FoamMix Flex Foaming System

Customer Product Manual
Part 1129048_01
Issued 12/20

This document contains important safety information. Be sure to read and follow all safety information in this document and any other related documentation.

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FoamMix Flex Foaming System

Safety

Read this section before using the equipment. This section contains recommendations and practices applicable to the safe installation, operation, and maintenance (hereafter referred to as “use”) of the product described in this document (hereafter referred to as “equipment”). Additional safety information, in the form of task-specific safety alert messages, appears as appropriate throughout this document.

WARNING! Failure to follow the safety messages, recommendations, and hazard avoidance procedures provided in this document can result in personal injury, including death, or damage to equipment or property.

Safety Alert Symbols

The following safety alert symbol and signal words are used throughout this document to alert the reader to personal safety hazards or to identify conditions that may result in damage to equipment or property. Comply with all safety information that follows the signal word.

WARNING! Indicates a potentially hazardous situation that, if not avoided, can result in serious personal injury, including death.

CAUTION! Indicates a potentially hazardous situation that, if not avoided, can result in minor or moderate personal injury.

CAUTION! (Used without the safety alert symbol) Indicates a potentially hazardous situation that, if not avoided, can result in damage to equipment or property.

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Responsibilities of the Equipment Owner

Equipment owners are responsible for managing safety information, ensuring that all instructions and regulatory requirements for use of the equipment are met, and for qualifying all potential users.

Safety Information

- Research and evaluate safety information from all applicable sources, including the owner-specific safety policy, best industry practices, governing regulations, material manufacturer's product information, and this document.
- Make safety information available to equipment users in accordance with governing regulations. Contact the authority having jurisdiction for information.
- Maintain safety information, including the safety labels affixed to the equipment, in readable condition.

Instructions, Requirements, and Standards

- Ensure that the equipment is used in accordance with the information provided in this document, governing codes and regulations, and best industry practices.
- If applicable, receive approval from your facility's engineering or safety department, or other similar function within your organization, before installing or operating the equipment for the first time.
- Provide appropriate emergency and first aid equipment.
- Conduct safety inspections to ensure required practices are being followed.
- Re-evaluate safety practices and procedures whenever changes are made to the process or equipment.

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User Qualifications

Equipment owners are responsible for ensuring that users:

- receive safety training appropriate to their job function as directed by governing regulations and best industry practices
- are familiar with the equipment owner's safety and accident prevention policies and procedures
- receive equipment and task-specific training from another qualified individual

  NOTE: Nordson can provide equipment-specific installation, operation, and maintenance training. Contact your Nordson representative for information

- possess industry- and trade-specific skills and a level of experience appropriate to their job function
- are physically capable of performing their job function and are not under the influence of any substance that degrades their mental capacity or physical capabilities

Applicable Industry Safety Practices

The following safety practices apply to the use of the equipment in the manner described in this document. The information provided here is not meant to include all possible safety practices, but represents the best safety practices for equipment of similar hazard potential used in similar industries.

Intended Use of the Equipment

- Use the equipment only for the purposes described and within the limits specified in this document.
- Do not modify the equipment.
- Do not use incompatible materials or unapproved auxiliary devices. Contact your Nordson representative if you have any questions on material compatibility or the use of non-standard auxiliary devices.

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Instructions and Safety Messages

- Read and follow the instructions provided in this document and other referenced documents.
- Familiarize yourself with the location and meaning of the safety warning labels and tags affixed to the equipment. Refer to *Safety Labels and Tags* at the end of this section.
- If you are unsure of how to use the equipment, contact your Nordson representative for assistance.

Installation Practices

- Install the equipment in accordance with the instructions provided in this document and in the documentation provided with auxiliary devices.
- Ensure that the equipment is rated for the environment in which it will be used. This equipment has not been certified for compliance with the ATEX directive nor as nonincendive and should not be installed in potentially explosive environments.
- Ensure that the processing characteristics of the material will not create a hazardous environment. Refer to the Safety Data Sheet (SDS) for the material.
- If the required installation configuration does not match the installation instructions, contact your Nordson representative for assistance.
- Position the equipment for safe operation. Observe the requirements for clearance between the equipment and other objects.
- Install lockable power disconnects to isolate the equipment and all independently powered auxiliary devices from their power sources.
- Properly ground all equipment. Contact your local building code enforcement agency for specific requirements.
- Ensure that fuses of the correct type and rating are installed in fused equipment.
- Contact the authority having jurisdiction to determine the requirement for installation permits or inspections.

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Operating Practices

- Familiarize yourself with the location and operation of all safety devices and indicators.
- Confirm that the equipment, including all safety devices (guards, interlocks, etc.), is in good working order and that the required environmental conditions exist.
- Use the personal protective equipment (PPE) specified for each task. Refer to *Equipment Safety Information* or the material manufacturer's instructions and SDS for PPE requirements.
- Do not use equipment that is malfunctioning or shows signs of a potential malfunction.

Maintenance and Repair Practices

- Allow only personnel with appropriate training and experience to operate or service the equipment.
- Perform scheduled maintenance activities at the intervals described in this document.
- Relieve system hydraulic and pneumatic pressure before servicing the equipment.
- De-energize the equipment and all auxiliary devices before servicing the equipment.
- Use only new Nordson-authorized refurbished or replacement parts.
- Read and comply with the manufacturer's instructions and the SDS supplied with equipment cleaning compounds.

  NOTE: SDSs for cleaning compounds that are sold by Nordson are available at www.nordson.com or by calling your Nordson representative.

- Confirm the correct operation of all safety devices before placing the equipment back into operation.
- Dispose of waste cleaning compounds and residual process materials according to governing regulations. Refer to the applicable SDS or contact the authority having jurisdiction for information.
- Keep equipment safety warning labels clean. Replace worn or damaged labels.

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Equipment Safety Information

This equipment safety information is applicable to the following types of Nordson equipment:

- hot melt and cold adhesive application equipment and all related accessories
- pattern controllers, timers, detection and verification systems, and all other optional process control devices

Equipment Shutdown

To safely complete many of the procedures described in this document, the equipment must first be shut down. The level of shut down required varies by the type of equipment in use and the procedure being completed.
If required, shut down instructions are specified at the start of the procedure.
The levels of shut down are:

Relieving System Hydraulic Pressure

Completely relieve system hydraulic pressure before breaking any hydraulic connection or seal. Refer to the melter-specific product manual for instructions on relieving system hydraulic pressure.

De-energizing the System

Isolate the system (melter, hoses, applicators, and optional devices) from all power sources before accessing any unprotected high-voltage wiring or connection point.

1. Turn off the equipment and all auxiliary devices connected to the equipment (system).
2. To prevent the equipment from being accidentally energized, lock and tag the disconnect switch(es) or circuit breaker(s) that provide input electrical power to the equipment and optional devices.

   NOTE: Government regulations and industry standards dictate specific requirements for the isolation of hazardous energy sources. Refer to the appropriate regulation or standard.

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Disabling the Applicators

NOTE: Adhesive dispensing applicators are referred to as “guns” in some previous publications.

All electrical or mechanical devices that provide an activation signal to the applicators, applicator solenoid valve(s), or the melter pump must be disabled before work can be performed on or around an applicator that is connected to a pressurized system.

1. Turn off or disconnect the applicator triggering device (pattern controller, timer, PLC, etc.).
2. Disconnect the input signal wiring to the applicator solenoid valve(s).
3. Reduce the air pressure to the applicator solenoid valve(s) to zero; then relieve the residual air pressure between the regulator and the applicator.

General Safety Warnings and Cautions

Table 1 contains the general safety warnings and cautions that apply to Nordson hot melt and cold adhesive equipment. Review the table and carefully read all of the warnings or cautions that apply to the type of equipment described in this manual.

Equipment types are designated in Table 1 as follows:

HM = Hot melt (melters, hoses, applicators, etc.)

PC = Process control

CA = Cold adhesive (dispensing pumps, pressurized container, and applicators)

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Table 1 General Safety Warnings and Cautions

Equipment Type	Warning or Caution
HM	 **WARNING!** Hazardous vapors! Before processing any polyurethane reactive (PUR) hot melt or solvent-based material through a compatible Nordson melter, read and comply with the material's SDS. Ensure that the material's processing temperature and flashpoints will not be exceeded and that all requirements for safe handling, ventilation, first aid, and personal protective equipment are met. Failure to comply with SDS requirements can cause personal injury, including death.
HM	 **WARNING!** Reactive material! Never clean any aluminum component or flush Nordson equipment with halogenated hydrocarbon fluids. Nordson melters and applicators contain aluminum components that may react violently with halogenated hydrocarbons. The use of halogenated hydrocarbon compounds in Nordson equipment can cause personal injury, including death.
HM, CA	 **WARNING!** System pressurized! Relieve system hydraulic pressure before breaking any hydraulic connection or seal. Failure to relieve the system hydraulic pressure can result in the uncontrolled release of hot melt or cold adhesive, causing personal injury.

Continued...

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Table 1 General Safety Warnings and Cautions *(contd)*

Equipment Type	Warning or Caution
HM	**WARNING!** Molten material! Wear eye or face protection, clothing that protects exposed skin, and heat-protective gloves when servicing equipment that contains molten hot melt. Even when solidified, hot melt can still cause burns. Failure to wear appropriate personal protective equipment can result in personal injury.
HM, PC	**WARNING!** Equipment starts automatically! Remote triggering devices are used to control automatic hot melt applicators. Before working on or near an operating applicator, disable the applicator's triggering device and remove the air supply to the applicator's solenoid valve(s). Failure to disable the applicator's triggering device and remove the supply of air to the solenoid valve(s) can result in personal injury.
HM, CA, PC	**WARNING!** Risk of electrocution! Even when switched off and electrically isolated at the disconnect switch or circuit breaker, the equipment may still be connected to energized auxiliary devices. De-energize and electrically isolate all auxiliary devices before servicing the equipment. Failure to properly isolate electrical power to auxiliary equipment before servicing the equipment can result in personal injury, including death.
HM, CA, PC	**WARNING!** Risk of fire or explosion! Nordson adhesive equipment is not rated for use in explosive environments and has not been certified for the ATEX directive or as nonincendive. In addition, this equipment should not be used with solvent-based adhesives that can create an explosive atmosphere when processed. Refer to the SDS for the adhesive to determine its processing characteristics and limitations. The use of incompatible solvent-based adhesives or the improper processing of solvent-based adhesives can result in personal injury, including death.

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General Safety Warnings and Cautions *(contd)*

Equipment Type	Warning or Caution
HM, CA, PC	 **WARNING!** Allow only personnel with appropriate training and experience to operate or service the equipment. The use of untrained or inexperienced personnel to operate or service the equipment can result in injury, including death, to themselves and others and can damage to the equipment.
HM	 **CAUTION!** Hot surfaces! Avoid contact with the hot metal surfaces of applicators, hoses, and certain components of the melter. If contact can not be avoided, wear heat-protective gloves and clothing when working around heated equipment. Failure to avoid contact with hot metal surfaces can result in personal injury.
HM	**CAUTION!** Some Nordson melters are specifically designed to process polyurethane reactive (PUR) hot melt. Attempting to process PUR in equipment not specifically designed for this purpose can damage the equipment and cause premature reaction of the hot melt. If you are unsure of the equipment's ability to process PUR, contact your Nordson representative for assistance.
HM, CA	**CAUTION!** Before using any cleaning or flushing compound on or in the equipment, read and comply with the manufacturer's instructions and the SDS supplied with the compound. Some cleaning compounds can react unpredictably with hot melt or cold adhesive, resulting in damage to the equipment.
HM	**CAUTION!** Nordson hot melt equipment is factory tested with Nordson Type R fluid that contains polyester adipate plasticizer. Certain hot melt materials can react with Type R fluid and form a solid gum that can clog the equipment. Before using the equipment, confirm that the hot melt is compatible with Type R fluid.

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Other Safety Precautions

- Do not use an open flame to heat hot melt system components.
- Check high pressure hoses daily for signs of excessive wear, damage, or leaks.
- Never point a dispensing hand-held applicator at yourself or others.
- Suspend dispensing hand-held applicators by their proper suspension point.

First Aid

If molten hot melt comes in contact with your skin:

1. Do NOT attempt to remove the molten hot melt from your skin.
2. Immediately soak the affected area in clean, cold water until the hot melt has cooled.
3. Do NOT attempt to remove the solidified hot melt from your skin.
4. In case of severe burns, treat for shock.
5. Seek expert medical attention immediately. Give the SDS for the hot melt to the medical personnel providing treatment.

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System Overview

WARNING! Allow only personnel with appropriate training and experience to operate or service the equipment. The use of untrained or inexperienced personnel to operate or service the equipment can result in injury, including death, to themselves and others, and damage to the equipment.

This manual provides information about the installation, connection and setup of the FoamMix Flex System.

The following Nordson equipment is required to form the advanced foaming system:

- Bulk Unloaders 55-gallon drum or 5-gallon pail melters.

  This system has the capability for having up to two Bulk Unloaders.
- FoamMix Flex Foaming Station
  - Mixing Station
  - Chiller
  - Controls
- Hoses
  - Transfer hose ` I.D ¾ inches
  - Application hose ` I.D ½ inches
- Pro-Meter® VDK dispensing module and controller
  - Servo Driven metering pump
  - Cables
- Nitrogen tank

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See Figure 1 for a complete FoamMix Flex foaming system overview.

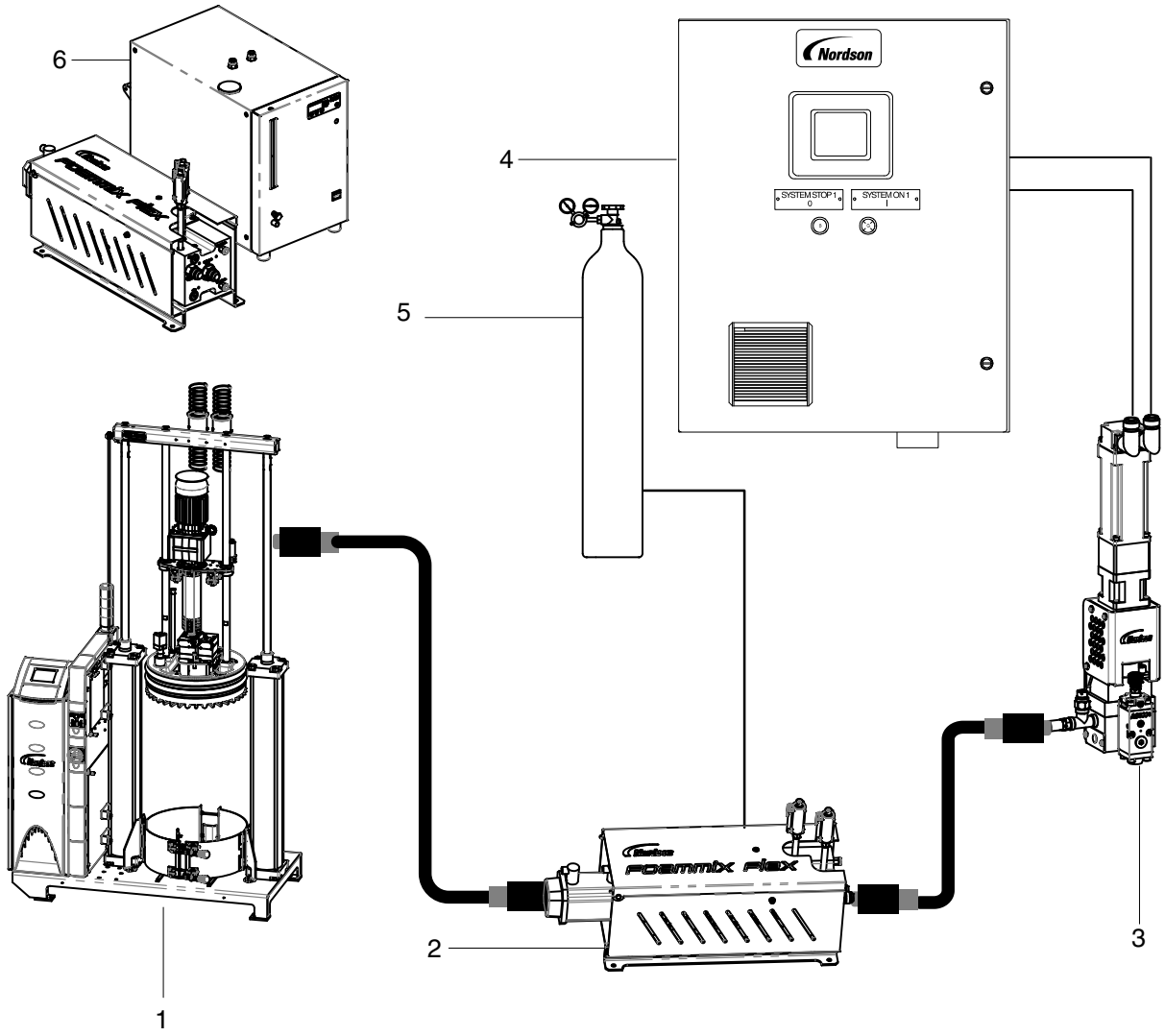

Figure 1 Complete advanced foaming system

1. Bulk Unloaders*
2. FoamMix Flex foaming station
3. ProMeter VDK dispensing module
4. FoamMix Flex/VDK controller
5. Nitrogen tank (customer supplied)
6. FoamMix Flex foaming station with chiller (recommended for some materials)

* If using two Bulk Unloaders use a change-over manifold to connect to the FoamMix Flex.

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System Equipment

A brief description of the Nordson equipment that make up the FoamMix Flex foaming system is given in this section. Refer to the specific product manual for detailed information about installing and operating the equipment listed in this section.

Advanced Foaming Station

The FoamMix Flex foaming station is intended to be used

- for processing UV/RTV silicone
- in conjunction with a bulk melter
- for generating foamed UV/RTV silicone that will be discharged from a ProMeter VDK dispensing module

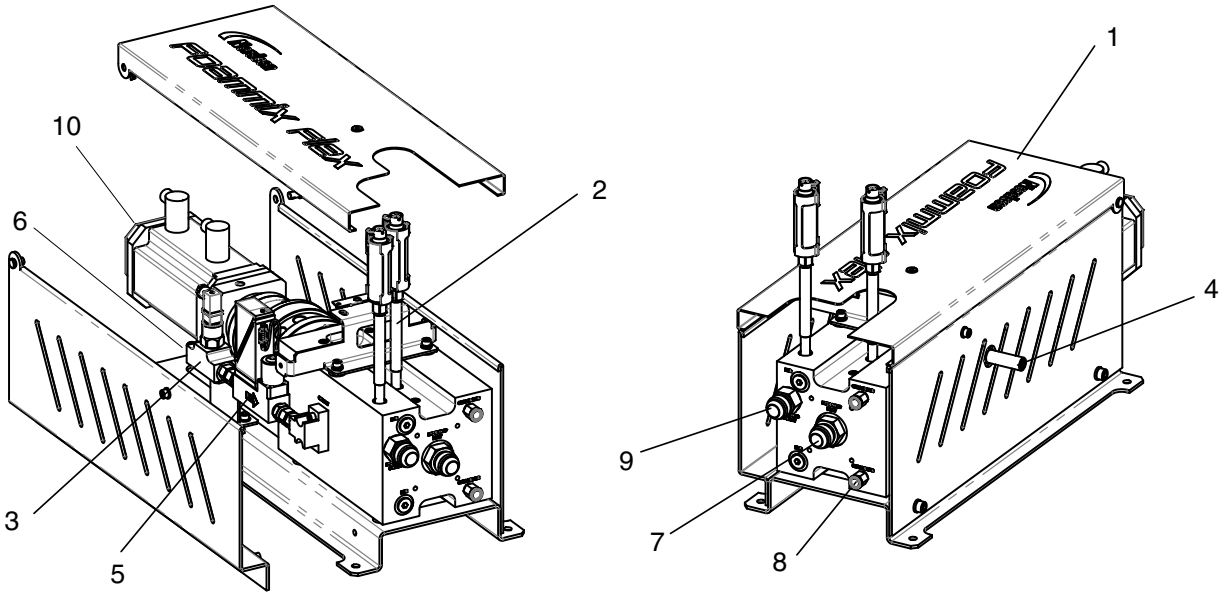

Figure 2 Key features of the FoamMix Flex

1. Mixer assembly
2. Hydraulic transducers
3. Gas transducer
4. Drain valve
5. Gas control valve
6. Gas supply connection 7/16 – 20 JIC
7. Hydraulic inlet connection with check valve – 1-1/16 - 12 JIC
8. Chiller supply connection – 10mm OD hose
9. Hydraulic outlet connection – 1-1/16 - 12 JIC
10. Servo motor and gearbox – mixer

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ProMeter VDK Controller

The VDK controller is used to control the opening and closing of one or more material-dispensing modules. The controller can be operated in the manual mode or the automatic mode:

- In the manual mode, the controller receives a dispense input signal from a customer-supplied device. When the signal is received, the controller triggers the dispensing module(s) to start dispensing at a fixed pump speed. The pump speed can only be adjusted manually through the touch screen panel.
- In the automatic mode, the controller receives a dispense input signal from a customer-supplied device along with a 0-10 VDC analog signal from the customer-supplied control equipment. The input signal starts the dispensing module(s) and the 0-10 VDC signal controls the pump speed proportionately, from 0-100 percent (0-10 VDC).

