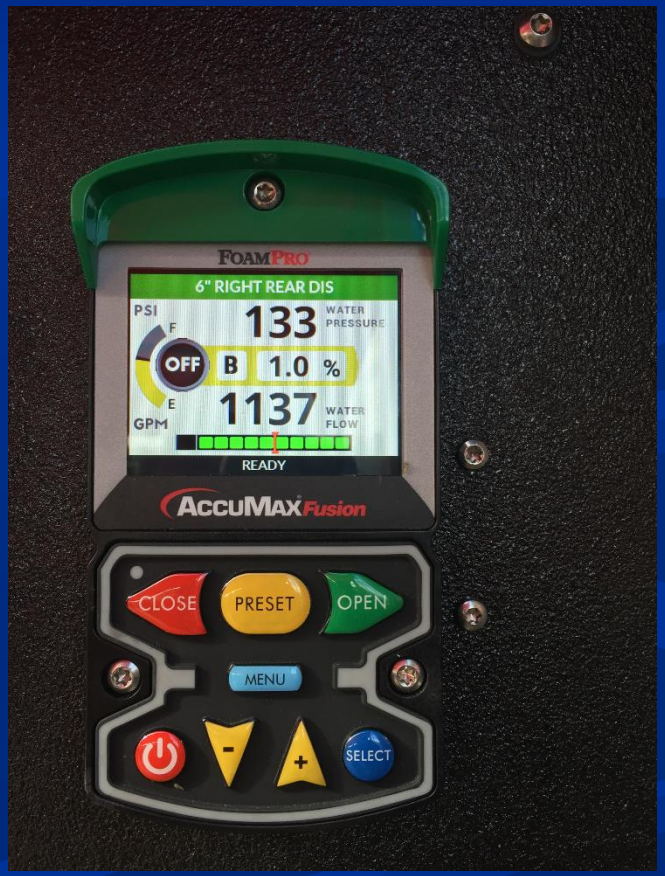
FOAMPRO
Precision foam every time

AccuMax II

FOAMPRO
Precision foam every time

Fure and Fusion Controllers



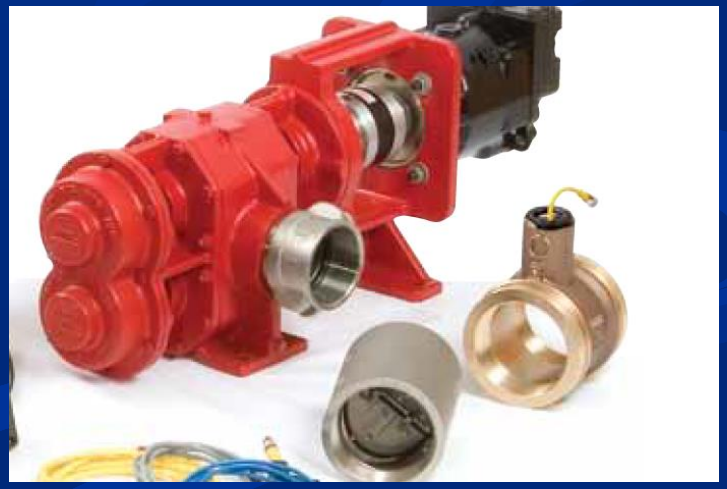


FOAMPRO
Precision foam every time

Hydraulic Driver

FOAMPRO
Precision foam every time

Foam Pump Selections



FOAMPRO
Precision foam every time

Questions / Comments

Daniel Richardson
FoamPro/Fire Research Corp.
Office: 816-892-3150
Cell: 651-402-3102

FOAMPRO
Precision foam every time