Contegra’s STATION MASTER 703 controller is an Easy-to-See and Easy-to-Set (EZ2 See/EZ2 Set™) automatic triplex pump control and alarm monitoring system that provides triplex pump control with an intuitive, easy-to-use graphical user interface.

The STATION MASTER 703 controller is ideal for sewage lift stations (i.e. Pump-Down applications) or water systems (i.e. Pump-Up applications). The EZ2 See/EZ2 Set™ interface makes installation and operation a simple process. The graphical display shows the current tank level, pump 1, 2 and 3 on/off setpoints, and the high and low alarm setpoints.

Underlying screens allow the operator to adjust the pump and alarm setpoints, select alternation sequences review alarms and configure the controller for the specific application. The adjustments are easily accessed through the HOME screen’s columnar display or by means of the HOME screen’s MENU pushbutton.

The DIN-rail-mounted IO Module is typically mounted on an enclosure’s inner panel. The module’s relay outputs provide control for the three pumps and several selectable alarm points. The module’s selectable inputs include pump running, pump unavailable, pump no-flow, control inhibit, external alarm acknowledge, pump over-

**Station Master™ 703**

**Features:**
- NEMA 4X, QVGA (Quarter VGA), Color Touch-Screen, TouchPoint™ graphical interface
- DIN Mtd Input/Output Module with pluggable terminal blocks
- Process Simulation
- Multi-Level Security Protection
- Alternation: FOFO, Rotary, Fixed
- Running Time Meters, Start Counters, Cycle Timers
- Primary and Secondary Analog Inputs
- User-Configurable Scale

...temperature, pump seal-failure, generator running, and alarm acknowledge. The IO Module’s 12-bit analog inputs accept both a primary and secondary (optional) process level sensing input and an analog signal for a flow sensor (optional). In pump-down applications the SM703V provides VFD control by means of an analog outputs which is used to modulate the VFD’s speed. The controller’s second analog output follows the process level over a 0-100% excursion.
EZ2 SEE DISPLAY

The LED backlit HMI provides daylight viewable indication of the current tank level, pump on/off setpoints, and high and low alarm setpoints, along with easily accessible controller setup information (e.g. alternator sequence, pumping direction, etc.)

EZ2 SET ADJUSTMENTS

The TouchPoint™ operator interface leads the operator through the setpoint and configuration selections. The features include 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 touching the desired setpoint or adjustment and changing the respective setpoint.

With the STATION MASTER controller’s sealed front cover there are no programming switches to move or 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 mA DC or 0-5 VDC. The Station Master 703 controller is able to easily scale either a calibrated (i.e. 4-20 mA over 0-10' excursion) or an uncalibrated input.

A Feature Packed System

Whether dealing with a new installation or retrofitting an existing site, the Station Mater 703 controller provides outstanding control and alarm capabilities.

The TouchPoint™ interface allows the operator to easily select 1st On/ 1st Off, Fixed, or Rotary alternation.

All adjustments and setpoints are stored in permanent memory.

The installing technician sets the controller’s operating range to a value up to a 100.0’ excursion.

The Station Master 703 has an on-board audible. Several user-selectable alarm outputs are also provided.

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.

To prevent unauthorized changes to the system’s settings, the HMI’s setpoints and configuration adjustments are protected by multiple security levels.

The Station Master 703’s inputs may be configured as either sinking (i.e. Pull down) or sourcing (i.e. Pull-Up).

I/O features:

- Analog input: 4-20 mA or 0-5 VDC input. The IO module provides 24 VDC for sensor excitation.
- Selectable Discrete Inputs: Pump 1, 2 or 3 Running, Pump 1, 2 or 3 Failed, external alarm acknowledge and controller inhibit.
- Discrete Relay Outputs: Pump 1, 2 and 3 Control and selectable alarm outputs. All relay outputs are normally open (i.e. open on power failure). Outputs 1-4 share a common return. Outputs 5 & 6 share a second common return. The relays are rated for 2 amps maximum per contact and a maximum of 5 amps per common.

Installation

Externally the HMI is 5.7”H x 7.25”W x 1.7”D. The required door cutout is 5.2”H x 6.78”W.

The IO module is 4” H X 6”W X 3.25”D. All wiring is terminated at removable terminal blocks.

The SM703 includes the serial communication cable that provides communication between the HMI and the IO Module.

Power: HMI— 24 VDC, IO Module — 120 VAC.

Ordering Information:

SM703C
Triplex Controller for constant speed applications

SM703V
Triplex Controller for variable speed (pump-down) applications
For proper operation the switch must remain in the RUN position.

Dashed wiring is provided by others.

The colors shown above correspond with the resistor color code. Some cables may not follow that standard. Prior to applying power, check the continuity of the cables to ensure that the D+, D- and SG connections are correct regardless of the wire's colors.

Typically:
- Brown (BN) = Pin 1, Red (R) = Pin 2, Orange (OR) = Pin 3, Yellow (Y) = Pin 4, Green (GN) = Pin 5, Blue (BU) = Pin 6, Violet (V) = Pin 7, Gray (GY) = Pin 8, White (W) = Pin 9, Black (BK) = Pin 10

The 120 VAC -> 24 VDC power supply is provided by others.
The controller shall accept a primary and secondary analog input signal. Analog Inputs shall be dedicated to the Primary and Secondary (i.e., setpoints) shall be represented by a single bargraph. Displays that require on and off setpoints. Each pump control group (i.e., group of "On/Off" stages and High or Low-Level alarms) shall be represented by a bargraph. The maximum height of the bargraph shall be representative of the user specified display range. Bargraphs shall also display the pump running, pump fault, alternation mode, alternation sequence and the pumping direction. Full breadth of the Status Display's functionality shall be made available by enabling the desired features associated with the discrete inputs.

The controller shall contain Running Timer Meters, Cycle Timers, Start Counters and No-Flow Timers for each of the pumps. Such features are enabled by proper configuration of the controller's inputs. Three of the controller's outputs shall be reserved for pump control. The controller shall provide the ability for the customer to select the specific functions that are to be assigned to each of the remaining outputs. The list shall include but shall not be limited to High Alarm, Low Alarm, Input Signal High Failure (i.e., Over Range), Input Signal Low Failure (i.e., Under Range) and Pump Fault. The controller shall contain an internal annunciator that activates on an alarm condition. The controller shall contain an integral 'silence' key and a dedicated input for an external alarm acknowledge/silence. An alarm indicator and ACK (i.e., acknowledge) soft-button shall appear on each of the controller's displays. Alarms shall be logged into the controller's historical alarm buffer. The alarm buffer shall show the time and date of each status change for any alarm condition. The pump control circuits shall be forced OFF by activation of the external inhibit input. 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 via the Info soft-pushbutton and Status Display. 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 easily adjustable. The controller shall have a configurable security lockout feature that may be used to prohibit setpoint adjustment by unauthorized personnel.

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. It is the specific intention of this functional requirement that a standard controller shall be provided with features as described herein. Furnishing of similar functions using multiple setpoint modules 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 TouchPoint™ 703V (variable speed)