The VDK controller includes a dual-function output that indicates whether the last amount of material dispensed was within customer-specified limits, and therefore it can also be operated in the volume mode or the flow mode:

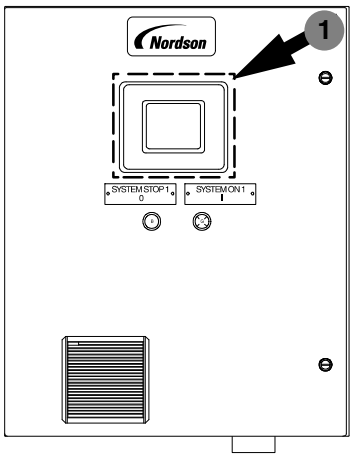

Figure 3 VDK controller

1. VDK controller touch screen panel

- In the volume mode, the output signal indicates that the last dispensed volume amount (the amount of material dispensed between the moment the dispensing module opens and the moment it closes) was within the customer-specified volume limit band. If the amount of material dispensed is not within the band limits, a fault occurs.
- In the flow mode, the output signal indicates whether the current material flow rate (the amount of material flowing per minute at any given point in time) is within the customer-specified flow rate limit band. If the flow rate is not within the band limits, a fault occurs.

  NOTE: VDK controller can also supply a 0-10 VDC signal to customer-supplied equipment for remote monitoring of the volume or flow rate.

User Interface

The touch screen panel on the VDK controller is connected to a programmable logic controller (PLC), which allows you to monitor and reconfigure the FoamMix Flex foaming system settings, see Figure 3.

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ProMeter VDK Dispensing Module

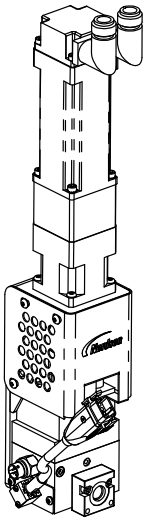

Figure 4 Pro-Meter VDK dispensing module

The dispensing module is designed for use in form-in-place gasketing, bonding, and sealing operations, with heated or unheated materials.

Mounted on the arm, wrist, or end effector of standard industrial controller, the dispensing module meters materials close to the point of application. This close proximity minimizes the effects of supply system pressure variations, material viscosity changes, and drops in system pressure due to material output. The dispensing module achieves precise bead profiles, precise shot weights, consistent gasket sizes, and material savings.

Material can be supplied to the dispensing module by a bulk melter, FoamMix, FoamMelt, or by any other positive-pressure material supply system.

Bulk Melters

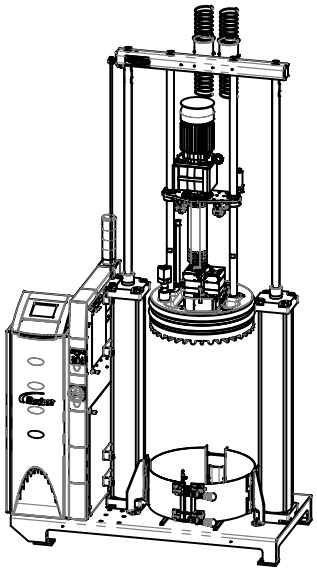

Figure 5 VersaDrum bulk unloader

Up to two Nordson bulk melters may be used in this system to feed suitable materials. Any other use is considered to be unintended. Make sure to observe the Nordson Safety instructions. Nordson will not be liable for personal injury or property damage resulting from unintended use.

NOTE: The Nordson bulk melters used in the FoamMix Flex foaming system do not have heating capability. For any questions, contact your Nordson representative.

Unintended Use

The Nordson bulk melters may not be used under the following conditions:

- In defective condition
- With electrical cabinet door open
- In a potentially explosive atmosphere
- With unsuitable operating/processing materials
- When the values stated under *Technical Data* are not complied with

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The systems may not be used to process the following materials:

- Explosive and flammable materials
- Erosive and corrosive materials
- Food products.

Do not use the platen:

- As a press
- To lift loads

Nitrogen Pressure Regulator (Optional Equipment)

A Nordson supplied nitrogen pressure regulator (P/Ns: 1082050 [high] and 1082051 [low]) is provided with the foaming system. The Nordson-supplied regulator must be used to ensure correct operation of the FoamMix Flex foaming system.

Customer Supplied Equipment

The following Nordson equipment that makes up the FoamMix Flex foaming system needs to be purchased separately:

- FoamMix Flex foaming station
- ProMeter VDK dispensing module
- ProMeter VDK controller
- Bulk melter/unloader
- Nitrogen tank (high or low pressure)

  NOTE: The gas bottle fitting provided on the input of the pressure regulator supplied by Nordson Corporation may not fit your gas bottle. In this case, the fitting and nipple on the input of the gas regulator may need to be changed to adapt to your gas bottle. The input port of the regulator uses a 1/4_NPT thread.

- A 3/4-inch high pressure hose between the Bulk Unloader and the advanced foaming system (various Nordson Corporation part numbers)
- A 3/4-inch high pressure hose between the FoamMix Flex foaming system and ProMeter VDK dispensing module
- Rated power cable

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Installation

This section provides procedures for connecting power the equipment that form the advanced foaming system.

WARNING! Allow only qualified personnel to perform the following tasks. Follow the safety instructions in this document and all other related documentation.

WARNING! Risk of electrocution! Disconnect power to the advanced foaming station at the customer-installed power disconnect switch. Failure to install or properly use the disconnect switch when working inside the advanced foaming unit electrical compartment can result in personal injury, including death.

Mount the Equipment

For details on how to mount the equipment, refer to the following product manuals:

- AltaPail II bulk melter
- Pro-Meter VDK dispensing module
- Pro-Meter VDK controller
- FoamMix Flex foaming station

Connect the FoamMix Flex Foaming System

This section describes how to connect the equipment. For cable part numbers, refer to *Parts Lists* given at the end of this manual.

Connecting the High Pressure Hoses

Refer to the instructions provided with the automatic hose for detailed installation information.

1. Connect a 3/4-inch HP hose from the outlet of the bulk melter and the silicone inlet port of the advanced foaming unit.
2. Connect a 3/4-inch HP hose from the advanced foaming unit outlet to inlet of the ProMeter VDK dispensing module.

   NOTE: If using two Bulk Unloaders, use a change-over manifold to connect to the advanced foaming station.

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Connecting the Nitrogen Supply

WARNING! Risk of Explosion. Compressed gas cylinders can explode or act as projectiles if punctured or the valve assembly is damaged. Ensure that the nitrogen cylinder is restrained in an upright position and placed where it cannot be damaged by moving equipment.

1. Restrain the nitrogen cylinder.
2. Install the Nordson or customer supplied nitrogen pressure regulator on the nitrogen cylinder. Ensure that the regulator control knob is turned fully counterclockwise (no pressure).

   NOTE: The Nordson-supplied nitrogen pressure regulator has two adjustment knobs, the stainless steel knob is factory set and locked. **DO NOT** adjust this knob or foam quality will be adversely affected.

   NOTE: If the Nordson pressure regulator is used with your system it may be either a 6000 psi high-pressure regulator (P/N 1082050) or a 3000 psi low-pressure regulator (P/N 1082051).
3. Remove the shipping plug from the gas supply connection and then install the gas line adapter fitting (P/N 713411) provided in the installation kit. PTFE tape is provided for this installation.
4. Connect the reinforced PTFE gas line (P/N 332930) between the regulator output and the gas supply connection on the advanced foaming unit. A PTFE tape is provided in the installation kit.
5. Open the gas regulator and check for gas leaks at both ends of the gas line. Leak testing solution is provided in the installation kit.

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Connecting the ProMeter VDK Controller

WARNING! Risk of equipment damage, personal injury, or death. Disconnect and lock out electrical power.

1. Disconnect and lock out electrical power at the plant circuit breaker.

WARNING! Operate only at the operating voltage shown on the ID plate.

NOTE: Permitted deviation from the rated line voltage is ±10%.

2. Route an electrical service line that meets the following requirements to the controller:

Voltage	Electrical Service Line
240 VAC, single- phase, 25 A	3.3 mm^2 (12 AWG), 90 _C (194 _F)

3. Route the electrical service wiring through the strain relief and into the controller.
4. Connect the electrical service wiring to terminals 1 and 3 on -1Q11, the main disconnect switch. Refer to the unit wiring diagram for details.
5. Connect the ground wire to PE ground terminal for the main disconnect switch.

   NOTE: If the plant electrical system is not grounded, make sure that the ground wire connected to PE is attached to a reliable earth ground.

6. Verify that the -1Q21 main circuit breaker is in the ON state.

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ProMeter VDK Controller Connectors

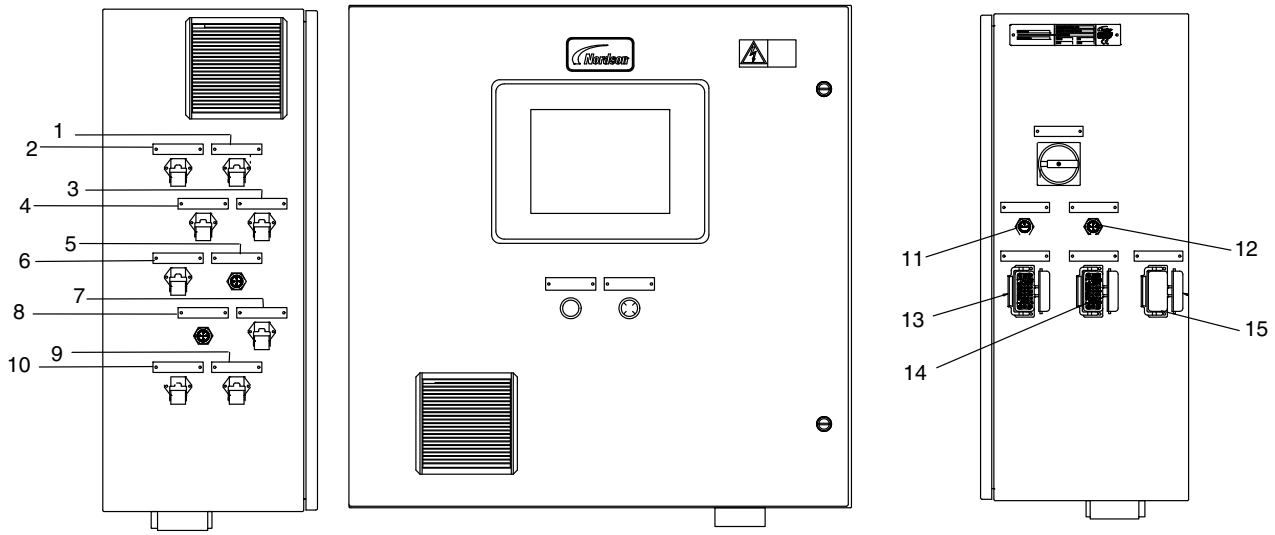

Figure 6 ProMeter VDK controller connectors

Cable	Connector Type	Cable	Connector Type
1	Trigger/Volume Interface 1	9	Sealant Flow Meter 2
2	Digital/Analog Interface 1	10	Gas Control Valve
3	Pressure Transducer 1	11	Melter 1 Motor Enable
4	Applicator Control 1	12	Melter 2 Motor Enable
5	Inlet Sealant Pressure	13	Melter 1 Interface
6	Inlet Gas Pressure	14	Melter 2 Interface
7	Sealant Flow Meter 1	15	Customer Interface
8	Outlet Foam Pressure		

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Connecting the FoamMix Flex Foaming Station to the ProMeter VDK Controller

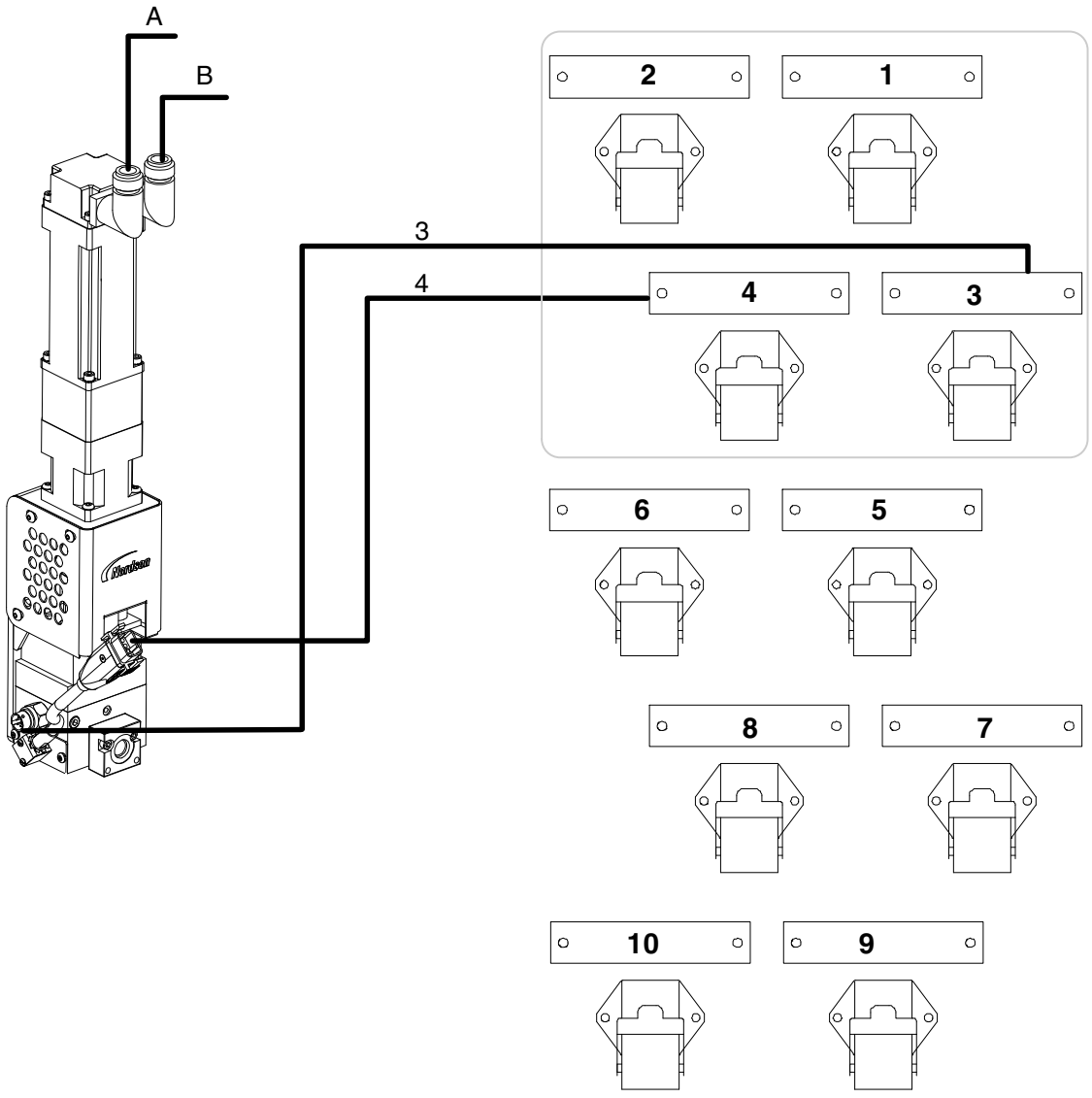

Figure 7 FoamMix Flex foaming station to VDK controller connections

Cable	Connector Details	Purpose
A	Cable is connected internally from the VDK dispensing module to the VDK controller servo drive.	Motor power
B		Encoder
3	Cable is connected from the VDK dispensing module to the *Pressure Transducer 1* on the VDK controller.	Pressure Transducer 1
4	Cable is connected from the VDK dispensing module to the *Applicator Control 1* on the VDK controller.	Solenoid

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Connecting the FoamMix Flex Foaming Station to the ProMeter VDK Controller

See Figure 8.

Cable	Connector Details
C	Cable is connected internally from the FoamMix Flex mixer servo motor to the VDK controller servo drive.
D	
5	Cable is connected from the *Inlet Sealant Pressure* connection on the FoamMix Flex foaming station to the VDK controller.
6	Cable is connected from the *Inlet Gas Pressure* connection on the FoamMix Flex foaming station to the VDK controller.
7	Cable is connected from the *Sealant Flow Meter* connection on the FoamMix Flex foaming station to the VDK controller.
8	Cable is connected from the *Outlet Foam Pressure* connection on the FoamMix Flex foaming station to the VDK controller.
9	Cable is connected from the *Mixer Motor* connection on the FoamMix Flex foaming station to the VDK controller.
10	Cable is connected from the *Gas Control Valve* connection on the FoamMix Flex foaming station to the VDK controller.

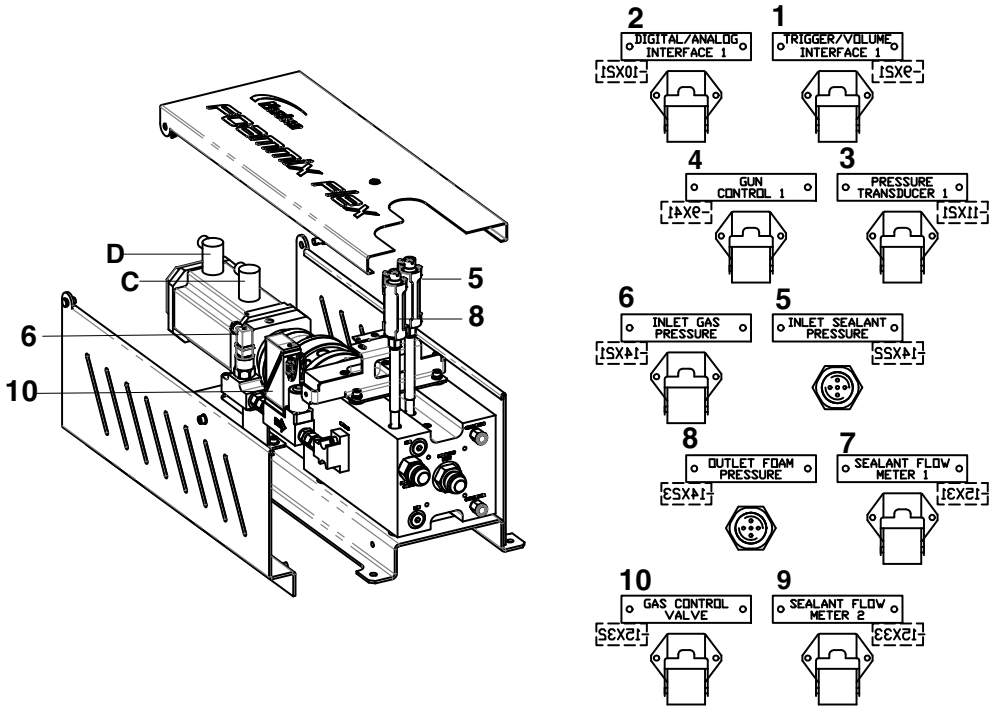

Figure 8 FoamMix Flex foaming station to VDK controller connections

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Connecting Bulk Unloader 1 and 2 to the FoamMix Flex Foaming Station

WARNING! Risk of electrocution! Disconnect power to the FoamMix Flex unit at the customer-installed power disconnect switch. Failure to install or properly use the disconnect switch when working inside the FoamMix Flex unit electrical compartment can result in personal injury, including death.

The FoamMix Flex foaming station requires an output signal from the bulk melter in order to operate. Standard bulk melter outputs 1, 2, or 3 can be used to provide this signal. By using multiple melter outputs, a single melter can support multiple foaming stations. Refer to the Bulk Unloader manual for information about setting up melter outputs.

NOTE: If using two Bulk Unloaders, use a change-over manifold to connect to the FoamMix Flex foaming station.

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To Connect the Signal Cable

See Figures 9 and 10 on page 27.

1. Disconnect power to the FoamMix Flex foaming station at the customer-installed power disconnect switch.
2. At the bulk melter, install the strain relief provided in the installation kit into an available electrical penetration. Refer to the Bulk Unloader manual for the location of the electrical penetrations.
3. Route the signal cable provided in the installation kit through the strain relief and into the melter's electrical compartment.
4. Connect the two signal wires to the any pair of available output terminals, and then tighten the strain relief. Refer to the Bulk Unloader manual for the location of the output terminal block.
5. When supplying two or more FoamMix Flex foaming stations from a single melter, each unit must be connected to a discreet bulk melter output.
6. Route the signal cable over to the FoamMix Flex foaming station.
7. Run the end of the signal cable through the strain relief provided in the installation kit (P/N 306366), and then into the signal cable penetration on Side 3 of the FoamMix Flex foaming station.
8. Remove the panel from Side 1.
9. Route the signal cable through the inside of the FoamMix Flex foaming station, and then connect the two signal wires to terminals 1 and 2 for 120V units or terminal 1 and terminals 4, 5, or 6.
10. Thread the strain relief onto the side of the FoamMix Flex foaming station and tighten it securely.

To Set Up the Output Signal at the Bulk Melter

1. Refer to the Bulk Unloader manual for detailed information about how to set up bulk melter outputs. Standard bulk melter outputs 1, 2, and 3 are controlled respectively by parameters 40, 41, and 42.
2. Set the control option for the appropriate output parameter to option 2, *Ready and the motor is on*.

