
TRIPLEX PUMP CONTROLLER



STATION MASTER™ 3000

Features

- User-friendly graphical interface
- Ultra-bright daylight viewable LEDs show setpoints and configuration information
- Door mounted, sealed front
- Pump Up or Pump Down operation
- Isolated analog input
- Solid state triac outputs, individually fused
- Level simulation
- Security protection
- SCADA Ready, Modbus® protocols

PUMP CONTROL WITH A SIMPLE TWIST

The Station Master 3000 provides triplex pump control with an intuitive, easy-to-use interface.

How simple is it?

- Turning the knob moves the cursor
- Pressing SELECT activates the setpoint
- Turning the knob changes the setpoint
- Pressing SET confirms the change

The EZ2 See/EZ2 Set™ interface makes setup and adjustment a simple task. The controller is ideally suited for sewage lift stations, water systems, or other process control applications.

The Station Master 3000 contains many of the impressive features of the Station Master 2000, Contegra's duplex pump controller. While the Station Master 2000 set a new

standard for simple, capable duplex pump control, the Station Master 3000 builds on that foundation and brings competent simplicity into triplex control.

The Station Master 3000 contains six 40-segment, 4" columns of Ultra-Bright LEDs show. The indicating columns show:

- Process Level
- Pump On/Off Setpoints
- High & Low Alarms
- Configuration/Setup Information

SIMPLICITY & RELIABILITY

The easy-to-use interface leads the operator through the setpoint and configuration selections. This 'guided tour' of the controller's features makes operating the controller as easy as turning a knob to select and change the setpoint.

STATION MASTER™ 3000

EZ2 SEE DISPLAY

Ultra-bright LED indicators provide daylight viewable indication of the current tank level, pump on/off setpoints, and high and low alarm setpoints, along with complete controller setup information (e.g. alternator sequence, pumping direction, etc.)

EZ2 SET ADJUSTMENTS

The easy-to-use interface leads the operator through the setpoint and configuration selections. The features include simple setpoint adjustment, convenient selection of the pumping order, pumping direction (i.e. Pump Up/Pump Down), and numerous other easily understood and readily accessible features. This 'guided tour' of the controller's features makes operating the controller as easy as turning a knob to select and change the setpoint.

With the STATION MASTER controller's sealed front cover there are no programming switches to move to jumpers to lose. The interface makes setup, adjustment and confirmation of the controller's operating parameters EZ2 See/EZ2 Set™.

The controller accepts analog inputs ranging from 4-20 mADC or 0-5 VDC. The Station Master controller typically accepts a ranged input signal (e.g. 4-20 mADC over 0-10 feet). However, it has the ability to easily scale an uncalibrated input.

A Feature Packed System

Whether dealing with a new installation or retrofitting an existing site, STATION MASTER controllers provide outstanding control, alarm, and telemetry capabilities. They're more than just intuitive pump controllers; they're versatile and can be used as intelligent Remote Terminal Units (RTUs) and competent members of your SCADA (Supervisory Control and Data Acquisition) system. Modbus ASCII and RTU protocol are standard (other protocols available).

The EZ2See/EZ2 Set™ interface allows the operator to easily select either 1st On/ 1st Off, Fixed, or Rotary alternation. The STATION MASTER 3000 provides both selectable two pump (third pump standby) or three pump control.

All adjustments and setpoints are stored in permanent memory.

Several standard operation ranges are available including 10', 15', 20', 30', and 40'. Custom ranges are available. A slip-in pocket provides the means by which the scale can be changed to meet the application's needs.

The STATION MASTER 3000 has an on-board audible alarm and an external alarm driver that activate on High or low Level Alarm.

Manual level simulation allows the operator to test the controller's operation and confirm the configuration. Pressing the SIM button activates level simulation. Simulation "safety" is an integral part of the Station Master's control strategy.

The controller is powered by 12-24 VDC. It contains a battery charging circuit (battery optional) that includes automatic switchover on power failure.

The security code is configurable. When enabled it prevents unauthorized changes to the system's settings.

