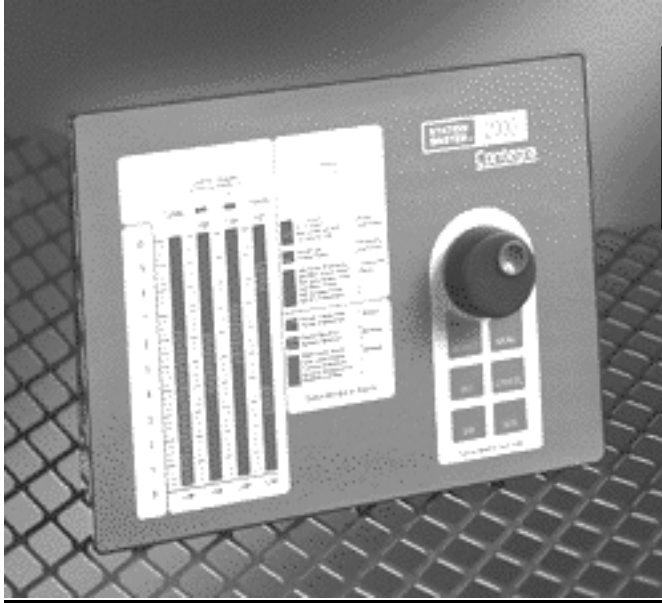


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# Quick Start Manual

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## STATION MASTER<sup>®</sup> 2000 Duplex Pump Controller

### SUMMARY

- Turn the knob to advance the cursor
- Press SELECT to activate the setpoint
- Turn the knob to change the setpoint
- Press SET to confirm the change

### General Description

The STATION MASTER<sup>™</sup> 2000 controller has an Easy To See (EZ2 See) and Easy To Set (EZ2 Set) display that shows all controller setpoints and adjustments simultaneously.

The EZ2 See/EZ2 Set<sup>™</sup> display allows the operator to quickly view the following:

- 1) Current tank level
- 2) Control stages 1 & 2 On / Off setpoints
- 3) High alarm On/Off setpoint
- 4) Low alarm On/Off setpoint
- 5) MENU settings including:
  - a) Alternator sequence
  - b) Pumping direction
  - c) Controller setup
- 6) Status and alarm information

### Typical Operation

When the station is operating in a typical, non-alarm mode, the pump on/off and alarm setpoint indicators are steadily illuminated. The level-indicating column of LEDs (i.e. left-most column of indicators) rises and falls and thus shows the level fluctuations. Additionally, as pumps are required the 'Control Stage' indicators (at the top of the controller) are activated (as required) and the pump control outputs are energized.

The Control Stage indicators show that a pump has been requested. The Pump 'Required' indicators (lower right) indicate which pump is required.

# Changing Setpoints

The operator causes the cursor to 'wake-up' by simply rotating the knob. The controller indicates the current cursor position by means of a slow-paced blinking at the current position. Turning the knob CW advances the cursor across the controller. The cursor highlights several adjustable points referred to as "hot spots". The first 'hot spot' is the Stage 1 Low Setpoint.

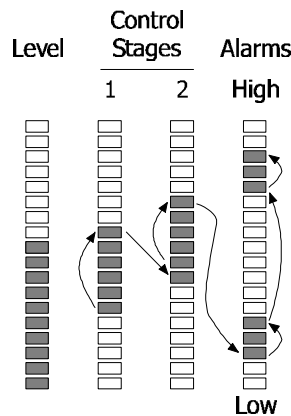
The cursor moves across the 'hot spots' in the following sequence:

Table 1

Primary Control Setpoints

1. Stage 1 Low Setpoint
2. Stage 1 High Setpoint
3. Stage 2 Low Setpoint
4. Stage 2 High Setpoint
5. Low Alarm On Setpoint
6. Low Alarm Off Setpoint
7. High Alarm Off Setpoint
8. High Alarm On Setpoint

A graphic representation of the cursor's movement is shown below.



The operator changes a Control Stage or Alarm setpoint as follows:

1. Turn the knob to advance the cursor to the desired setpoint
2. Press SELECT (The cursor's flash rate increases to a fast-paced blink, thus indicating the setpoint is poised for change.)

3. Turn the knob CW (Clockwise ↻), to increase the setpoint or CCW (Counterclockwise ↺) to decrease the setpoint.
4. Press SET to confirm the new setpoint.  
(Alternatively, the operator can press CANCEL to restore the original / previous setting.)

The audible alarm beeps when the cursor reaches the end of limits.

Once SET or CANCEL has been pressed, the cursor returns to the slower-paced blink. Thereafter, as the knob is turned, the cursor advances through the setpoints listed in Table 1.

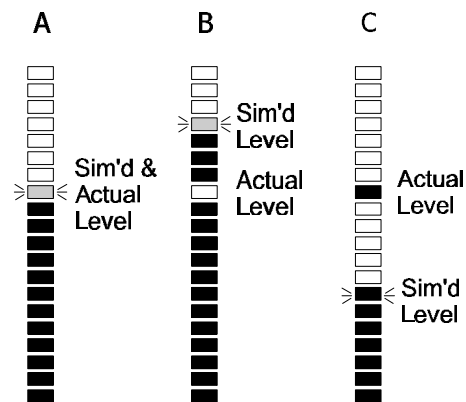
The cursor automatically ceases blinking following 15 seconds of inactivity. (Rather than waiting for the blinking to automatically cease, the operator can cancel the cursor's blinking by simply pressing CANCEL.)