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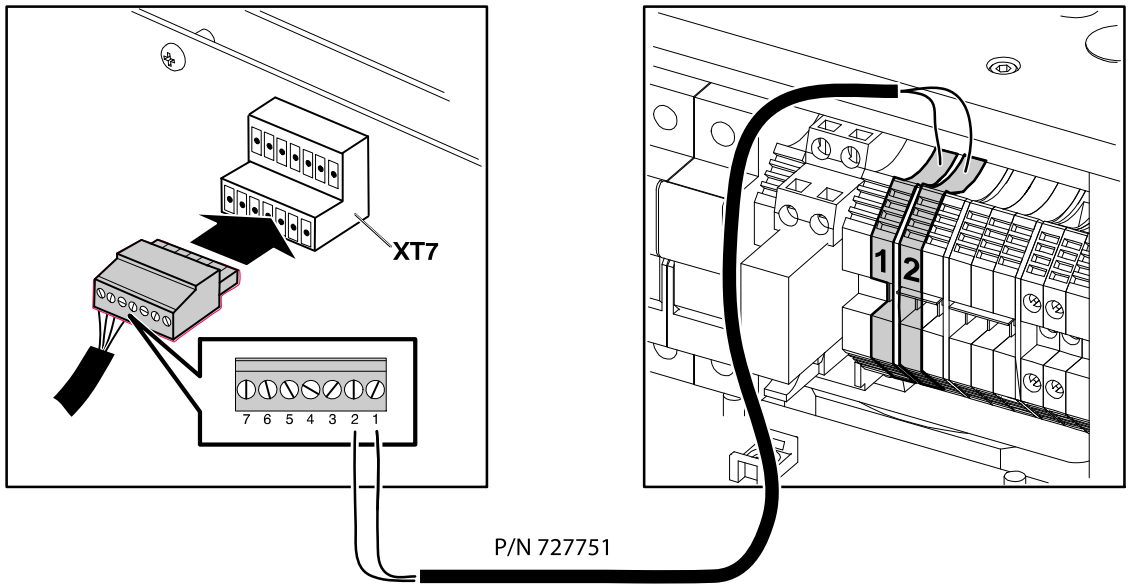

Figure 9 120V unit signal cable connection

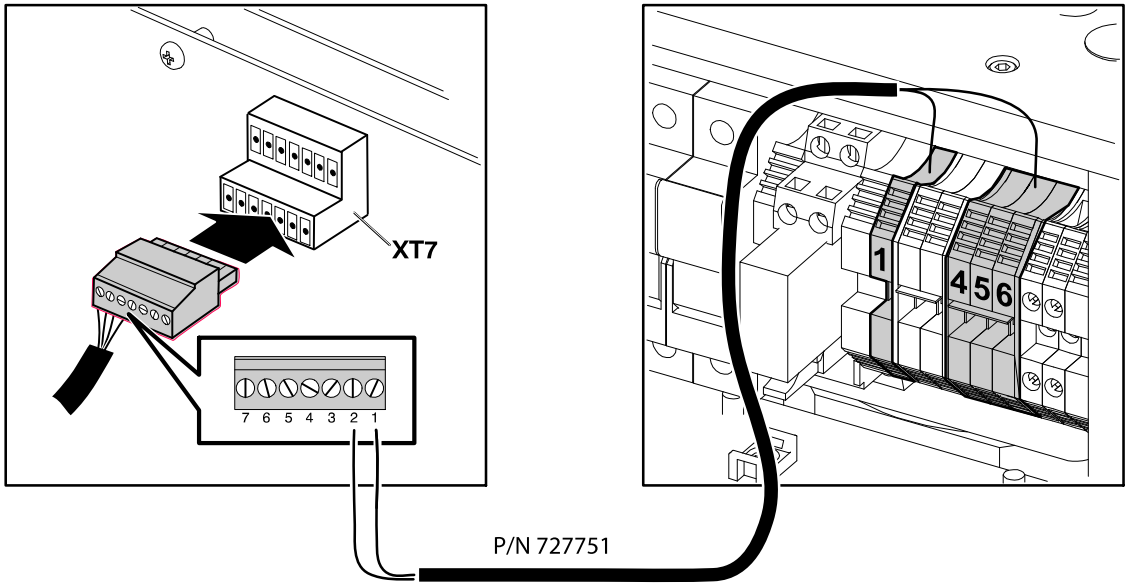

Figure 10 240V unit signal cable connection

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About the Main Screen

The VDK controller touch screen panel is shipped from the factory with most software settings pre-configured and ready to use. However, there are some settings that you may need to configure and fine tune to best fit your manufacturing process.

Main Screen

The components on the Main screen let you navigate various screens for setting up and operating the FoamMix Foaming system.

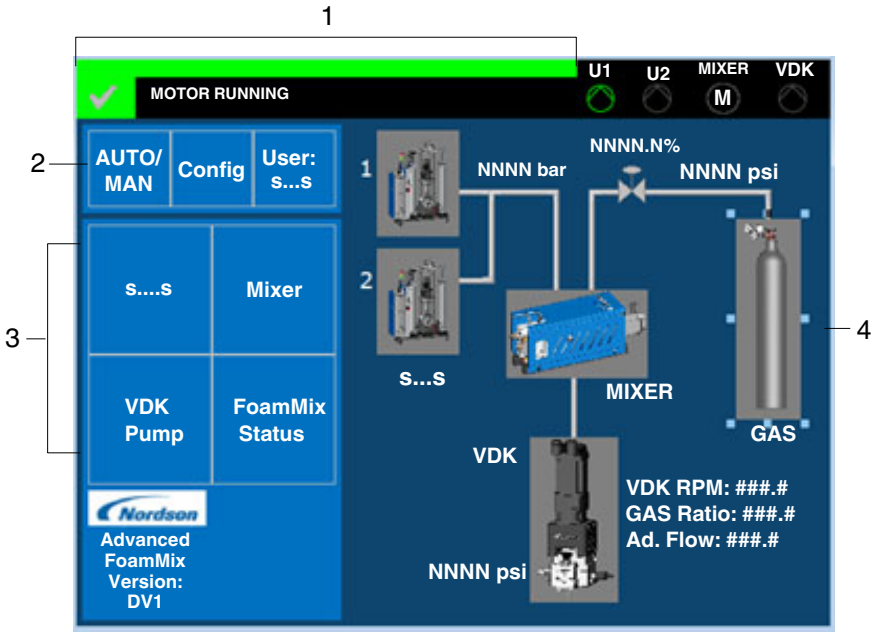

Figure 11 Main screen components

1. Status area
2. Quick Navigation area
3. Navigation area
4. Setting and Information display area

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Status Area

The Status area is always visible at the top of the screen. It displays general system status and the individual status of main components. Touching the Status text area lets you navigate to the Alarms section of the application.

The Status area consists of the following components:

Figure 12 Status area components

Item	Component	Function
1	Status Symbol and Color	Displays the system state. For information on the colors displayed in this area, see the next section *Status Displays*.
2	Status Text Area	Displays the current system status.
3		Displays the current Unloader 1 status.
4		Displays the current Unloader 2 status.
5		Displays the current mixer status.
6		Displays the current VDK pump status.

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Status Displays

The text and color of the status display in the Main Status area changes depending on the system functionalities being used and the system status. Refer to the following table for a description of the different states.

System Status Color	System Status Text	State Description
	OFF	System is not functioning.
	NOT READY	Bulk Unloader 1 and/or 2 is in ready state.
	Bulk Unloader 1 EMPTY	Bulk Unloader 1 and/or 2 is empty.
	COLLECTIVE FAULT	Pump has stopped because a major alarm event has occurred.
	SYSTEM READY	No faults. The system is ready to run.
	MOTOR RUNNING	VDK dispensing module has started.
	COLLECTIVE WARNING	Does not stop the machine, but a minor alarm event has occurred.
	STARTUP PROTECTION	Not used. Reserved for future functionalities.
	DATA OUT OF RANGE	Last entered data is not a valid range.

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Quick Navigation Area

See Figure 11 on page 28. Depending on the actual display, the Quick Navigation area can display any of the following navigation buttons.

Quick Navigation Button	Function
	Opens the One Shot AUTO/MANUAL screen for all system components.
	Opens the System Configuration screen.
	Opens the Log In screen.
	Opens the previous or parent screen.
	Opens the Main screen.
	Opens the FoamMix System Status screen.

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Navigation Area

The Navigation area lets you access screens for the major component groups, including unloaders, mixer, VDK pump, and FoamMix status.

NOTE: If you are already inside a screen group, this area is used to navigate between the screen in the respective group. The active screen will be highlighted in white.

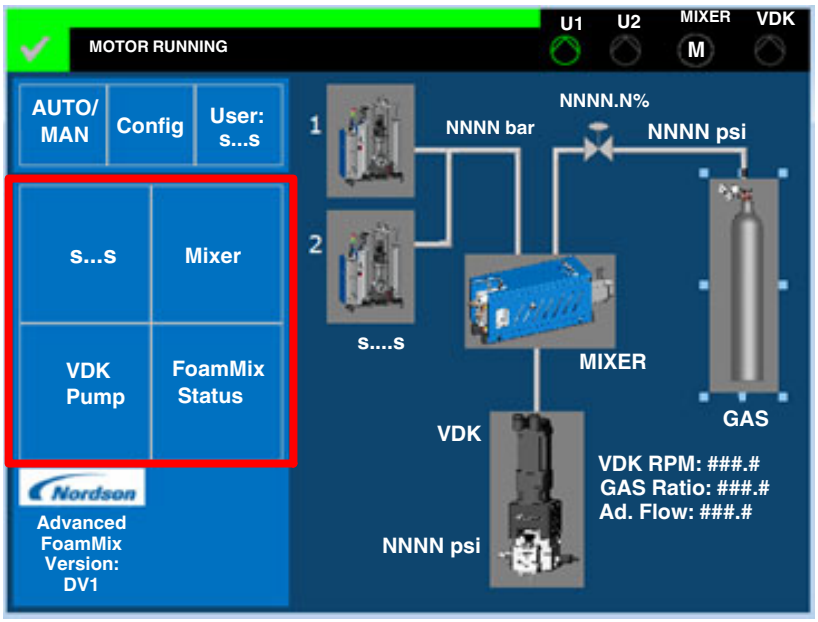

Figure 13 Navigation area

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Settings and Information Display Area

For the Main screen, the Settings and Information Display area displays an overview of the system and values for main process variables. For all other screens, it displays settings and process variables.

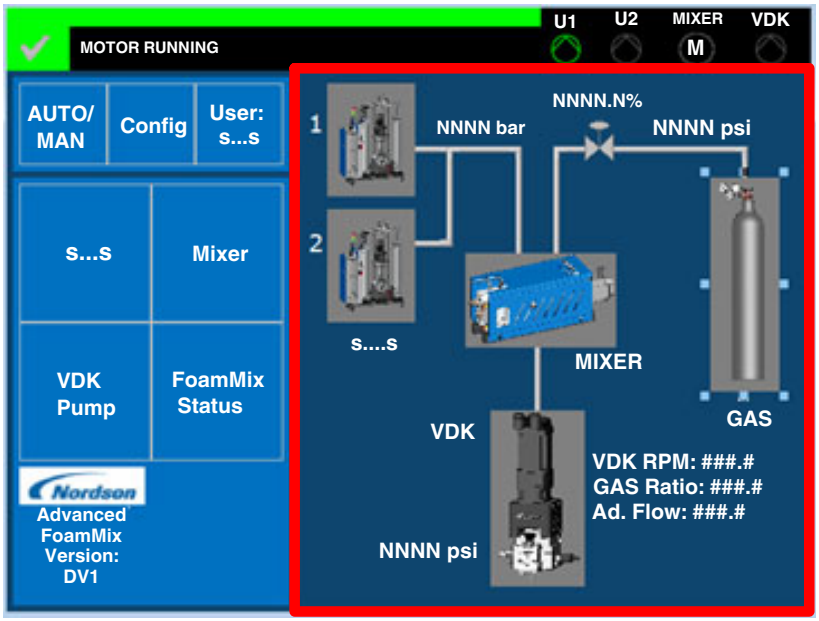

Figure 14 Settings and Information Display area

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Main Screen Buttons

See Figure 11 on page 28. The Main Screen buttons change color depending on the equipment state.

Bulk Melter 1 and 2

The button colors shown in the following table describe the different states of the bulk melter.

Button	Color	State
	Black	Inactive/System off
	Blue	AltaPail bulk melter empty or low
	Green	Ready for operation
	Red	AltaPail bulk melter not ready for operation

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ProMeter VDK Dispensing Module

The button colors shown in the following table describe the different states of the VDK dispensing module.

Button	Color	State
	Black	Inactive/System off
	Green	Ready or running
	Red	Active fault has occurred: • Pressure *and/or* • Drive

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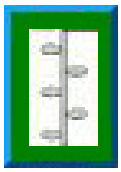
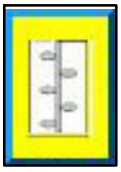
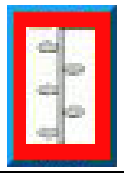
FoamMix Flex Foaming Station - Mixer

The button colors shown in the following table describe the different states of the advanced foaming station.

Button	Color	State
	Black	Inactive/System off
	Green	Running
	Yellow	A warning, specifically a pressure related issue with the FoamMix Flex foaming station
	Red	Active fault has occurred

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Nitrogen Tank

The button colors shown in the following table describe the different states of the nitrogen tank.

Button	Color	State
	Black	Inactive
	Green	Ready
	Yellow	Warning
	Red	Active fault has occurred

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Programming the System

System programming is done using the menu screens in the integrated touch screen panel of the VDK controller.

Start the System

1. See Figure 15. Place the MAIN DISCONNECT switch in the ON position.
2. When ready for operation, push the SYSTEM ON button to activate the control circuits and allow access to the menu screens.

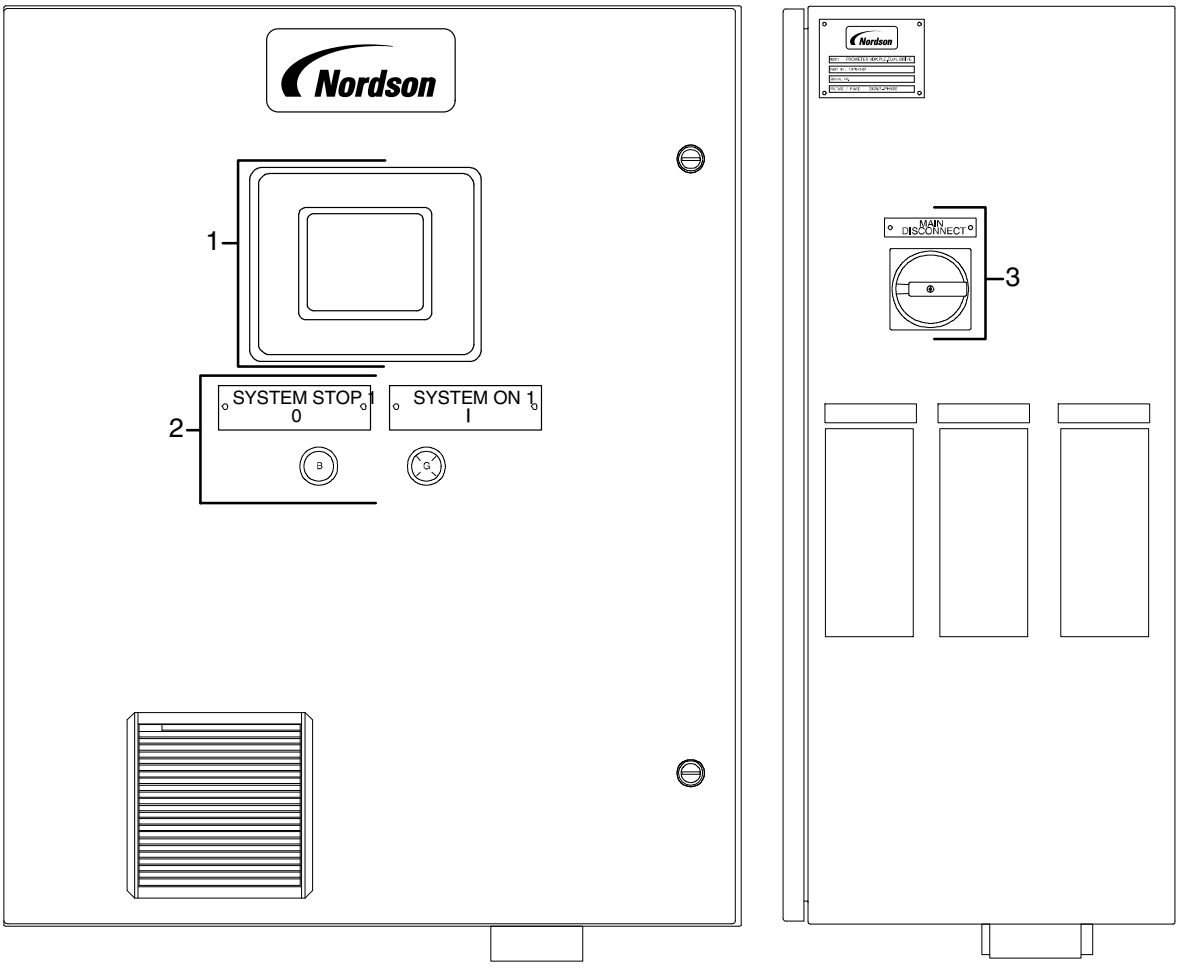

Figure 15 Pro-Meter VDK controller controls and touch screen panel

1. Touch screen panel
2. Control buttons
3. Main disconnect switch

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Menu Screens

Once the FoamMix Flex foaming system equipment is powered on, the Main screen displays on the touch screen panel. See Figure 11 on page 28 for more information. This section describes the functionality of the menu screen components.

Unloader Selection Screen

This selection screen displays automatically if no unloader was configured for the system. If you want to change the type and/or number of connected unloaders, you can access this screen from the main configuration screen.

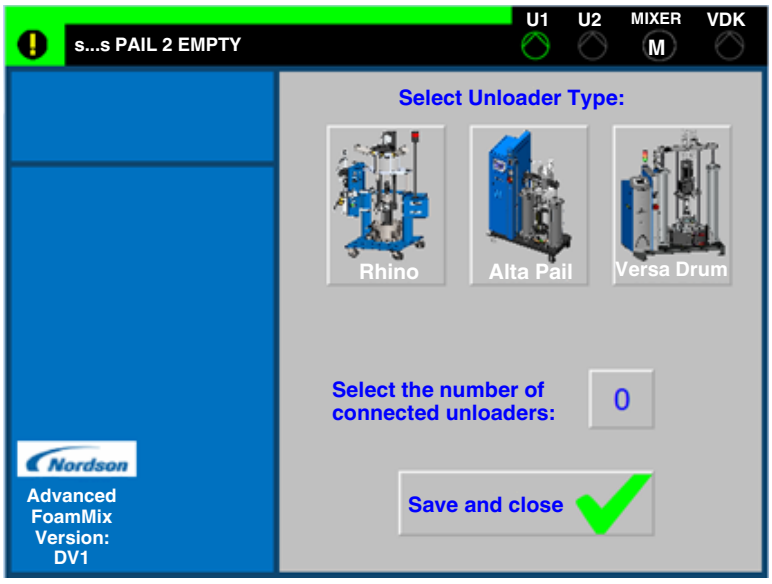

Figure 16 Unloader Selection screen

The active type of unloader is highlighted in green. When you touch the Save and Close button, the system saves the new settings and returns to the main screen.

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AUTO/MAN Screen

With the proper rights, equipment functionalities can be set to run Automatic or Manual mode from this screen by touching the All Automatic or All Manual buttons. The actual status of each component is displayed next to it using the  (Manual) and  (Automatic) symbols.

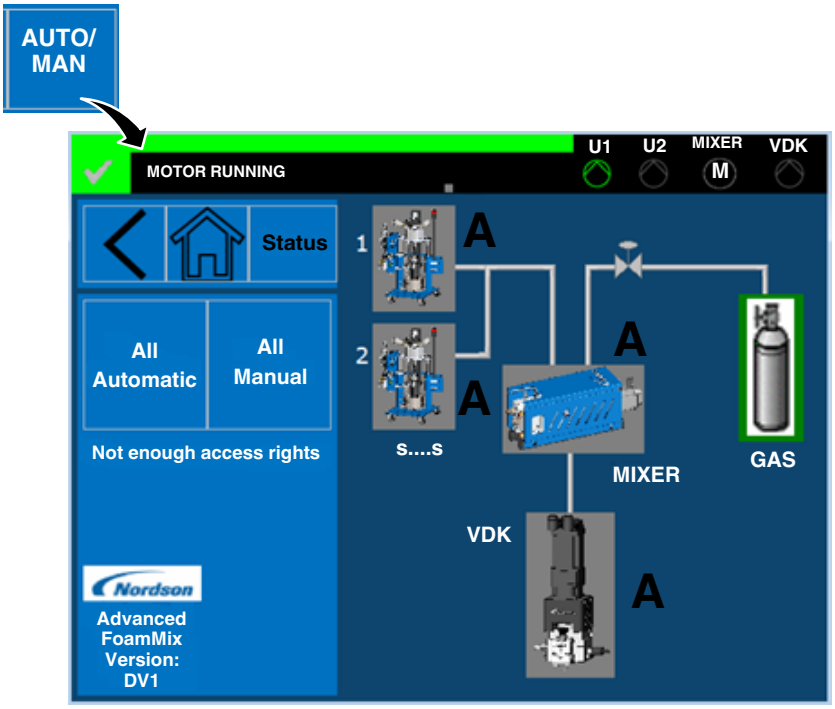

Figure 17 AUTO/MAN screen

Item	Component	Function
1	AUTO/MAN	Touch this button on the Main screen to access the automatic/manual mode screen.
2	All Automatic	Touch this button for all equipment functionalities to run automatically.
3	All Manual	Touch this button for all equipment functionalities to run manually.
	NOTES: • Alta 1, Alta 2, Mixer, and SF LEDs change to orange when in Manual mode or green when in Automatic mode. • These settings can be overridden from individual equipment screens.	