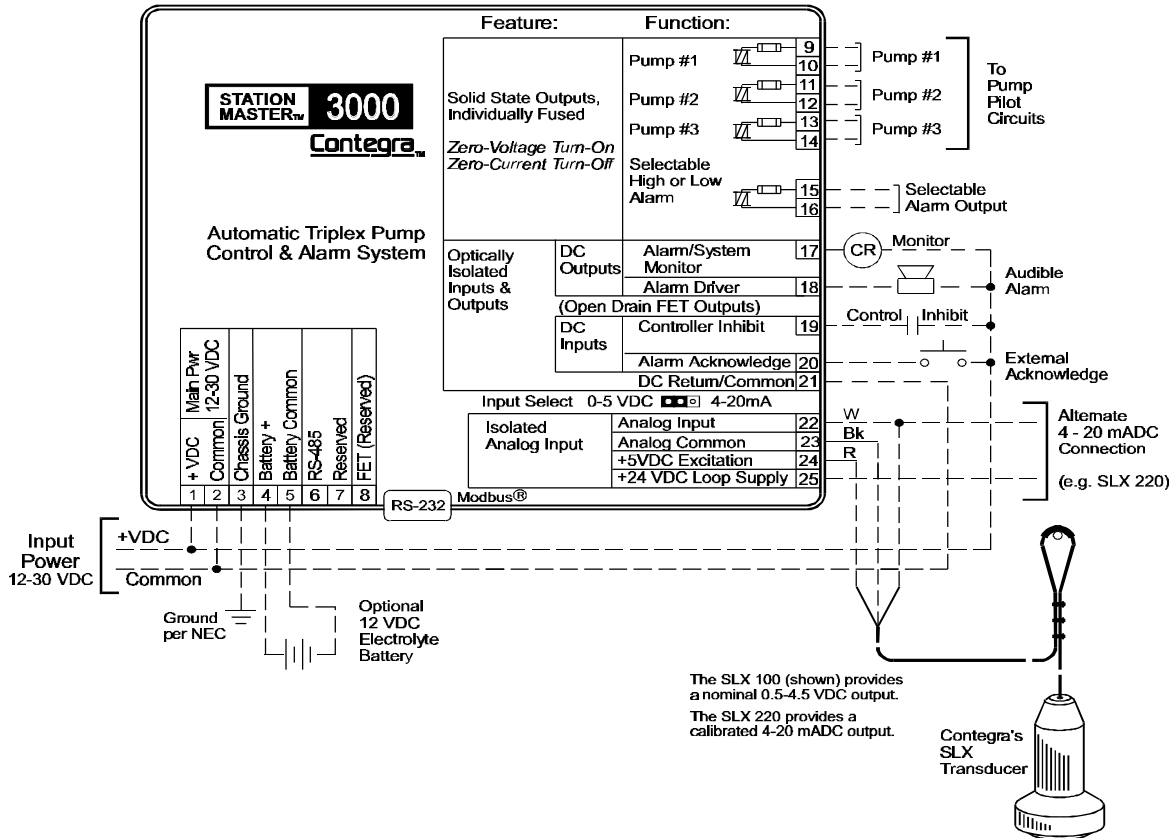
The STATION MASTER 3000's inputs and outputs are optically isolated to improve their performance in electrically noisy environments. Additionally, solid state triacs reduce radiated noise by providing zero-voltage turn-on and zero-current turn-off of the pump control and alarm outputs.

DUPLEX CONTROLLER

CONTEGRA offers the STATION MASTER 2000 controller for duplex pump control. Additionally, Contegra has a broad line of discrete and continuous level sensors and pump controllers. Contact CONTEGRA or your local representative to find out more about how we can meet your sensing, monitoring, and control needs.

STATION MASTER 3000

Robust Input/Output for Noisy Environments



I/O features:

- Isolated analog input: 4-20 mA or 0-5 VDC input. Integral & isolated 5 and 24 VDC supplies provide excitation for local level sensors or loop-powered 4-20 transducers.
- Two isolated inputs: external alarm acknowledge and controller inhibit.
- Four isolated, individually fused solid-state triacs: rated 3 Amps @ 120 VAC (Pump 1, 2, & 3 Required and a Selectable Alarm).
- Two optically isolated DC/Darlington pair outputs: System Monitor and External Audible Alarm.