## Simulation

Pressing SIM enables level simulation. Simulation automatically times out following 30 seconds of keyboard or knob inactivity. Alternatively, simulation can be cancelled by pressing the CANCEL or SIM pushbutton.

Once simulation is enabled, turning the knob CW (↻) causes the simulated level to rise. CCW (↺) rotation causes the simulated level to fall.

When simulation is enabled, a blinking LED indicates the simulated level. The highlighted LED in Column A (see below) denotes the cursor position when Simulation is enabled. When simulation is enabled, the actual level and the simulated level are the same in one.



As the simulation level increases and rises above the current process level, an inactive (off) LED denotes the actual (i.e. non-simulated) tank level. (The blinking, highlighted LED in Column B denotes the simulated level. The actual level is indicated by the inactive LED located several positions beneath the Sim'd Level.)

As the simulation level decreases and falls below the current process level, an active LED denotes the actual tank level. (The blinking LED in Column C denotes the simulated level. The Actual Level is indicated by the steadily activated LED located several positions above the Sim'd Level.)

## Shortstop™ Simulation

When operating in a Pump-Down mode, SIMULATION is automatically canceled should the actual level fall to the Low Level ON setpoint.

When operating in a Pump-Up mode, SIMULATION is automatically canceled should the actual level rise to the High Level ON setpoint.

Simulation cannot be activated when the cursor is in the MENU column nor can it be enabled while operating on battery power. If the cursor is in the MENU column, the operator must press CANCEL to return the cursor to the setpoint and alarm adjustment columns as listed in Table 1. Conversely, the controller cannot enter the MENU column while in a simulation mode.

## Security

As shipped from the factory, the STATION MASTER™ 2000 controller's access code is disabled (i.e. set to 1-1-1). Changing the code enables security. Returning the access code to 1-1-1 — the factory default — disables the security feature.

The numbers (e.g. 1-1-1 and 40-40-40) correlate with the position of the 40 LEDs in each column. In systems with a 40-foot scale, the access code is comprised of whole numbers ranging from 1-40.

When using a 10, 20 or 40 foot scale, the operator can program an access code comprised entirely of whole numbers.

EXAMPLES:

- 40 foot scale - 2, 27 and 14
- 20 foot scale - 2, 14 and 12
- 10 foot scale - 2, 6, 4

## Unlocking the Controller

The access code is a three-part numeric sequence (EXAMPLE: 12-28-17). The operator unlocks the controller by pressing SELECT.

Immediately upon pressing SELECT, the two Control Stage columns and the Alarm column are blanked (i.e. the 2<sup>nd</sup> through 4<sup>th</sup> columns from the left appear blank). As the knob is turned CW the cursor ascends the first column of indicating LEDs. As the knob is turned CCW the cursor descends the column of indicating LEDs.

The operator turns the knob and positions the cursor on the first number in the three-part security code. (In the above example, the first number is 12.) The operator then presses SET to confirm the first number in the code.

Immediately upon pressing SET, the cursor moves to the bottom of the second column. Again, the operator rotates the knob to move the cursor to the second number in the sequence. When the cursor is positioned on the second number of the three-part code the operator again presses SET. (In the above example, the second number is 12.)

This sequence is repeated in the third column (In the above EXAMPLE, the operator moves to 17 and presses SET). The controller unlocks when the operator successfully completes the above process.

Once unlocked, the operator can move the cursor and change setpoints as previously described. If the operator enters the code incorrectly, the controller remains locked.

If the operator starts to unlock the controller and turns away to another task, the controller times-out after 15 seconds of inactivity. The controller remains locked and returns to the normal display function.

## Locking the Controller

If the security feature is enabled (i.e. the security code is any sequence other than 1-1-1), the controller automatically locks following two minutes of keyboard/knob inactivity.

The operator may bypass the two-minute delay by pressing CANCEL, until the indicating LEDs stop blinking. Thereafter, pressing and holding CANCEL for three seconds locks the controller.

## Monitor Listing

### Power

Active when the main power is within acceptable limits.

### System

Active when the microcontroller is performing its tasks. Blinking to indicate an I/O fault.  
Inactive when the microcontroller ceases normal operation.

### Control Inhibited

Active when the inhibit input is active (i.e. closed). The audible alarm does not sound when the input is active.

### Control Locked

Active when the system is locked.

## Alarm Listing

### High Level

Activates on high alarm. Remains active until alarm is acknowledged and alarm condition clears.

### Low Level

Activates on low alarm. Remains active until alarm is acknowledged and alarm condition clears.

### Sensor Over/Under Scale

Activates when the sensor input goes out of range. Remains active until ACK is pressed and the alarm condition clears.

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This brochure provides an overview of the Station Master 2000's operation. For more complete programming and configuration information refer to the Station Master's User's Manual.

The STATION MASTER controller is patent pending.

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