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System Log In/Log Out

To access the menu screen functionalities, enter one of the user accounts and related passwords on the Log In/Log Out screen.

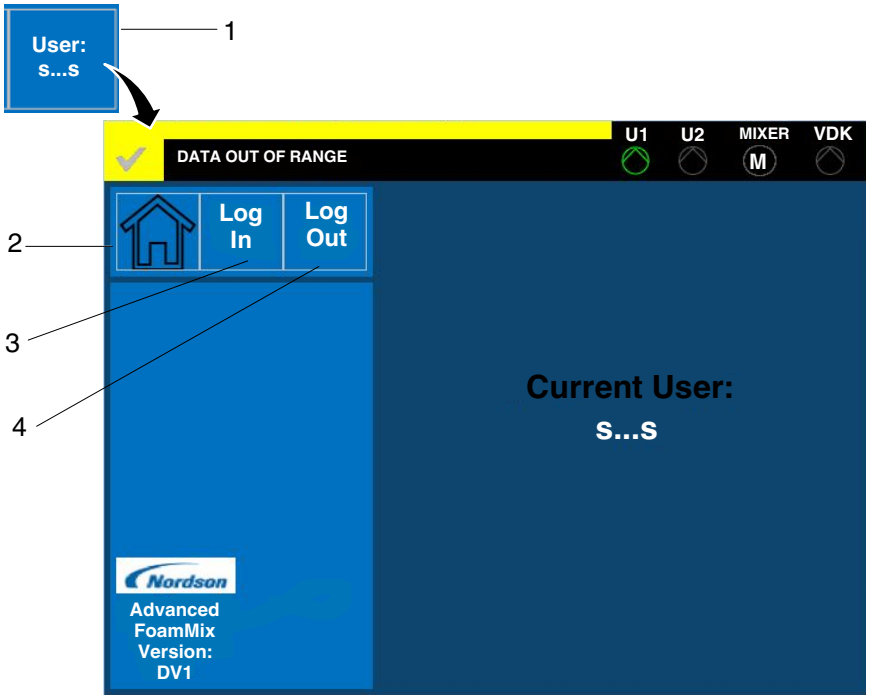

Figure 18 Log In/Log Out screen

Item	Component	Function
1	User (item 5, Fig.11)	Touch this button on the Main screen to access the Log In/Log Out screen.
2		Touch this button to access the Main screen.
3	Log In	Touch this button to enter one of the following user accounts and related passwords: • **U** (User) and **747** (password) • **E** (Engineer) and **757** (password)
	NOTE: Once you have entered the specific password to log in, be sure to touch ↵ on the Login screen and then  to access the Main screen.	
4	Log Out	Touch this button to exit from the password-protected menu screens.

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Log In User Accounts

The system has two levels of pre-set user accounts with specific passwords:

- User account **U** (User)

  This user account allows limited privileges. With this account the user can view the system status and the VDK dispensing module, advanced foaming station, and nitrogen tank screen settings

- User account **E** (Engineer)

  This user account allows full access to the available menu screens. The user can reconfigure the existing settings to suit the application requirements.

NOTE: If the touch screen panel is not used for a duration of twenty-minute period, the Main screen reverts to default settings. You will need to re-enter the appropriate password to access the menu screens.

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Configuration Screen Group

The Configuration screen group contains options that let you view or change the configuration of the FoamMix Flex foaming system. Touch the Config button on the Main screen, and then touch the System Config button to access these options.

System Configuration Screen

Touch the System Config button to access options that let you view or change the system configuration.

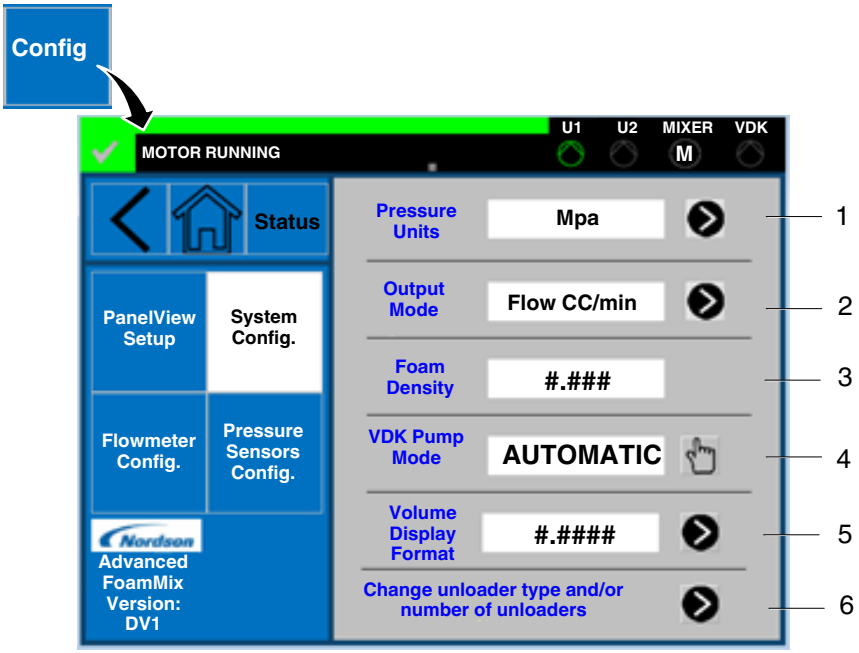

Figure 19 System Configuration screen

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Item	Component	Function
1	Pressure Units	View or change the pressure units (bar, psi, Kpa, Mpa).
2	Output Mode	View or change the output mode (Flow, Volume).
3	Foam Density	View or change the desired foam density.
4	VDK Pump Mode	View or change the VDK Pump running mode (Automatic – On external line reference, or Manual – On set RPM).
5	Volume Display Format	View or change the number format for volume display.
6	Change Unloader Type and/or Number of Unloaders	Touch the arrow button to return to the Unloader Selection screen.

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PanelView Setup Screen

Touch the Config button on the Main screen, and then touch the PanelView Setup button to access options that let you view or change the panel view.

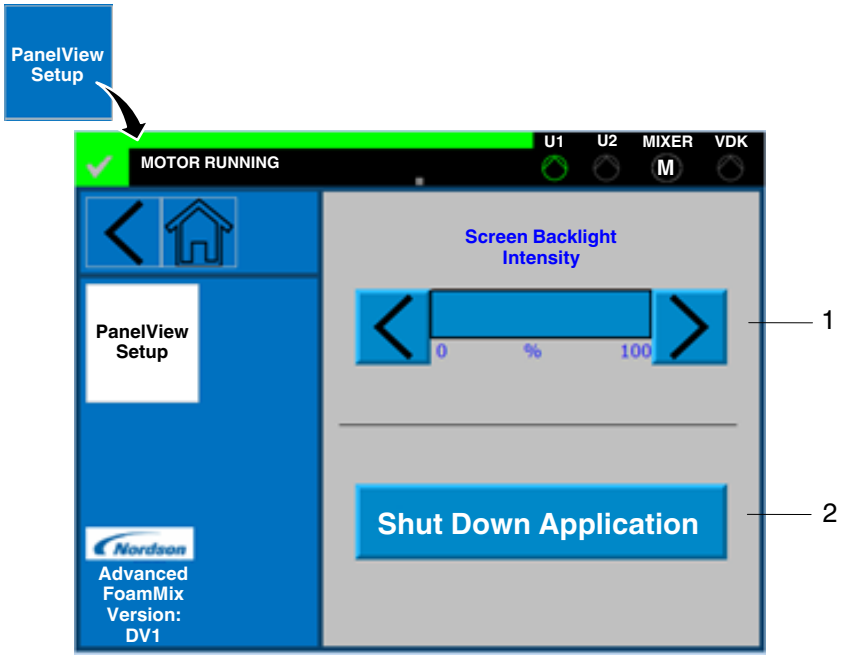

Figure 20 PanelView Setup screen

Item	Component	Function
1	Screen Backlight Intensity	Touch the arrow buttons to modify the PanelView's backlight intensity.
2	Shut Down Application	Touch this button to close the FactoryTalk View application and return to the PanelView's operating system.

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Flowmeters Configuration Screen

Touch the Config button on the Main screen, and then touch the Flowmeter Config button to access options that let you view or change the configuration of the various flowmeters.

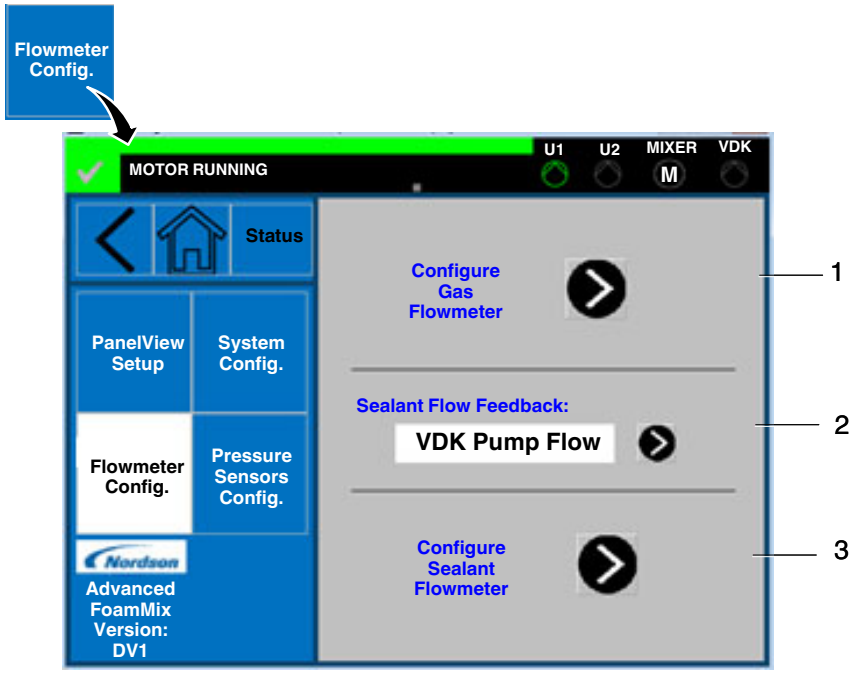

Figure 21 Flowmeter Configuration screen

Item	Component	Function
1	Configure Gas Flowmeter	Touch the arrow button to access options that let you configure the gas flowmeter. See *Gas Flowmeter Configuration Screen* for more information.
2	Sealant Flow Feedback	Touch the arrow button to select the source for sealant flow feedback calculation (VDK Pump Flow or Sealant Flowmeter).
3	Configure Sealant Flowmeter	Touch the arrow button to access options that let you configure the Sealant flowmeter if the sealant flowmeter is selected. See *Sealant Flowmeter Configuration Screen* screen for more information.

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Gas Flowmeter Configuration Screen

Touch the Configure Gas Flowmeter arrow button on the Flowmeters Configuration screen to access options that let you view or change the configuration of the gas flowmeter.

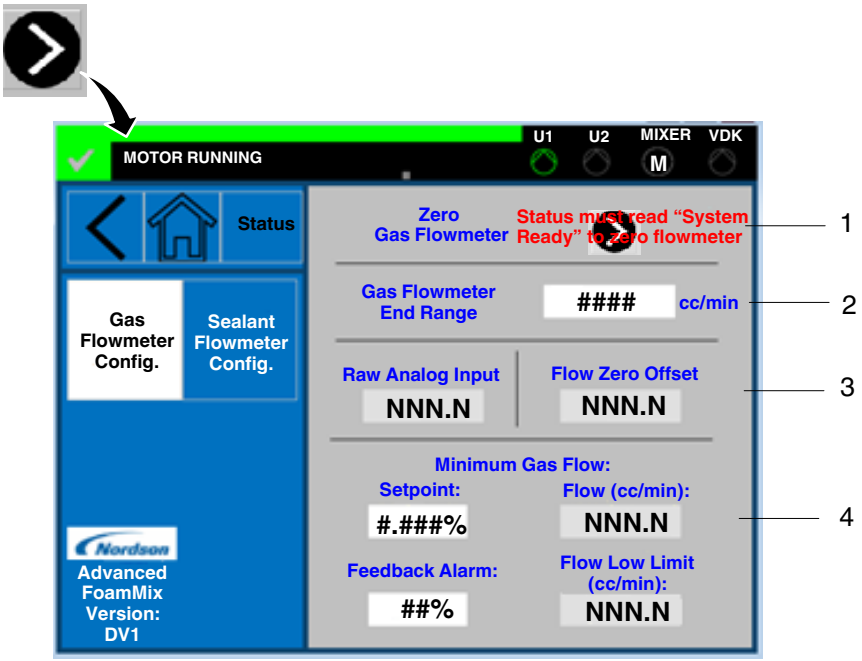

Figure 22 Gas Flowmeter Configuration screen

Item	Component	Function
1	Zero Gas Flowmeter	Touch the arrow button to zero the gas flowmeter if the system is in Ready status.
2	Gas Flowmeter End Range	View or change the maximum range of the gas flowmeter.
3	Raw Analog Input/Flow Zero Offset	View or change the values of the raw analog input and zero offset for the gas flowmeter.
4	Minimum Gas Flow	View or change the minimum gas flow options. If the mixer is running, the gas valve allows this minimum flow even if the VDK pump is stopped. **NOTE:** An alarm is generated if the actual flow falls below the minimum flow setpoint.

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Sealant Flowmeter Configuration Screen

Touch the Sealant Flowmeter Config button on the Gas Flowmeter Configuration screen to access options that let you view or change the sealant flowmeter configuration.

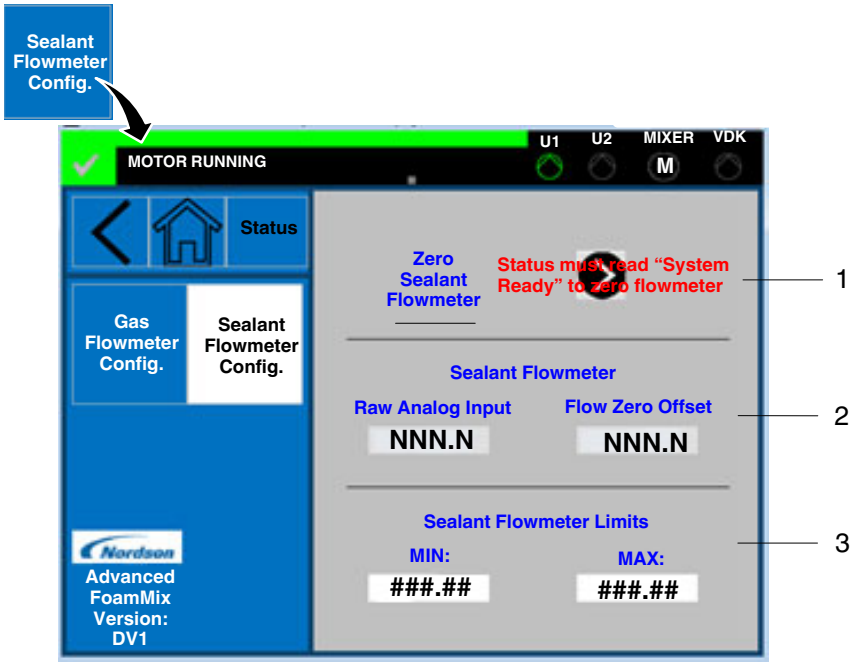

Figure 23 Sealant Flowmeter Configuration screen

Item	Component	Function
1	Zero Sealant Flowmeter	Touch the arrow button to zero the sealant flowmeter if the system is in Ready status.
2	Sealant Flowmeter	View or change the values of Raw Analog Input and Flow Zero Offset for the sealant flowmeter.
3	Sealant Flowmeter Limits	View or change the minimum and maximum ranges of the sealant flowmeter used to generate under and overflow alarms.

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Pressure Sensors Configuration Screen Group

The Pressure Sensors Configuration screen group contains options that let you view or change the configuration of the pressure sensors. Touch the Config button on the Main screen, and then touch the Pressure Sensors Config button to access these options.

Sealant Input Transducer Configuration Screen

Touch the Sealant Input Transducer button on the Pressure Sensors Configuration screen to view or change the sealant input transducer configuration.

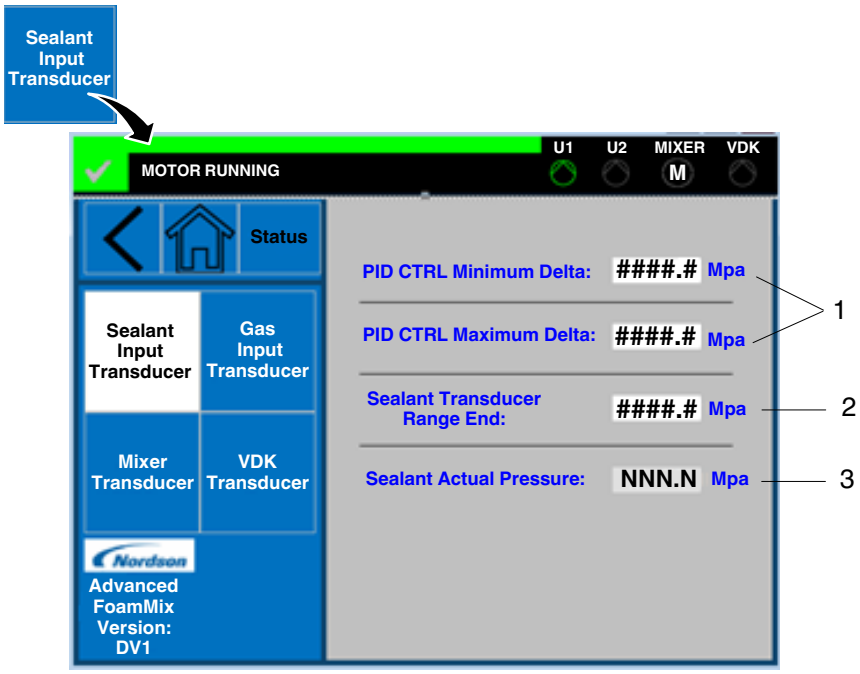

Figure 24 Sealant Input Transducer Configuration screen

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Sealant Input Transducer Configuration Screen (contd)

Item	Component	Function
1	PID CTRL Minimum/ Maximum Delta	View or change the differential pressure for the PID controller. **NOTE:** If the Unloader speed is PID controlled to maintain a sealant pressure setpoint and the actual pressure value deviates with more than these deltas, an alarm is generated.
2	Sealant Transducer Range End	View or change the end range of the sealant pressure transducer.
3	Sealant Actual Pressure	View or change the sealant pressure. Touch this field to make changes.

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Gas Input Transducer Configuration Screen

Touch the Gas Input Transducer button on the Pressure Sensors Configuration screen to view or change the gas input transducer configuration.

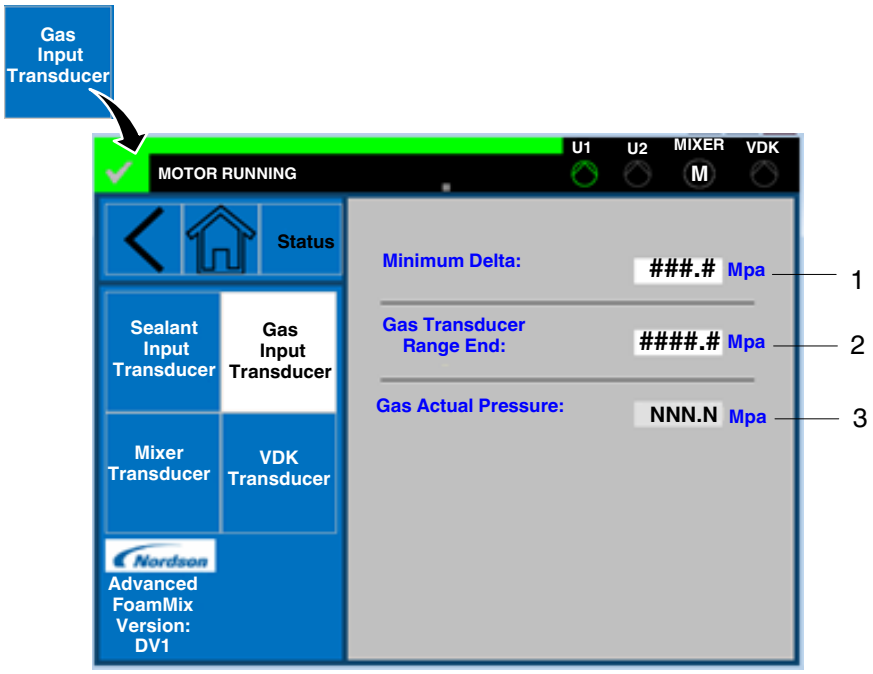

Figure 25 Gas Input Transducer Configuration screen

Item	Component	Function
1	Minimum Delta	View or change the minimum difference between gas pressure and sealant pressure at mixer inlet (gas is higher).
2	Gas Transducer Range End	View or change the end range of the gas pressure transducer.
3	Gas Actual Pressure	View the actual gas pressure.

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Mixer Transducer Configuration Screen

Touch the Mixer Transducer button on the Pressure Sensors Configuration screen to view or change the Mixer transducer configuration.