Installation

The controller is 7" H x 9.5" W x 2" D. The required door cutout is 6.5" H x 8.5" W.

All wiring is terminated at removable terminal blocks located on the rear of the controller.

Contegra's Model SLX 100 transducer (shown) provides a direct input to the STATION MASTER. The SLX 100 and SLX 220 provide:

- PVC, Viton, PVDF, and Teflon wetted parts for excellent chemical resistance.
- Large diaphragm, preventing clogging. Self-suspension by the signal cable.

Contact your Contegra representative for additional information on Contegra's line of level and pressures sensors.

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STATION MASTER™ 3000

Engineering Specifications

This specification covers a complete and operational automatic triplex pump control and alarm system responding, to the _____ level as shown on the plan drawings.

The controller shall accept a single analog input signal over a user definable, field configurable range. To reduce exposure to corrosive environments and ensure the control system's reliable, long-term operation, the controller shall have a sealed, user-friendly, graphical interface. The interface shall be comprised of a rotary knob, switches and six columns of ultra-bright, daylight-viewable red LEDs. Five 40-segment, 4" columns of LEDs shall show the process tank level, the pump on and off control bands, and the high and low alarm setpoint bands. All LEDs within a control band shall be illuminated when operating under normal power. A sixth LED column shall indicate the controller's configuration, status, and active alarms. Alarms shall consist of high alarm, low alarm and input signal out of range. Monitor functions shall include control power and normal system operation. The controller shall contain an internal annunciator and an external alarm driver that activates on an alarm condition. The controller shall contain an integral 'silence' key and an external silence input. Discrete LED's shall show the activation of the differential pump control stages.

The controller shall provide easy, convenient indication and adjustment of the operating setpoints and controller configuration without the need for tools. Configuration information shall be stored in the controller's permanent memory. For ease of operation and configuration, multiple indicating columns are required. Controllers that provide fewer columns, thus limiting the viewing of relevant and necessary station information, are specifically precluded by this specification.

The control circuits shall be forced OFF by activation of the external inhibit input or upon power loss. Upon power restoration, or removal of the inhibit input, the controller shall enable its outputs in an adjustable time-step sequence as required to meet the demand.

The controller shall continuously indicate the status of the selected alternation sequence, pumping direction, and control modes. The controller shall provide 1st On/ 1st Off, Fixed, and Auto Rotate alternation sequences and selectable Pump-Up or Pump-down programming.

Integral span, offset, and damping adjustments shall be adjustable from the front of the controller. The controller shall have the ability to select from 1 to 40 seconds of input signal averaging/damping. The controller shall have a configurable security lockout feature.

The controller shall be powered by 12-24 VDC. When operating on main power, the controller shall charge an optional, external gel-cell battery. Upon loss of power, and when provided with the battery, the controller shall revert to a low-power mode. When applied as an RTU and operating on battery backup, the controller shall continue to provide communication with the host controller.

The controller shall contain a level simulation function that allows manual manipulation of the displayed process variable. While simulating, the controller shall display both the actual process level and the simulated level. The simulation function shall contain integral safety features.

The controller shall provide isolated 5 and 24 VDC for direct power/excitation for a compatible level sensing transducer. The controller shall contain an isolated analog input, two optically isolated digital inputs, and five isolated digital outputs. The analog input shall accept a nominal 0-5 VDC or 4-20 mADC signal. Four discrete outputs shall be individually fused, solid-state switches with zero-voltage turn-on and zero-current turn-off. Two optically isolated Darlington pair outputs shall be provided for common alarm and controller monitor. The controller shall contain an RS-232 communication port and have capabilities for connection to a SCADA (Supervisory Control And Data Acquisition) system. The complete assembly shall be designed for use in UL508 Industrial Control Panels. All job connections shall be at drop-cage type removable terminals.

It is the specific intention of this functional requirement that a standard controller shall be provided with features as described herein. Additionally, this controller shall be a fully-integrated assembly. That is, the furnishing of similar functions using multiple setpoint modules, a custom-configured programmable logic controller (PLC) or extensive relay/timer logic to accomplish control sequences, etc., is specifically precluded by this specification and is not acceptable. The controller shall be a Contegra STATION MASTER 3000.



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