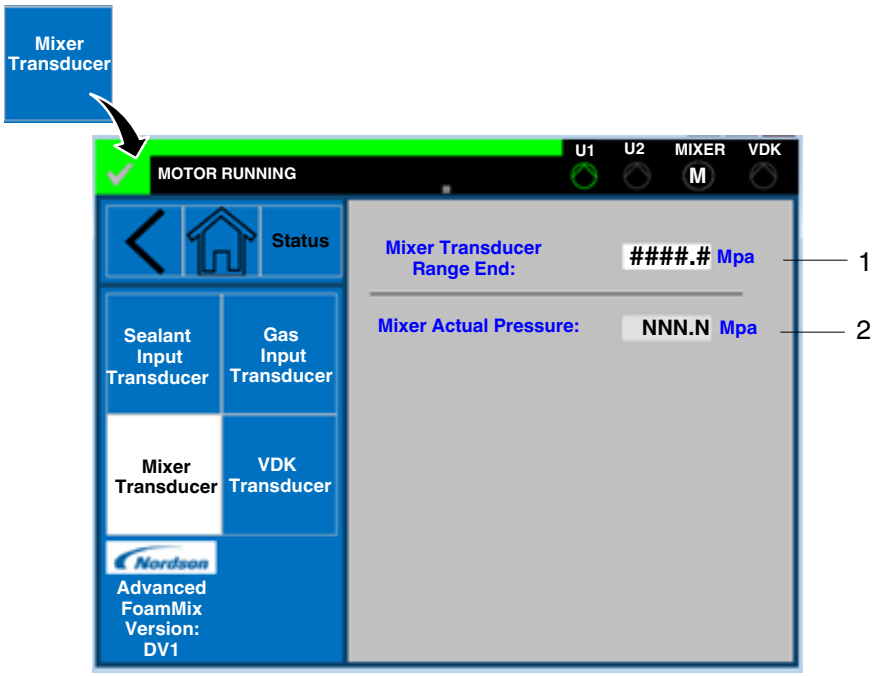

Figure 26 Mixer Transducer Configuration screen

Item	Component	Function
1	Mixer Transducer Range End	View or change the end range of the mixer outlet pressure transducer.
2	Mixer Actual Pressure	View the actual mixer outlet pressure.

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VDK Pressure Transducer Configuration Screen

Touch the VDK Transducer button on the Pressure Sensors Configuration screen to view or change the VDK transducer configuration.

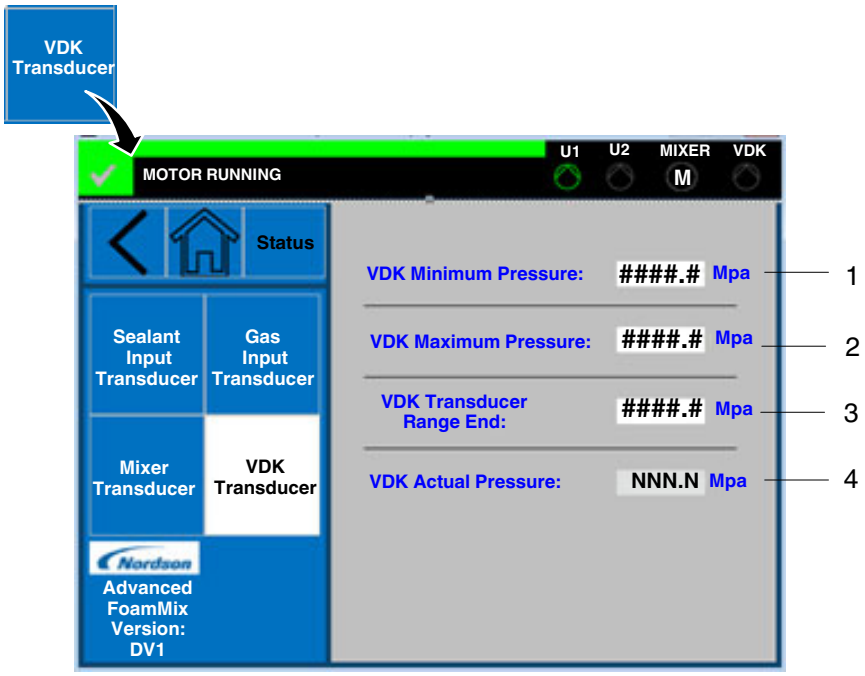

Figure 27 VDK Pressure Transducer Configuration screen

Item	Component	Function
1	VDK Minimum Pressure	View or change the minimum pressure alarm values for the VDK pump pressure transducer.
2	VDK Maximum Pressure	View or change the maximum pressure alarm values for the VDK pump pressure transducer.
3	VDK Transducer Range End	View or change the end range value of the VDK pump pressure transducer.
4	VDK Actual Pressure	View the actual mixer VDK pump pressure.

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Unloader Screen Group

Touch the Unloader (AltaPail, Versa Drum or Rhino) button in the navigation area on the Main screen to access the Unloader options.

NOTE: Depending on the unloader type selected, the screen structure is different for AltaPail/Versa Drum or Rhino.

AltaPail/Versa Drum Main Screen

Touch the AltaPail/Versa Drum button on the Main screen to view or change options for the AltaPail and Versa Drum melters.

NOTE: If two AltaPail/Versa Drum unloaders are connected, a second unloader button is visible in the navigation area and will lead to a similar screen for the second unloader.

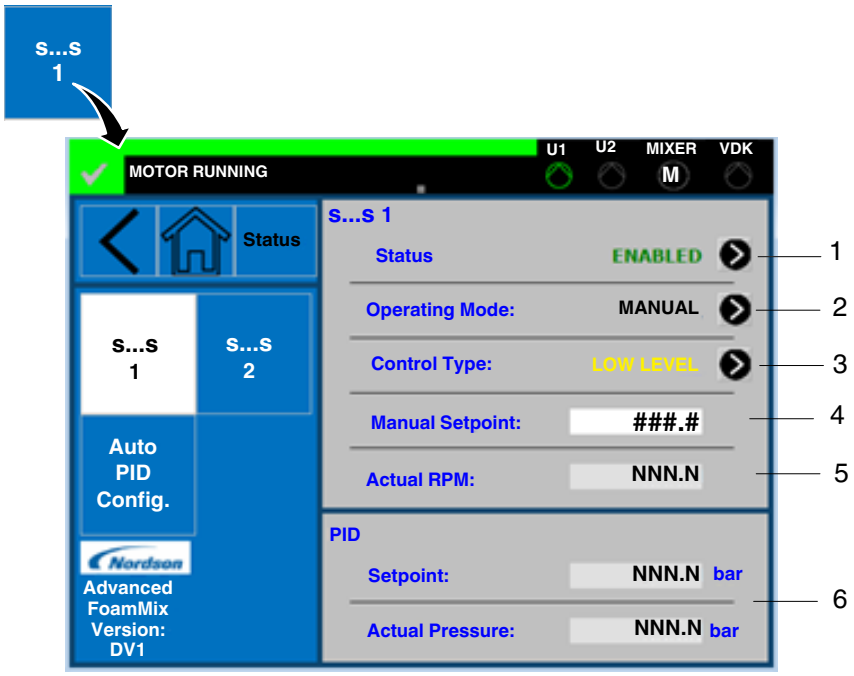

Figure 28 AltaPail/Versa Drum main screen

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Item	Component	Function
1	Status	View or change the status of the unloader.
2	Operating Mode	View or change the operating mode of the unloader: • Manual • Auto-PID
3	Control Type	View or change the unloader control type: • **ON** – Active on pressure control. • **OFF** – Not controlled. • **Low Level** – The unloader is at a low lever.
4	Manual Setpoint	View or change the manual operation setpoint.
5	Actual RPM	View the actual unloader speed.
6	PID	View the setpoint and actual pressure.

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AltaPail/Versa Drum Auto PID Configuration Screen

Touch the Auto PID Config button on the AltaPail/Versa Drum Main screen to view or change the auto PID configuration.

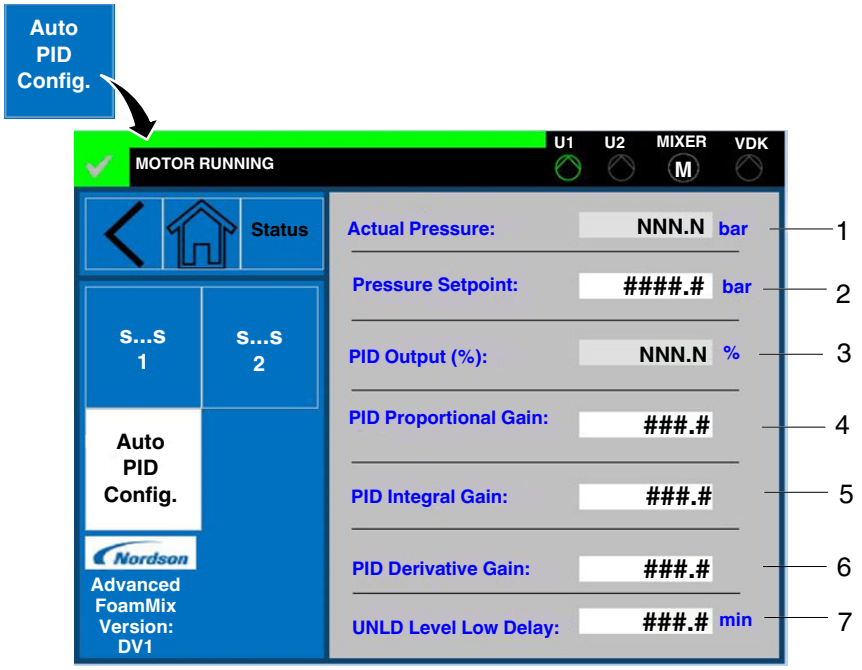

Figure 29 AltaPail/Versa Drum Auto PID Configuration screen

Item	Component	Function
1	Actual Pressure	View the actual sealant pressure at the mixer inlet.
2	Pressure Setpoint	View or change the pressure setpoint for PID control.
3	PID Output (%)	View the actual PID output.
4	PID Proportional Gain	View or change the PID proportional gain.
5	PID Integral Gain	View or change the PID integral gain.
6	PID Derivative Gain	View or change the PID derivative gain.
7	UNLD Level Low Delay	View or change the unloader low delay for level alarms.

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Rhino Main Screen

Touch the Rhino button on the main screen to view or change the Rhino settings.

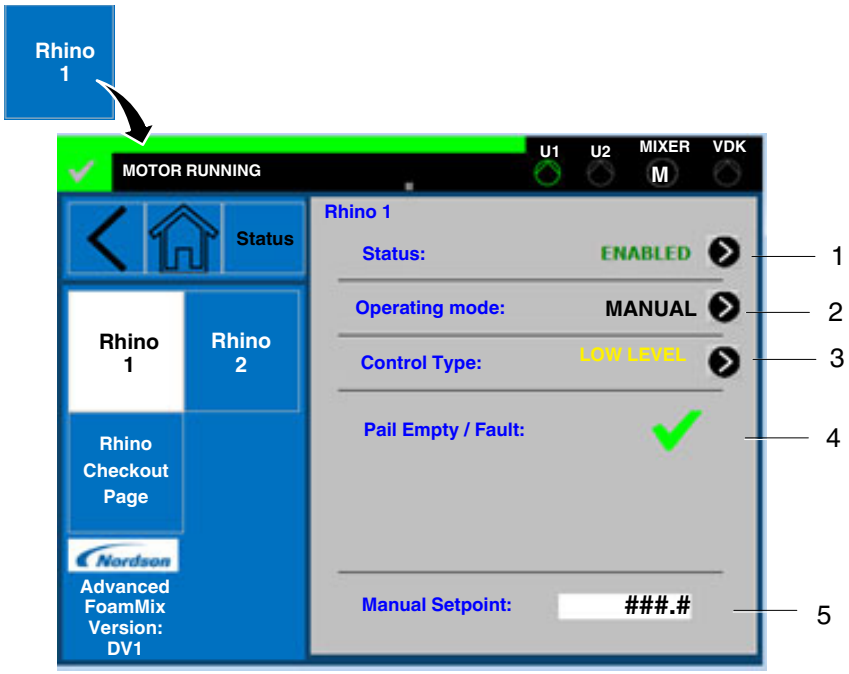

Figure 30 Rhino main screen

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Item	Component	Function
1	Status	View or change the status of the unloader. • Enabled • Disabled
2	Operating Mode	View or change the operating mode of the unloader: • Manual • Auto-PID
3	Control Type	View the control type of the unloader: • **ON** – Active on pressure control. • **OFF** – Not controlled. • **Low Level** – The unloader is at low level.
4	Pail Empty/Fault	View the fault status of the unloader.
5	Manual Setpoint	View or change the setpoint for manual operation.

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Rhino Checkout Screen

Touch the Rhino Checkout Page button on the Rhino main screen to view or change the current Rhino settings.

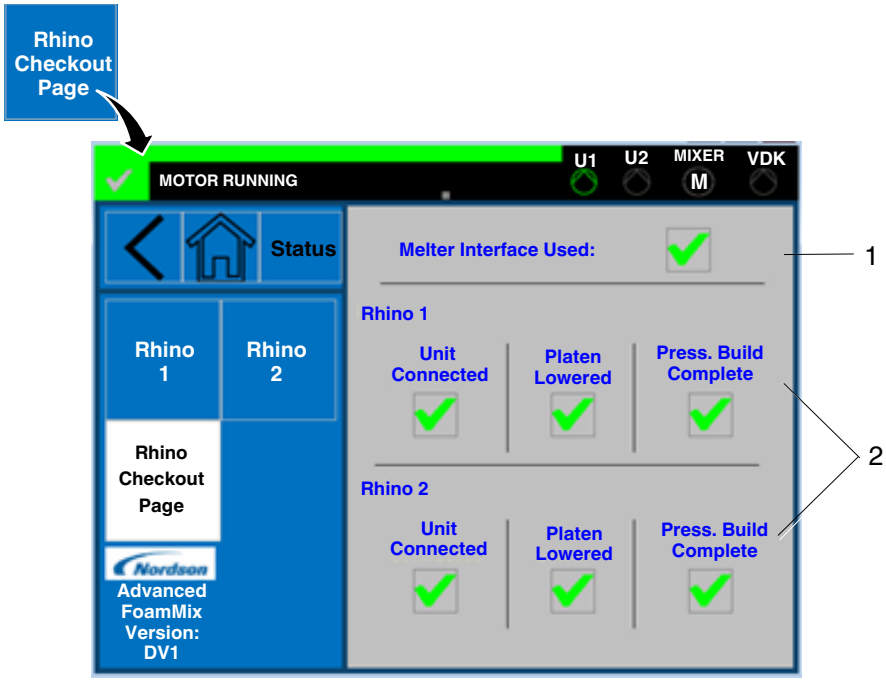

Figure 31 Rhino Checkout screen

Item	Component	Function
1	Melter Interface Used	Touch this check box button to enable the melter interface. The system is using the melter interface to communicate with the unloaders.
2	Rhino 1/Rhino 2	Touch the respective check box to confirm that the unit is connected, platen is lowered, and pressure build is complete if the melter interface is not used. For the system to be ready for operation, each check box must be checked for at least one unloader.

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Mixer Screen Group

Touch the Mixer button in the navigation area on the Main screen to access the FoamMix mixer options.

FoamMix Main Status Screen

Touch the FoamMix Main Status button on the Mixer main screen to view the status of the FoamMix mixer.

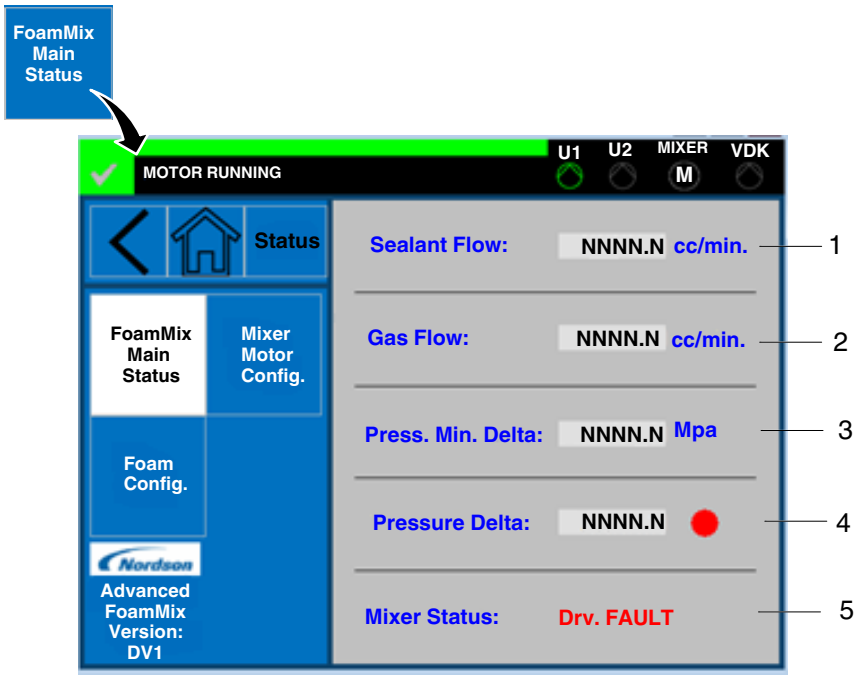

Figure 32 FoamMix Main Status screen

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Item	Component	Function
1	Sealant Flow	View the sealant flow, if the sealant flowmeter is present.
2	Gas Flow	View the gas flow.
3	Press. Min. Delta	View the minimum delta between sealant and gas pressure.
4	Pressure Delta	View the pressure delta and status: • Green • OK • Red (fault)
5	Mixer Status	View the Mixer motor drive status: • Disabled • Enabled • Running • Drive fault

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Mixer Motor Configuration Screen

Touch the Mixer Motor Config button on the Mixer main screen to view or change the mixer motor configuration.

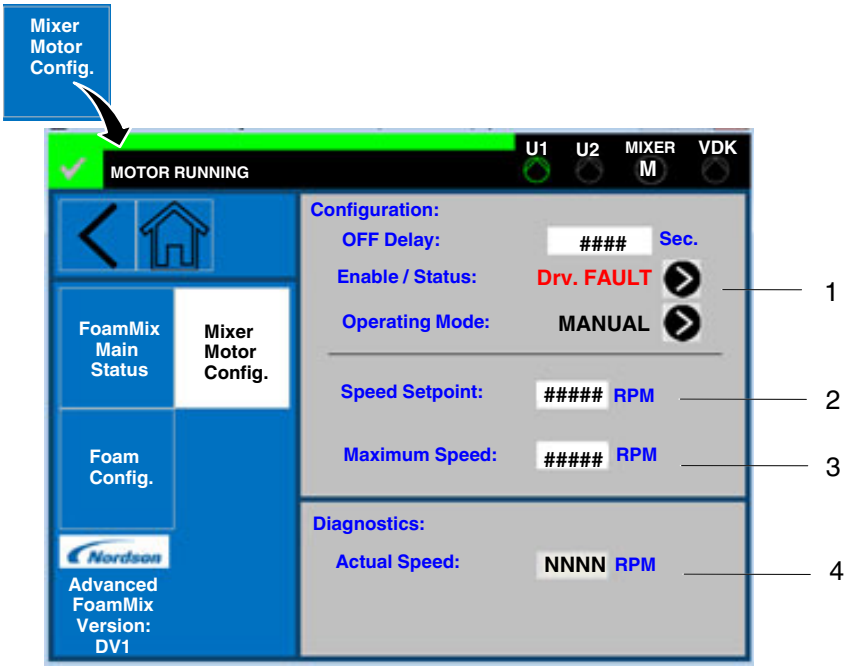

Figure 33 Mixer Motor Configuration screen

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Item	Component	Function

1	Configuration	View or change the following configurations:
		• **OFF Delay** - View or change the Off delay of the mixer motor after the VDK pump stops.
		• **Enable/Status** - View or change the current status, as follows:
		  • Disabled
		  • Enabled
		  • Running
		  • Drive fault
		• **Operating Mode** - View or change the dive operating mode:
		  • Manual
		  • Automatic

2	Speed Setpoint	View or change the maximum speed setpoint.
3	Maximum Speed	View or change the dive speed setpoint.
4	Diagnostics	View the actual mixer speed.

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Foam Configuration Screen

Touch the Foam Config button on the Mixer main screen to view or change the FoamMix configuration.

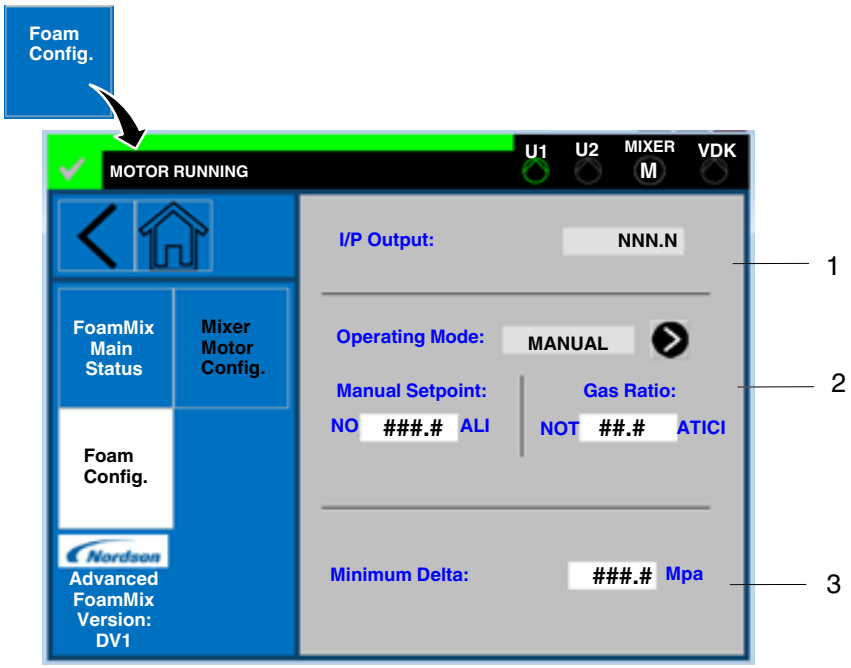

Figure 34 Foam Configuration screen

Item	Component	Function
1	I/P Output	View the gas valve opening percentage.
2	Operating Mode	View or change the FoamMix operating mode and respective setpoints. The operating modes are: • Manual • Auto
3	Minimum Delta	View or change the minimum difference between sealant and gas pressure.

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VDK Pump Main Screen

Touch the VDK pump button in the navigation area on the Main screen to access the VDK options.

VDK Main Screen

Touch the VDK Main button on the VDK main screen to view or change the VDK pump options.

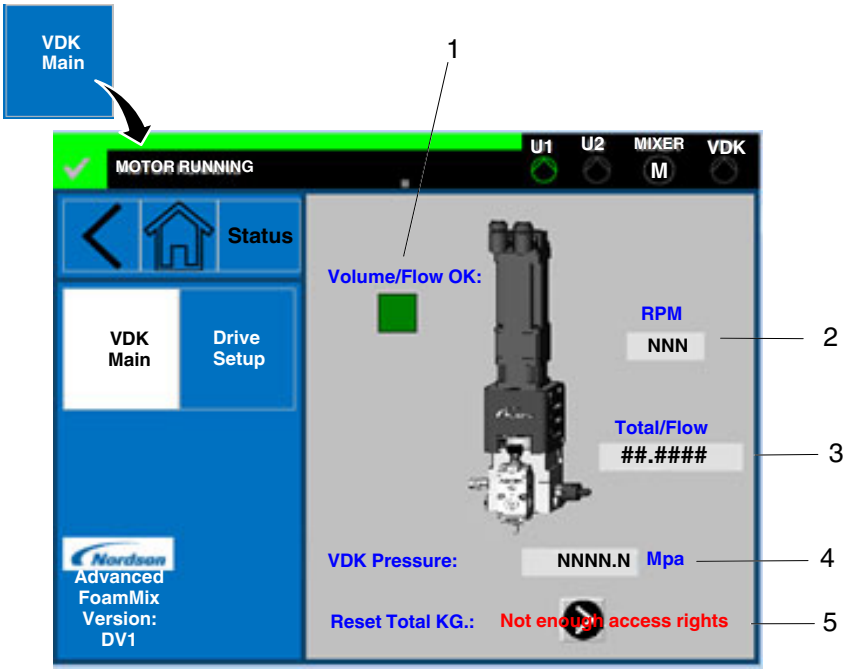

Figure 35 VDK Main screen

Item	Component	Function
1	Volume/Flow OK	View whether the volume/flow is okay.
2	RPM	View the current VDK pump speed.
3	Total/Flow	View the flow/volume of the trigger.
4	VDK Pressure	View the actual VDK pump pressure.
5	Reset Total KG	Touch the arrow button to reset the total amount of dispensed sealant. **NOTE:** You must have proper access rights to change this option.

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VDK Drive Setup Screen

Touch the Drive Setup button on the VDK Pump main screen to view or change the VDK drive setup options.

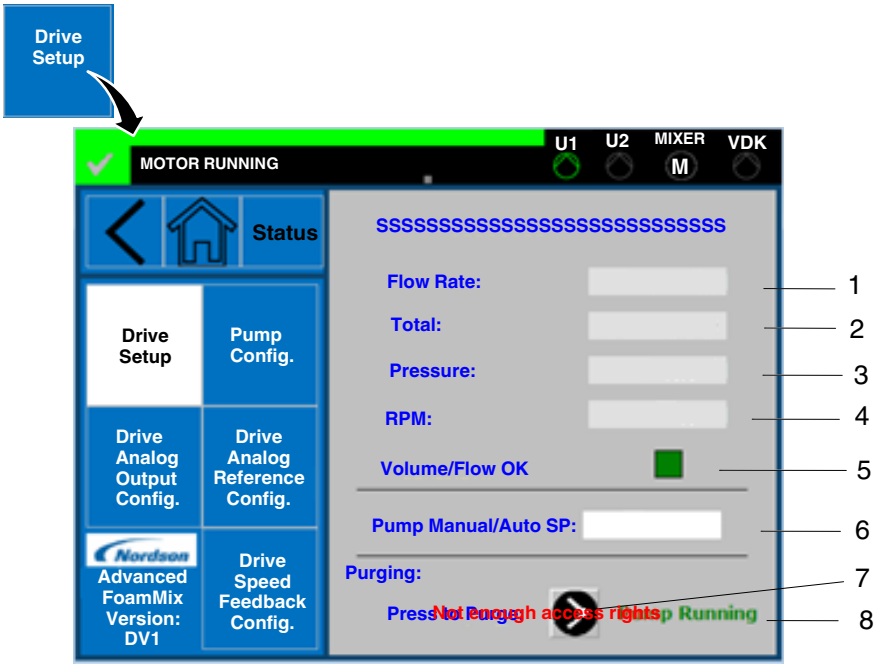

Figure 36 VDK Drive Setup Screen

Item	Component	Function
1	Flow Rate	View the actual flow rate.
2	Total	View the total flow for the current trigger.
3	Pressure	View the actual VDK pump pressure.
4	RPM	View the actual VDK pump speed.
5	Volume/Flow OK	View whether the flow or volume is okay.
6	Pump Manual/Automatic Speed	View or change the VDK pump automatic/manual speed setpoint.
7	Purging	Touch this button to purge the system.
8	Pump Running/ Pump Stopped	View the status of the VDK pump: • Stopped • Running

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VDK Pump Configuration Screen

Touch the Pump Config button on the VDK Pump main screen to view or change the VDK pump configuration options.

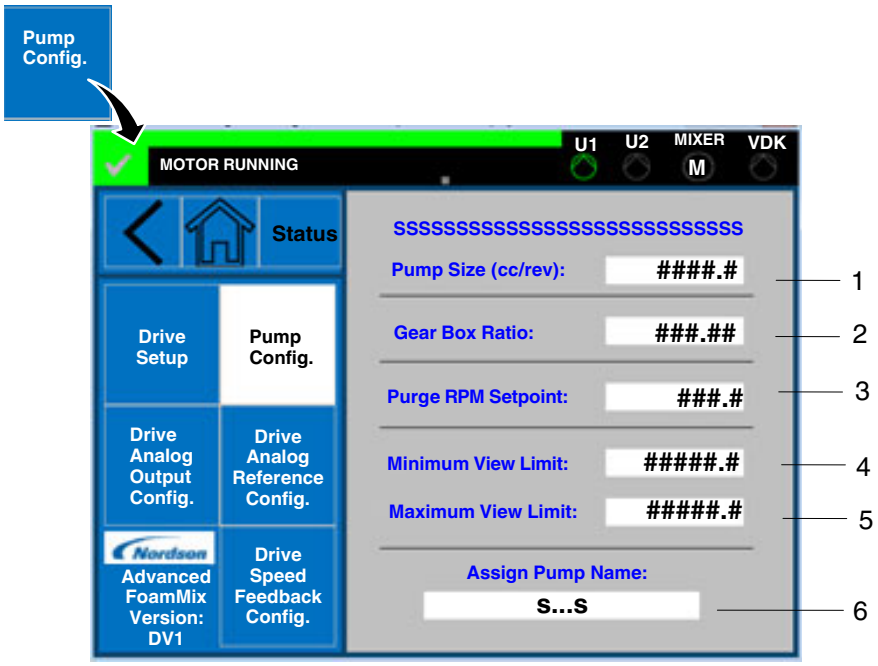

Figure 37 VDK Pump Configuration screen

Item	Component	Function
1	Pump Size (cc/rev)	View or change the VDK pump size.
2	Gear Box Ratio	View or change the VDK pump gear ratio.
3	Purge RPM Setpoint	View or change the VDK pump speed setpoint for purge operation.
4	Minimum View Limit	View or change the minimum limit for flow and volume depending on the operation mode.
5	Maximum View Limit	View or change the maximum limit for flow and volume depending on the operation mode.
6	Assign Pump Name	View or change the VDK pump name.

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VDK Drive Analog Output Configuration Screen

Touch the Drive Analog Output Config button on the VDK Pump main screen to view or change the VDK drive analog configuration.

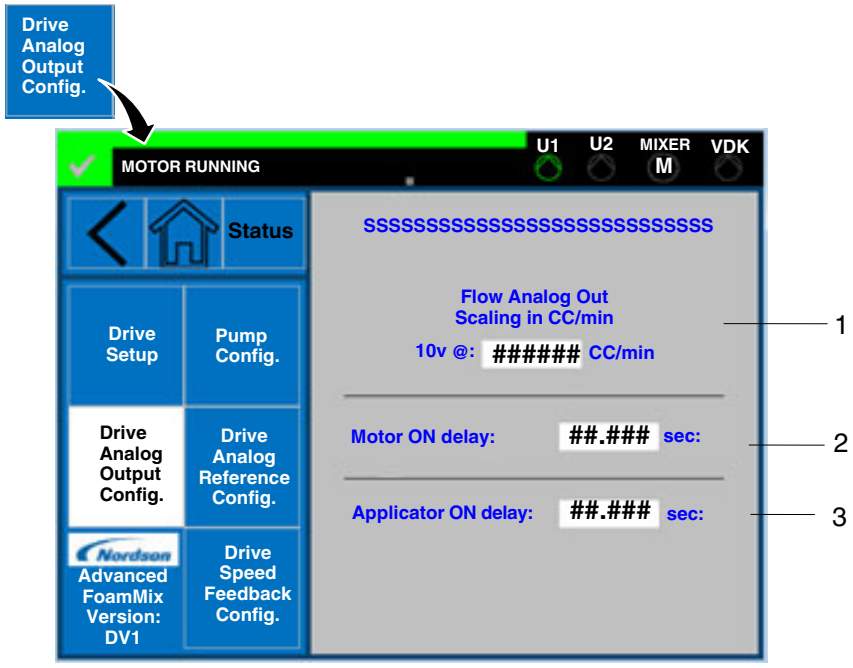

Figure 38 VDK Drive Analog Configuration screen

Item	Component	Function
1	Flow/Volume Analog Output Scaling in CC/min	View or change the analog output scaling for the maximum flow/volume output.
2	Motor ON Delay	View the Motor ON Delay compared with trigger signal.
3	Applicator ON Delay	View the Application ON Delay compared with trigger signal.

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VDK Drive Analog Reference Configuration Screen

Touch the Drive Analog Reference Config button on the VDK Pump main screen to view or change the VDK drive analog reference configuration.

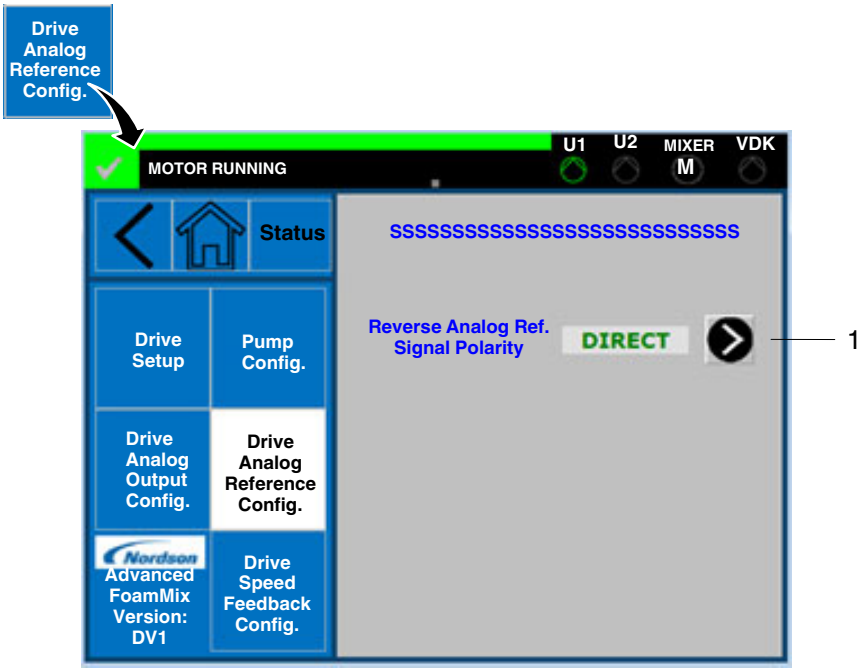

Figure 39 VDK Drive Analog Reference Configuration screen

Item	Component	Function
1	Reverse Analog Ref. Signal Polarity	Touch this button to change the analog reference signal polarity: • Direct • Reversed

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VDK Drive Speed Feedback Configuration Screen

Touch the Drive Speed Feedback Config button on the VDK Pump main screen to view or change the procedure to adjust drive speed feedback.

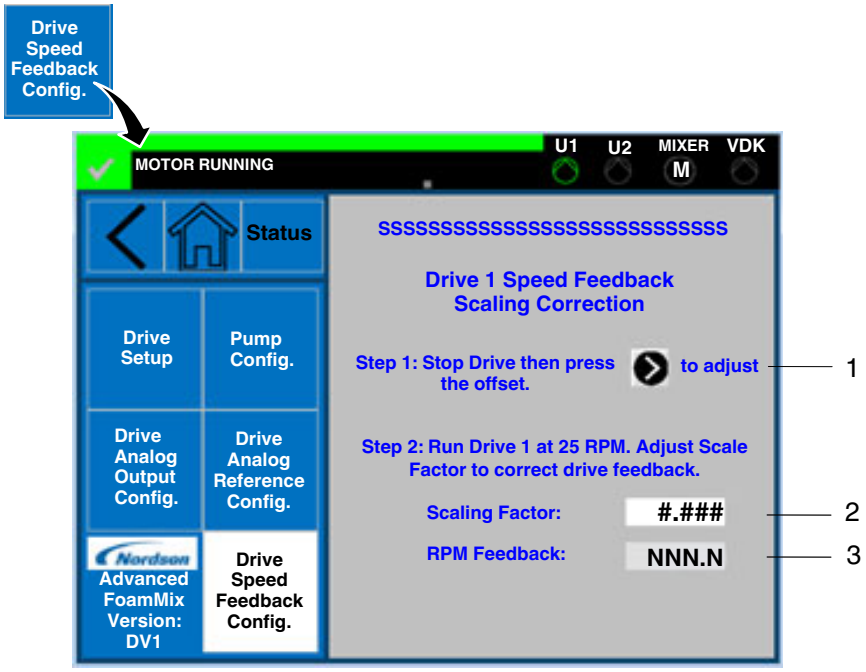

Figure 40 VDK Drive Speed Feedback Configuration screen

Item	Component	Function
1	[Correct Offset]	Touch the arrow button to adjust the offset after stopping the drive.
2	Scaling Factor	View or change the scaling factor.
3	RPM Feedback	View the actual speed feedback of the VDK drive.

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FoamMix System Status Main Screen

Touch the FoamMix Status button in the navigation area on the Main screen to access the FoamMix status options.

FoamMix VDK Status Screen

Touch the FoamMix VDK Main button on the FoamMix VDK main screen to view the status of the FoamMix system.

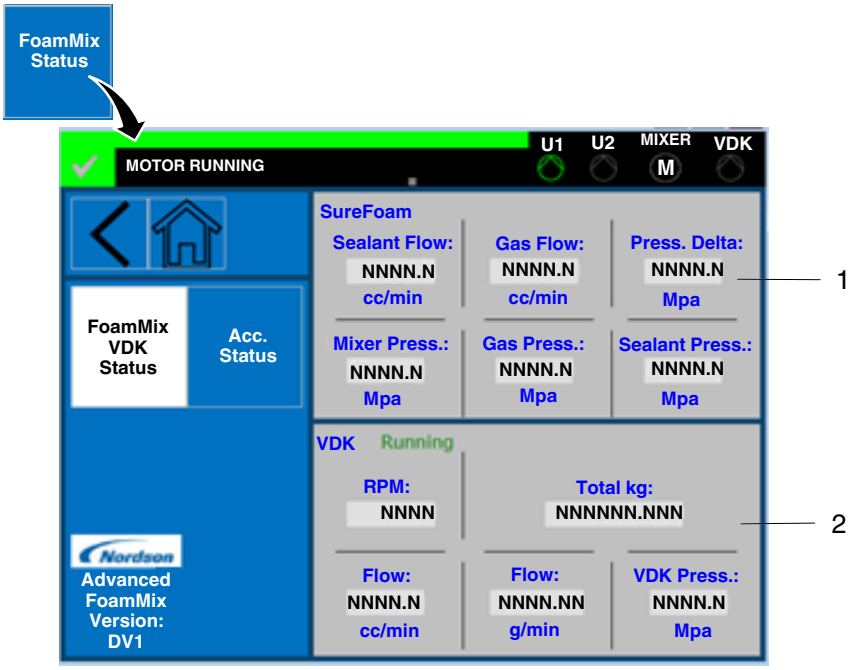

Figure 41 FoamMix VDK Status screen

Item	Component	Function
1	SureFoam	View the status for FoamMix related processes.
2	VDK	View whether the VDK is running, and view detailed values for the VDK pump processes.

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Accumulator Status Screen

Touch the Acc Status button on the FoamMix VDK main screen to view the accumulator status.

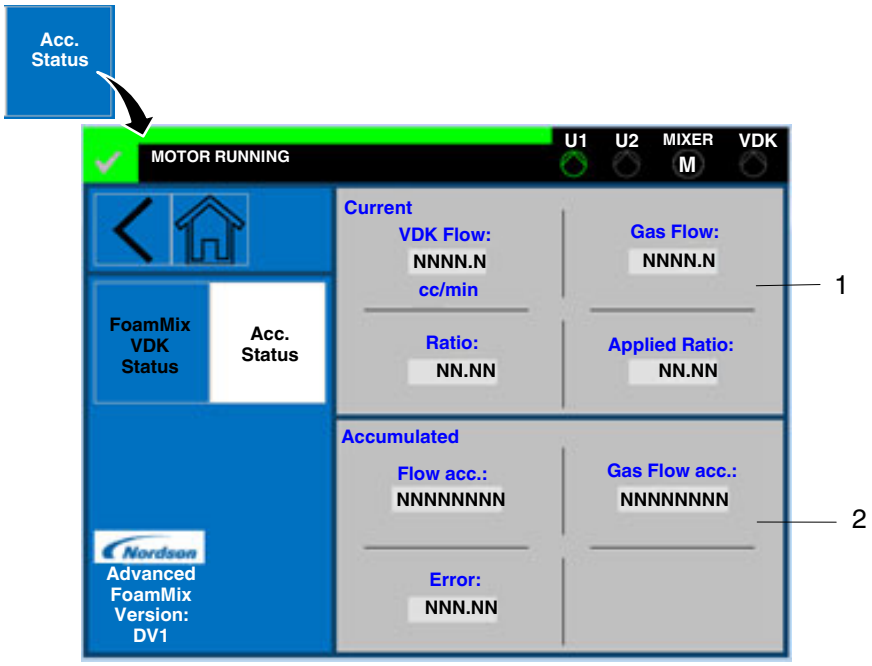

Figure 42 Accumulator Status screen

Item	Component	Function
1	Current	View the actual values of process variables with rapid changes in value used in the moving average filter.
2	Accumulated	View the accumulated values for process variables with rapid changes in value used in the moving average filter.

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Operation

WARNING! Allow only personnel with appropriate training and experience to operate or service the equipment. The use of untrained or inexperienced personnel to operate or service the equipment can result in injury, including death, to themselves and others, and damage to the equipment.

Controller Initial Power On

1. Power ON the ProMeter VDK controller (see Figure 15 on page 38).
2. Verify the hydraulic system is ready for operation. Check the connections of the hoses, pressure transducers, and manifolds.
3. Verify the Mixer Motor Enable switch is in the ON position.

Bulk Melter/Unloader PID Mode

Prior to dispensing material, the Bulk melter/unloader supply system must be placed into Automatic PID control.

1. Power on the Bulk melter/unloader.
2. Enable heat control and the pump.
3. Insert material per the instructions contained in the Bulk melter/unloader product manual.
4. Access the Bulk melter/unloader screen (see Figure 28 on page 54) and press the **A** (Automatic) button on the Bulk melter/unloader. This action prepares the Bulk melter/unloader to dispense material when the system is operating.

System Start

1. Press the System On button on the ProMeter VDK controller (see Figure 15 on page 38).

   NOTE: The Bulk melter/unloader might begin to run as the pressure rises to the PID setpoint.

2. Once at pressure, the system is ready to dispense material.

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Purge the System

With the gas supply turned off, operate the melter and ProMeter VDK dispensing module as normal to dispense a minimum of one tank volume of adhesive.

1. Ensure that the dispensing modules are properly positioned for purging, or place a container under the nozzles to catch the material.
2. Verify that the adhesive supply pressure is correct.
3. Access the *Drive Setup* screen (see Figure 23 on page 48) and press the **Push to Purge** button. Observe the dispensing modules to ensure adhesive flows from the modules.

   NOTE: Depending on the material type and how it is being processed, the system may need to be purged for several minutes.

Adjust Foam Density

The FoamMix Flex foaming system is capable of significantly reducing silicone density. Foam density is a function of the type of silicone, nitrogen gas pressure, and barometric pressure. The speed of the FoamMix Flex foaming system motor is not adjustable and therefore has no effect on changing the density of the foamed silicone. To create silicone foam, the pressure of the gas introduced into the FoamMix Flex foaming system must be a minimum of 150 psi greater than the inlet pressure. Inlet pressure is indicated on the display of the controller PLC.

NOTE: Although the Nordson–supplied nitrogen pressure regulator has two adjustment knobs, the smaller of the two knobs is factory set and locked. DO NOT adjust this knob or foam quality will be adversely affected.

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Checking and Adjusting the Foam Density

1. With the nitrogen gas supply turned off, dispense a fixed volume of solid-formed Silicone until the dispensed adhesive is free of bubbles. Note the FoamMix Flex foaming system inlet pressure.
2. Weigh the dispensed adhesive.
3. Turn on the nitrogen gas supply and adjust to a minimum of 150 psi greater than the advanced foaming system inlet pressure gauge.
4. Locate *Foam Configuration* screen (see Figure 22 on page 47). Set the Gas Ratio to the desired level.
5. Run or Purge the system for a period of time that will ensure the VDK supply hose will be filled with the material at the new Gas Ratio.
6. Weigh the dispensed adhesive.
7. To increase the density of the foamed material, lower the Gas Ratio. To decrease the density of the foamed material, raise the Gas Ratio.

NOTE: Considerable time may elapse between the time a gas pressure adjustment is made and a change in adhesive density is observed. The factors that influence this elapsed time are the length of the hose and the melter flow rate.

System Shut Down

1. Ensure that the system has finished dispensing material.
2. Push the SYSTEM STOP button to stop the system.

NOTE: Depending on the length of the shutdown and the type of system, the system pressure may need to be relieved.

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Maintenance

For equipment maintenance details refer to the following product manuals:

- Bulk Melter/Unloader
- Pro-Meter VDK dispensing module
- FoamMix Flex foaming station

Recommended Maintenance Schedule

This is a recommended schedule for maintaining the Pro-Meter VDK controller:

Activity	Interval
Clean air filters on cooling fan and vent	Monthly
Replace the PanelView Plus backup battery with a CR2032 battery	Every three (3) years

Gas Check Valve Assembly Maintenance

You will need the following items:

- 3/8-inch Allen wrench
- 5 mm Allen wrench
- 6 mm Allen wrench
- 3/16-inch socket wrench

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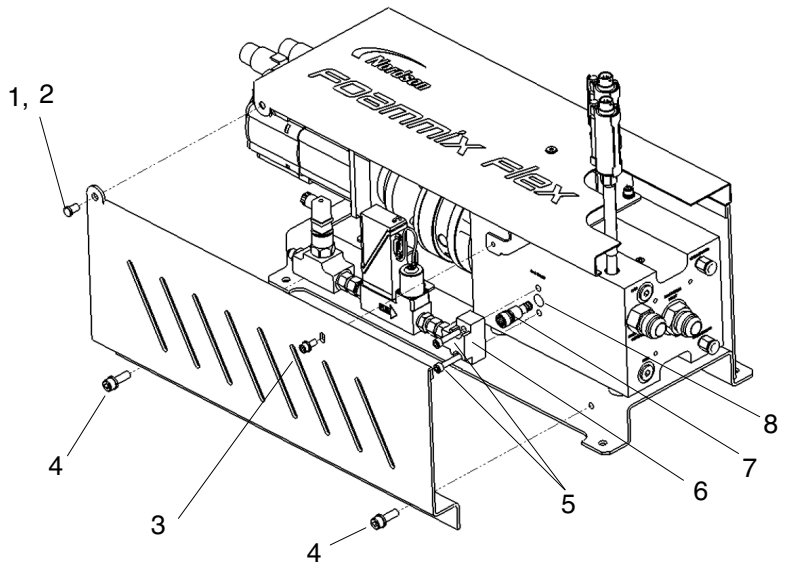
Servicing the Gas Check Valve Assembly

WARNING! Please remove the nitrogen gas pressure from the FoamMix Flex at the source. Removing the check valve block from the manifold without first removing all gas pressure can result in injury.

NOTE: To minimize moisture intrusion into the system, it is highly recommended that a complete gas injection check valve assembly be readily available, which can be quickly swapped with the one to be cleaned.

1. Remove the Cotter pin and the Clevis (1 and 2) from the side of the FoamMix Flex assembly where the gas valve and gas transducer are located.
2. Remove the M6 socket head cap screw (3) that secures the side panel to the manifold stabilizer with a 5 mm Allen wrench.



3. Remove the two M8 socket head cap screws (4) that secure the side panel to the base using a 6 mm Allen wrench. Slide the panel out of the way.
4. Remove the two M6 socket head cap screws (5) that secure the check valve block (6) to the FoamMix Flex manifold using a 5 mm Allen wrench.
5. Remove the gas check valve assembly (7) using a 3/8 inch Allen wrench and turning it counter-clockwise.

   NOTE: The gas check valve assembly is threaded and screws into the manifold. If heated, please remove while the manifold is still hot and before the adhesive solidifies.

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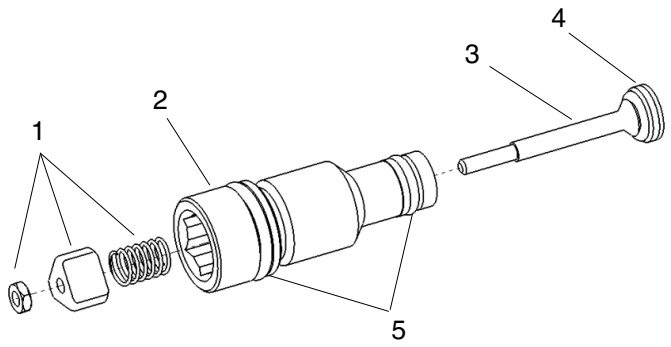
6. Clean any debris and adhesive from the gas port in the manifold (8) after the gas check valve has been removed from the manifold.
7. Clean or replace the gas check valve. For more information, refer to the section that follows.

Cleaning the Gas Check Valve Assembly

CAUTION! When cleaning the gas check valve assembly avoid sharp metal objects, which could scratch the surface of the gas check valve stem seat area and cause seal failure.

1. Wipe the exterior surface of the check valve assembly (2) to remove excess adhesive.
2. Remove the hex nut, guide, and spring (1) from the check valve stem (3) using a 3/16-inch socket wrench.



3. Pull the check valve stem (3) from the body.
4. Clean and remove any dried adhesive from the O-ring (4) of the check valve stem.
5. Reassemble the components (1) in the order in which they were removed.
6. Inspect all exterior O-rings (5) and replace or apply grease, if needed.

NOTE: For information about replacement O-rings, see *FoamMix Check Gas Valve Assembly*.

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Troubleshooting

WARNING! Allow only qualified personnel to perform the following tasks. Follow the safety instructions in this document and all other related documentation.

This section covers the most common problems encountered and provides quick-reference information for diagnosing control system faults. If you cannot resolve the problem using the troubleshooting tables, contact your Nordson representative for technical assistance.

FoamMix Flex Foaming Station

The following table provides FoamMix Flex foaming station specific troubleshooting guidance. Refer to the melter manual for general melter troubleshooting information.

Problem	Possible Cause	Corrective Action
1. Loss of foamed silicone	No gas supply	Check nitrogen tank pressure and regulator position
	Incorrect pressure differential between the gas inlet pressure and the silicone outlet pressure	Ensure that the gas inlet pressure is at least 150 psi. greater than the adhesive outlet pressure
	Gas valve failed	• Check to insure all cables connect properly • Replace gas valve (P/N 1508448)
	Gas check valve poppet is stuck	Remove and clean check valve
2. No adhesive output	The melter has faulted	Check and correct the melter fault
	The melter pump is off	Turn on pump
	Adhesive output pressure at melter is to low	Check/adjust the output pressure to between 500-800 psi
	Input check valve fitting on advance foaming system is clogged	Remove and inspect the check valve. Clean or replace if necessary
	Output check valve fitting on advance foaming system is clogged	Remove and inspect the check valve. Clean or replace if necessary
	Clogged applicator module	

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Alarm Screen Messages

The tables depict the messages that appear on the touch screen panel in the event of a system problem. These tables provide typical corrective actions for each message type.

VDK Dispensing Module or Controller

System Alarm	Alarm Message	Alarm Category	Corrective Action
VDK Alarms	Last Changed Data is Out of Range	Warning	Edit the last entered data point and correct the new data to be within the operational range.
	PLC Low Battery Alarm	Warning	Replace the PLC battery
	VDK Low Pressure Fault	Fault	• Check for VDK pump rotation • Check Bulk Unloader supply system • Check for disconnected hoses or leaks
	VDK High Pressure Fault	Fault	• Check that the solenoid is opening the applicator • Check solenoid air pressure • Check for plugged nozzle
	VDK Drive 1 Fault	Fault	Check the servo drive for an alarm indication. Also, refer to the Kollmorgen user manual for additional information.

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FoamMix Flex Foaming Station

System Alarm	Alarm Message	Alarm Category	Corrective Action
FoamMix Flex Alarms	Gas Pressure Delta Warning	Warning	• Check the nitrogen gas tank pressure • Check the adhesive input pressure.
	Gas Pressure Low Fault	Fault	Check the nitrogen gas tank pressure as the tank could be empty.
	Mixer Motor Enable Switch is OFF	Fault	Place the Mixer Enable switch (located on the controller door) into the ON (1) position.
	Mixer Motor is Not in Automatic Mode	Fault	On the SureFoam Configuration page, place the mixer into Auto mode.
	Sealant Input Pressure Low Fault	Fault	Verify the operation of the PID loop and the states of the Bulk Unloader bulk melters. Verify PID parameters.
	Sealant Input Pressure High Fault	Fault	Possible PID tuning issue.
	Mixer Pressure High Fault	Fault	Compare the Mixer Pressure to the Sealant Input Pressure. If they are similar, look for PID loop issues. If they are not similar, verify the operation of the transducer.

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Bulk Melters/Unloaders

System Alarm	Alarm Message	Alarm Category	Corrective Action
Bulk Melter/Unloader Alarms		Fault	Check that the Bulk Melter/Unloader is powered on and operational. Also, refer to the Bulk Melter/Unloader manual for additional information.
	Bulk Melter/Unloader #1 Pail Low	Warning	
	Bulk Melter/Unloader #1 Pail Empty	Warning	
	Bulk Melter/Unloader #2 Pail Low	Warning	
	Bulk Melter/Unloader #2 Pail Empty	Warning	
	Bulk Melter/Unloader #1 Not Ready	Warning	Check the Bulk Melter/Unloader for alarms.
	Bulk Melter/Unloader #2 Not Ready	Warning	Check the Bulk Melter/Unloader for alarms.
	FAULT - Bulk Melter/Unloader is not Ready for Auto PID Control	Fault	Check that the Bulk Melter/Unloader is powered on and operational. Also, refer to the Bulk Melter/Unloader manual for additional information.

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Parts Lists

To order parts, call the Nordson Customer Service Center or your local Nordson representative.

Cable Assemblies

For information on making cable connections, refer to *Connect the FoamMix Flex Foaming System*.

Part	Description	Quantity
1510490	CABLE,ASSY,SFA MIXER,GAS VALVE,5M,9DSUB	1
1515090	CABLE,SFA MIXER,GAS XDCR,FOAMMIX	1
1513588	CABLE,SERVO,LENZE,FEEDBACK,6M,FOAMMIX	1
1513589	CABLE,SERVO,LENZE,MOTOR,6M,FOAMMIX	1
1508662	CABLE,SFA,CUSTOMER SIGNAL	1
1508634	CABLE,SFA,ALTAPAIL,DIGITAL	1
1509930	CABLE,ASSY,SFA-VD200 INTERFACE	1
1074782	CABLE,VB,X-DUCER,10M.QUICK CONNECT,TR	2

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Drive Assembly

See Figure 43.

Item	Part	Description	Quantity
1	1512889	WASHER,THRUST,FOAMMIX	1
2	1512887	SHAFT,DRIVE,MAG,FOAMMIX	1
3	1076665	BEARING,TAPERED ROLLER,1.98x1.00x.56	1
4	1513051	BLOCK,SERVO DRIVE,HEAT ISOLATION	1
5	982034	SCR,SKT,M6X50,BL	4
6	982046	SCR,HEX,CAP,M5X14,BL	8
7	1512888	ADAPTER,DRIVE,SHAFT,FOAMMIX	1
8	1515062	REDUCER,SERVO,GEAR,STRAIGHT,LENZE	1
9	1040876	WASHER, LOCK M5	8
10	982028	SCR,SKT,M5X20,BL	8
11	1515063	MOTOR,SERVO,APPLICATOR,LZ DRIVE,1 KW	1
12	982030	SCR,SKT,M6X20,BL	4

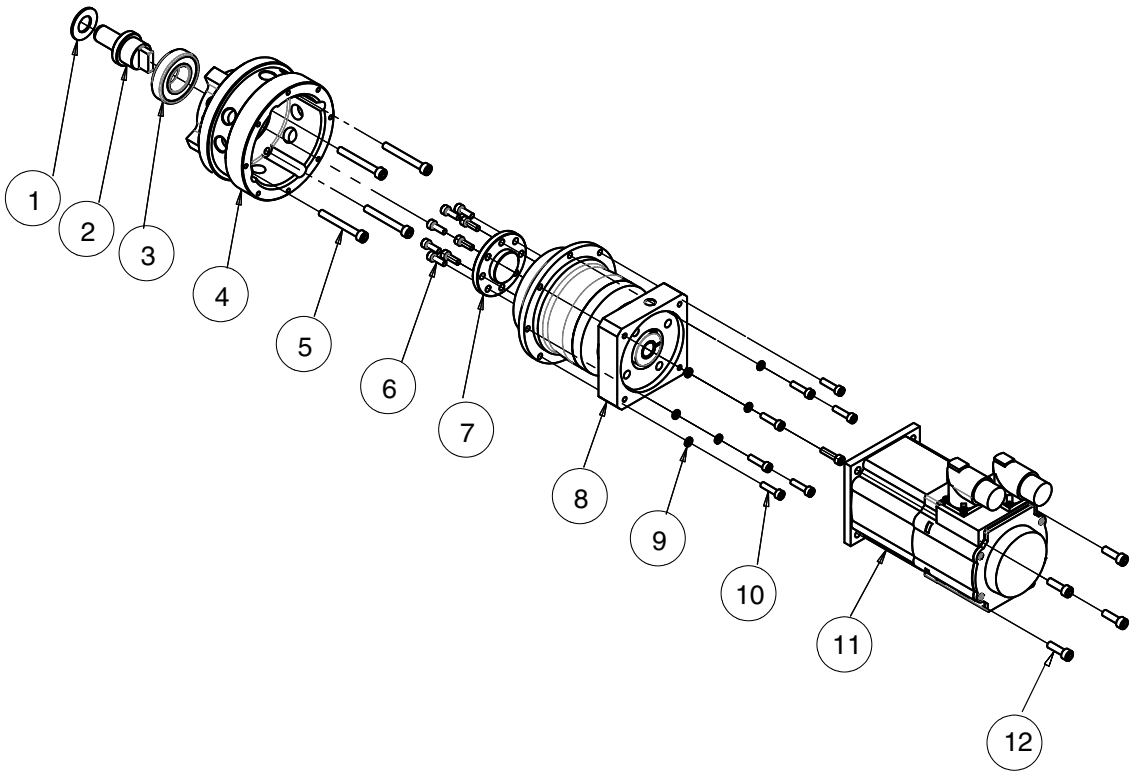

Figure 43 Drive assembly parts

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Mixer Assembly

See Figure 44 on page 90.

Item	Part	Description	Quantity
1	1514884	LID,FOAMMIX FLEX	1
2	7116902	PRESSURE SENSOR 100BAR 0-10V 1/2UNF ROHS	2
3	1515066	PIN W/HOLE,CLEVIS,.31” DIA X .50” LG	2
4	1515067	PIN,HAIR,COTTER,.08” DIA X 1.50” LG	2
5	1514885	PANEL,SIDE,GAS,FOAMMIX FLEX	1
6	983029	WASHER,FLT,M,REG,M6,STL,ZN	6
7	1038064	CAPSCR,SOC,M6X14,STEEL,BLK	4
8	983404	WASHER,LK,M,SPT,M8,STL,ZN	8
9	982395	SCR,SKT,M8X1.25X25,BL	12
10	1514982	VALVE ASSY,CHECK,GAS,FOAMMIX	1
11	1514984	BLOCK,CHECK VALVE,GAS,FOAMMIX	1
12	982032	SCR,SKT,M6X30,BL	2
13	1511067	TUBEFTG,ADAPTER,M,6MMT X 9/16,SS	2
14	1511076	CONN,MALE,.38 TUBE X .25,SSTL	2
15	1511876	VALVE,GAS,250 SCCM,1500 PSI	1
16	1510490	CABLE,ASSY,SFA MIXER,GAS VALVE,5M,9DSUB	1
17	1514891	TRANSDUCER ASSY,PRESSURE,GAS	1
18	1512721	BLOCK,GAS PRESSURE,TRANSDUCER	1
19	972047	FITTING,TUBE,9/16X7/16,O-RING	1
20	985409	PIN,DOWEL,.250X .500,H&G	1
21	973221	PLUG,O RING,STR THD,3/4-16,STL	1
22	940293	O RING,VITON, 1.500X1.625X.063,-029	1
23	1514985	STATOR,MIXER,FOAMMIX	1
24	900001	BALL,440SSTL,.500, 50	1
25	1515064	SPRING,COMP,.50 OD X .81 LG,SS	1
26	1513009	GUIDE,DIVERTER,MIXER,FOAMMIX	1
27	986604	RETAINING RING,INT, 93,INVERT	1
28	345388	SCR,SET,FLAT,M8 X 30,BL	2
29	1514179	MIXER,.150 TOOTH HELIX,FOAMMIX	1
30	1512733	SHAFT,.500 MOTOR,.750 MIXER,FOAMMIX	1
31	941511	O RING,VITON, 3.000X3.188X.094	1
32	1512647	ADAPTER,DRIVE,FOAMMIX	1
33	----	ITEM NUMBER RESERVED	–
34	1121050	ORING,-119,VITON,.924X.103W	1
35	1515746	PLATE,SEAL RETAINER,INNER,FOAMMIX FLEX	1
36	1510208	SEAL,ROTARY,5/8 ID,WITH FLANGE	2
37	1509388	PLATE,MIDDLE SEAL RETAINER,SLICE	1
38	1509387	PLATE,SEAL RETAINER,OUTER,SLICE	1
39	982349	SCR,SKT,M4X16,ZN	2

Continued...

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Item	Part	Description	Quantity
40-52	----	ITEM NUMBERS RESERVED	–
53	1514883	BRACKET,GAS PRESSURE,FOAMMIX FLEX	1
54	1514881	BASE,FOAMMIX FLEX	1
55	1514886	PANEL,SIDE,DRAIN,FOAMMIX FLEX	1
56	341163	VALVE ASSY,DRAIN,3.37 LG	1
57	982096	SCR,PAN,SLT,M4X8,ZN	1
58	973299	PLUG,O RING,STR THD,3/8-24	3
59	1514938	MANIFOLD,FOAMMIX FLEX	1
60	972034	CONNECTOR,37DEG,STR THD,1.97	1
61	130633	CONNECTOR,8 SAE,M,3/4T,37S	1
62	1090202	TUBEFTG,CONN,10MMT,1/4NPT,PUSHIN,BRASS	2
63	973574	PLUG,O RING,STR THD,9/16-18	2
64	1514887	INSULATOR,.75 O.D. X .250 I.D. X .125 LG	2
65	1514882	BRACKET,ALIGNMENT,FOAMMIX FLEX	1
66	973402	PLUG,PIPE,SKT,FLUSH,1/8,ZN	3
67	983409	WASHER,LK,M,SPT,M6,STL,ZN	2
68	982030	SCR,SKT,M6X20,BL	2
69	249675	NUT,HEX,M3,W/EXT TOOTH,WSHR	2
70	208498	LATCH, SPRING, MED, 4MM HEX HD	1

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Mixer Assembly *(contd)*

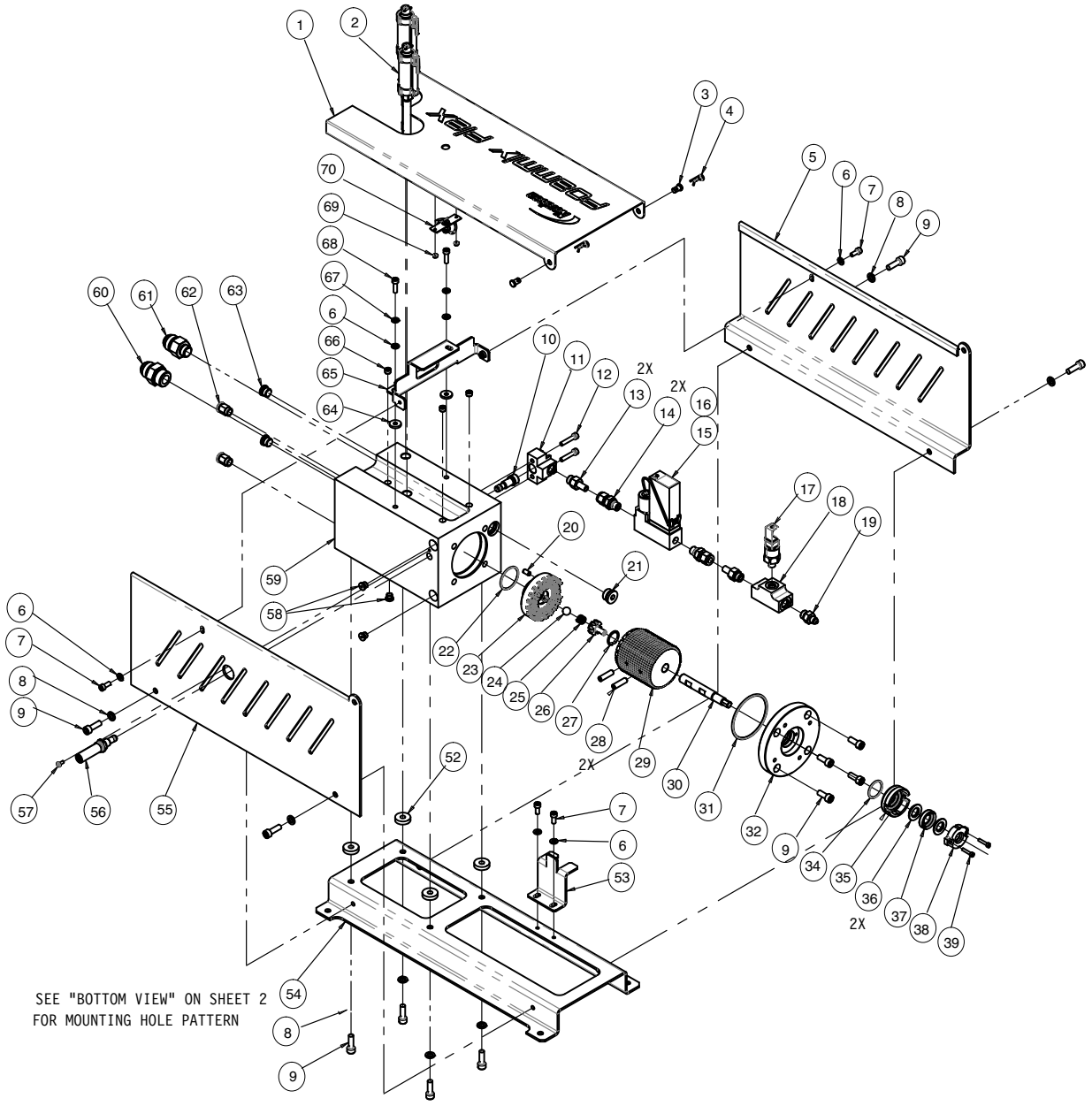

Figure 44 Mixer assembly parts

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FoamMix Check Gas Valve Assembly

See Figure 45.

Item	Part	Description	Quantity
—	1514982	VALVE ASSY,CHECK,GAS,FOAMMIX	1
1	1505200	• POPPET,CHECK VALVE,SFA	1
2	146561	• RETAINER,CHECK VALVE	1
3	940085	• O-RING,VITON,BLK, .188X .313,10408	1
4	1108372	• LUBRICANT,O-RING, NSF-H1,FOOD GRADE,4L	1
5	940101	• O-RING,VITON,BLK, .239ID X .070W,BR	1
6	945036	• BACK-UP RING,SINGLE,1/4 X 3/8	1
7	1514983	• BODY,CHECK VALVE,GAS,FOAMMIX	1
8	987035	• SPRING,COMP, .500X .240ODX.022	1
9	146562	• GUIDE,CHECK VALVE	1
10	984102	• NUT,HEX,MACH,#3-48,STL,ZN	1
11	900465	• ADHESIVE,LOCTITE 277,RED,HI STRENGTH,50ML	1
12	940141	• O-RING,VITON,.489ID X .070W,BR,10414	1

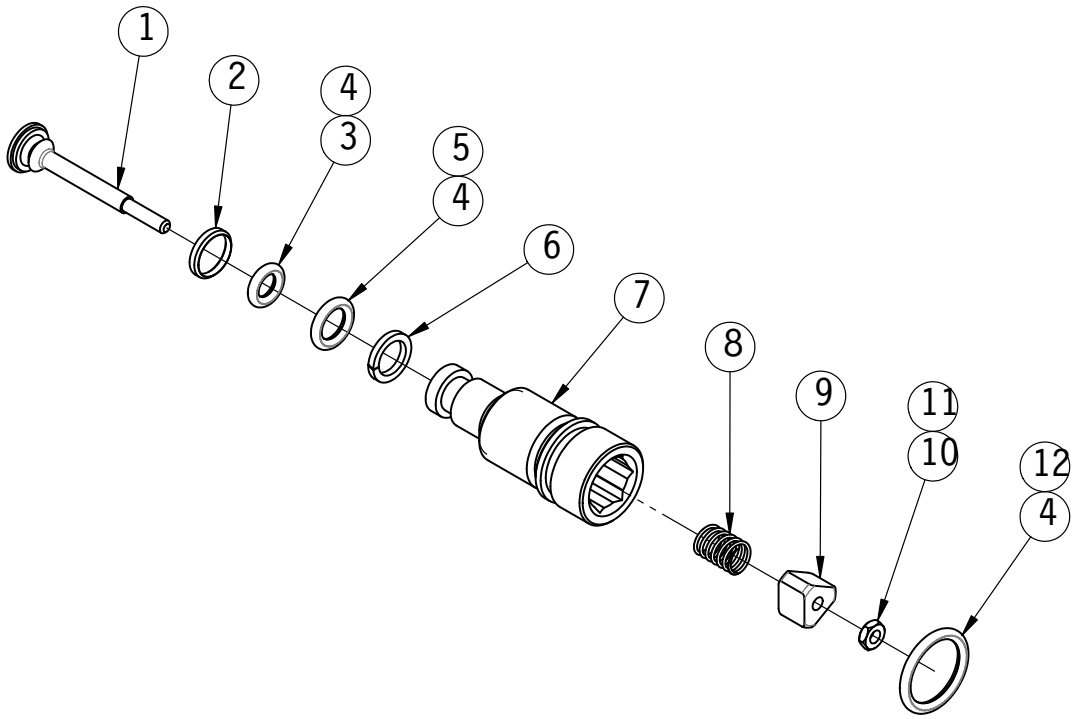

Figure 45 FoamMix gas check valve assembly parts

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FoamMix/VDK Controller

See Figure 46 on page 93 and Figure 47 on page 94.

Item	Part	Description	Quantity
1	----	ITEM NUMBER RESERVED	–
2	1510827	COMPACTLOGIX CPU 1769-L24ER-QB1B	1
3-5	----	ITEM NUMBERS RESERVED	–
6	7116139	COMPACTLOGIX ANAL.INPUT MODULE 1769-IF8	1
7	7126040	COMPACTLOGIX ANAL.OUTPUT MODULE 1769-OF8	1
8	7116134	END CAP RIGHT 1769-ECR	1
9	1505768	CABLE,ETHERNET,CAT5E,3FT,YEL	1
10	1123460	CONTROLLER, MOTORCNTL SERVO DRIVE, 22E	1
11	1123683	FILTER ASSEMBLY,RFI,7.5A,1PH,240V	1
12	1510950	CIRCUIT BREAKER,2P,480V,3A,D CURVE	1
13	1504506	OI,TCHSCRN,CLR,ENET,RS-232,10IN	1
14	----	ITEM NUMBER RESERVED	–
15	1123699	RELAY,DPDT,24VDC	9
16	1123700	RELAY,BASE,DPDT	9
17	1123701	RELAY,CLIP	18
18	171227	SWITCH,DISCONNECT,3P,40A,A/B	1
19	171229	KNOB,DISCONNECT,YELLOW/RED,A/B	1
20	1502419	POWER SUPPLY,24VDC,2.1A,50W	1
21	1512281	CIRCUIT BREAKER,2P,480V,25A,UL489	1
22	7174249	FAN 230VAC 55M3/H SK3238	1
23	7174250	FILTER F.SK3238	1
24	1090158	WIREDUCT, 1 IN X 3 IN,PVC,GRAY,SLOTTED	–
25	1505616	WIREWAY,2X3,PVC,GRAY,SLOTTED,NARROW	–
26	1046394	COVER, 1	–
27	1082619	COVER,WIRE DUCT,2 IN,LT GRAY,PVC	–
28	1507086	DIN RAIL, 35MMX7.5MMX1M, STEEL	–
29	306318	ANCHOR,END	14
30	----	ITEM NUMBER RESERVED	–
31	1505337	CIRCUIT BREAKER,2P,480V,6A	1
32	1513439	CIRCUIT BREAKER,2P,277V,1A,B CURVE	1
33	----	ITEM NUMBER RESERVED	–
34	1513468	LABEL KIT,PROMETER VDK,AFC,UNIV.,240V	1
35	1508229	STRAIN RELIEF,PG21,BLACK,W/REDUCER BUSHI	1
36	1123686	CONNECTOR,HOUSING,HAN3A,PLASTIC,RIGHT AN	5
37	985112	RIVET,POP,3/32X.250,BLACKOXIDE	40
38	1054055	STRNRLF,4COND,POLYAMIDE-SEAL,63MM-DIA	1
39	1123687	PUSH BUTTON,OPERATOR, ILLUM,FLUSH,GREEN	1
40	1123688	PUSH BUTTON,OPERATOR, NONILLUM,FLUSH,BLK	1

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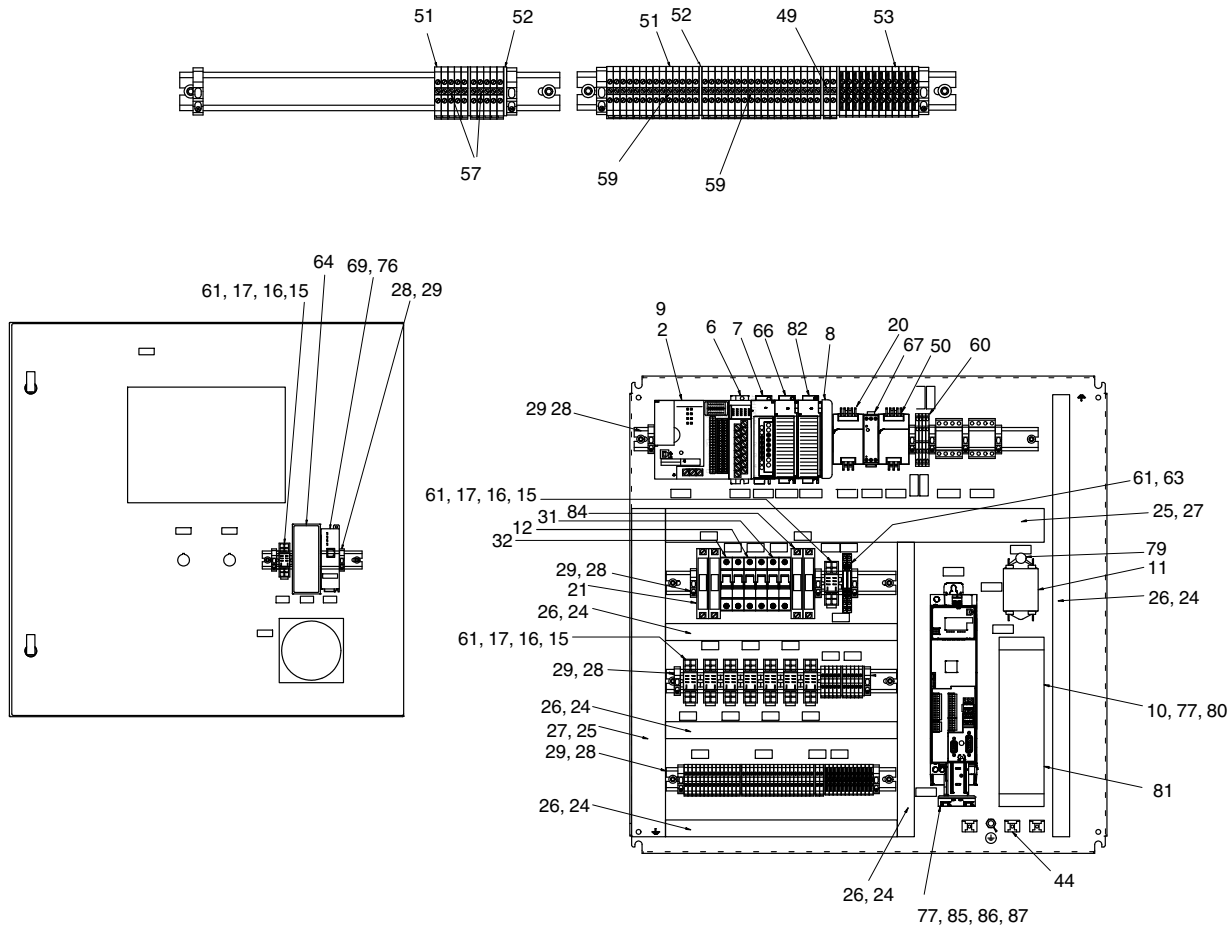

Figure 46 Pro-Meter VDK controller parts (1 of 2)

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FoamMix/VDK Controller *(contd)*

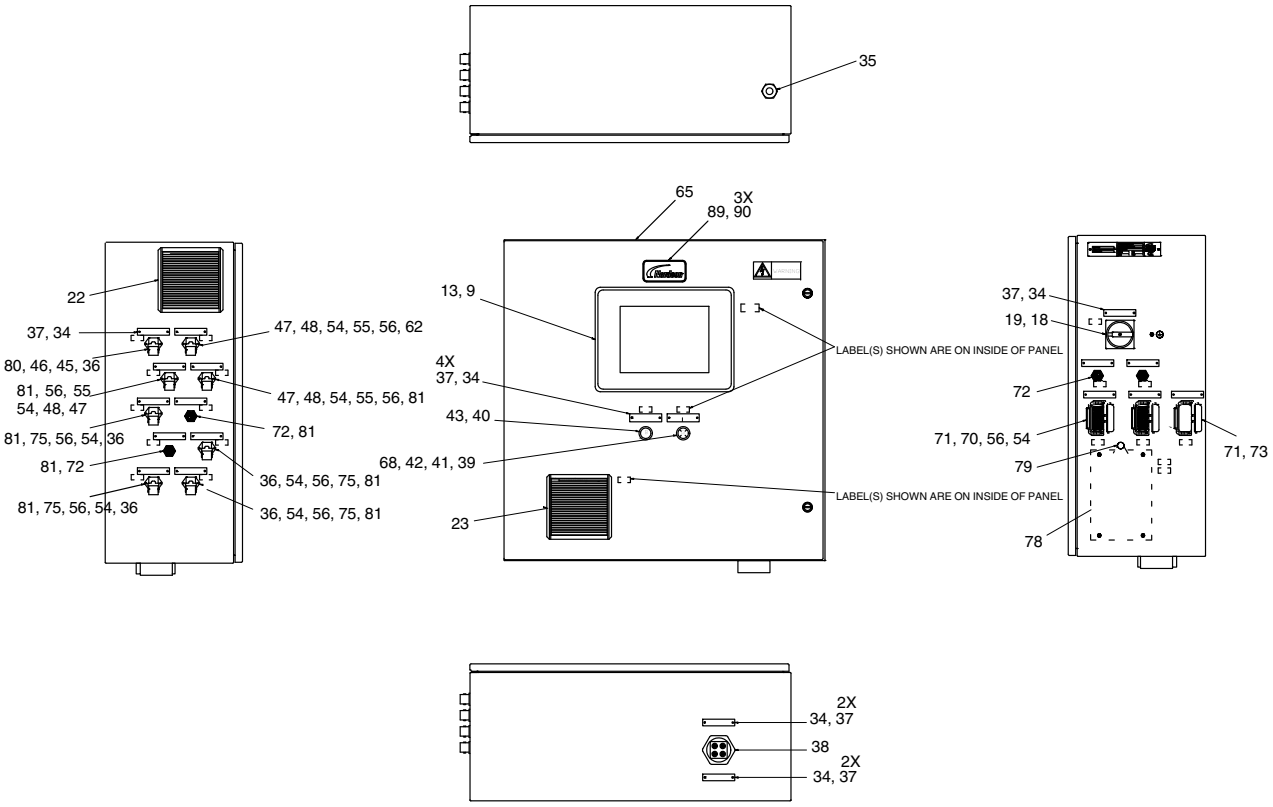

Figure 47 Pro-Meter VDK controller parts (2 of 2)

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See Figure 46 on page 93 and Figure 47 on page 94.

Item	Part	Description	Quantity
41	1093848	CONTACT BLOCK,1N.O.,PB,22.5MM	1
42	1088757	PLASTIC LATCH	1
43	1089350	CONTACT BLOCK,1NC,PB,22.5MM	1
44	1046402	TBACCY,CLAMPING YOKE,4-13MM,SCREW-TYPE	1
45	1016595	CONNECTOR,INSERT,7POS,MALE,250V,CRIMP	1
46	445854	CONTACT PIN 0,75QMM CRIMP SILVER	8
47	1075103	INSERT,FEMALE,CRIMP,8PIN	3
48	251425	SOCKET HOUSING HAN8U METAL 90°	3
49	1075585	JUMPER,SCREW CENTER,2-POLE,6MM,J SERIES	1
50	1509481	POWER SUPPLY,DUAL OUTPUT,+/-15VDC,36W	1
51	1075583	TERMINAL BLOCK,GRAY,IEC,22-10 AWG,J4	44
52	1075584	BARRIER,TBACCY,END,DIN,GRAY,J SERIES	5
53	1075665	TERMINAL BLK,GND,GRN/YEL,30-12 AWG,JG4	12
54	238349	CONNECTOR,CRIMP,SOCKET,22-26GA	49
55	1046391	CONNPIN, FEMALE 18AWG,HAN,SILVER,CRMP	8
56	238350	PLUG,KEYING	9
57	1078737	JUMPER,SCREW CENTER,10-POLE,6MM,J SERIES	1
58	----	ITEM NUMBER RESERVED	–
59	1123690	TERMINAL,DIN,JUMPER,41POS,CUT TO LENGTH	1
60	1504522	BLOCK,TERMINAL,2P,DIODE	4
61	171656	DIODE,GENP,1N4007,1KV,1A,AXL	11
62	1123691	SUPPRESSOR,EMI,CLAMP,FERRITE,13MM,62 OHM	1
63	1067340	RELAY,TERM BLK,SPDT,24VDC	2
64	1504505	SWITCH,ETHERNET,8-PORT,UNMNGD	1
65	1513096	CABINET,ASSY,PROMETER,AFC,240V,UNIVERSAL	1
66	1508228	MODULE,INPUT,THERMOCOUPLE/Mv,1769-IT6	1
67	1508227	POWER SUPPLY,5VDC,3A,DIN RAIL,240VAC IN	1
68	1123689	PUSH BUTTON,POWERMODULE,24V,LED,GREEN	1
69	1127771	ROUTER,NAT,ETHERNET,AB 1783-NATR	1
70	296636	INSERT,HAN 15D,FEMALE CRIMP	2
71	296635	HOUSING,BULKHEAD,W/COVER	3
72	1505126	CONNECTOR,CIRC,5POS,SOCKET,PNLMT,W/3MLD	4
73	1099679	CCONNINSERT,FEM,HAN,10POS,SCR TERM	1
74	----	ITEM NUMBER RESERVED	–
75	1006037	INSERT, (M), HAN 7D, FEMALE	4
76	1505635	CABLE,ETHERNET,CAT5E,1FT,RED	1
77	1505769	CABLE,ETHERNET,CAT5E,5FT,YEL	2
78	1509485	FILTER,EMI,MOTOR DRIVE,1PH,250 VAC,10A	1
79	177691	MOV,V275LA,275VAC,369VDC,RAD	2
80	1509486	EMISUPP,CABLE CLAMP,FERRITE,13MMID,40MML	3
81	1509487	EMISUPP,CABLE CLAMP,FERRITE,10MMID,40MML	9
82	1513136	MODULE,COUNTER,HI-SPD,1769-HSC,AB	1

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FoamMix/VDK Controller *(contd)*

Item	Part	Description	Quantity
83	----	ITEM NUMBER RESERVED	–
84	1095205	CIRCUIT BREAKER,2 POLE,15A,UL489	1
85	1513332	MOTOR CONTROL,SRV,240V,1PH,1.1kW,PROG	1
86	1513331	MODULE,COMM,ENET/IP,DRV,8400,TL	1
87	1513333	CLAMP,WIRE,SHIELD,4-15MM	1
88	1513441	AMPLIFIER,FLOW METER,CAPM-15/AMP,HI-TEMP	2
89	1103928	NAMEPLATE,CAST,2 X 4,WHITE,CHROME LOGO	1
90	984529	NUT,SPRING,PUSH ON,.125	3

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Recommended Spare Parts

Part	Description
1512887	SHAFT,DRIVE,MAG,FOAMMIX
1515062	REDUCER,SERVO,GEAR,STRAIGHT,LENZE
1515063	MOTOR,SERVO,APPLICATOR,LZ DRIVE,1 kW
7116902	PRESSURE SENSOR 100BAR 0-10V 1/2UNF ROHS
1514982	VALVE ASSY,CHECK,GAS,FOAMMIX
1511876	VALVE,GAS,250 SCCM,1500 PSI
1514891	TRANSDUCER ASSY,PRESSURE,GAS
1510208	SEAL,ROTARY,5/8 ID,WITH FLANGE
1123460	CONTROLLER, MOTORCNTL SERVO DRIVE, 22E
1123683	FILTER ASSEMBLY,RFI,7.5A,1PH,240V
1123699	RELAY,DPDT,24VDC
7174250	FILTER F.SK3238
1509485	FILTER,EMI,MOTOR DRIVE,1PH,250 VAC,10A
177691	MOV,V275LA,275VAC,369VDC,RAD
1513332	MOTOR CONTROL,SRV,240V,1PH,1.1kW,PROG

NOTE: Contact local vendor for non-Nordson parts.

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