

# VCOM-AX20B Panel Operation



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## Overview

The VCOM-AX20B telemetry-enabled panel is used for remote monitoring and control of Advantex® treatment systems that utilize both a recirculation pump and a discharge pump.

Basic control logic manages the day-to-day functionality of the control panel. The VCOM-AX20B system recirculates the effluent an average of four to five times while the recirculating splitter valve (RSV) is open; once the RSV seats, small amounts of treated wastewater are pumped into the discharge tank. During peak flow conditions, the recirculation tank has more aggressive timer settings to manage the demand. As the discharge tank fills, effluent is removed using on-demand dosing.

Fault conditions are automatically reported to the VerComm Monitoring System and not locally at the panel, making the system virtually invisible to the homeowner. However, if fault conditions are not responded to, or the system cannot communicate with the VerComm Monitoring System, local alarms may then be activated.

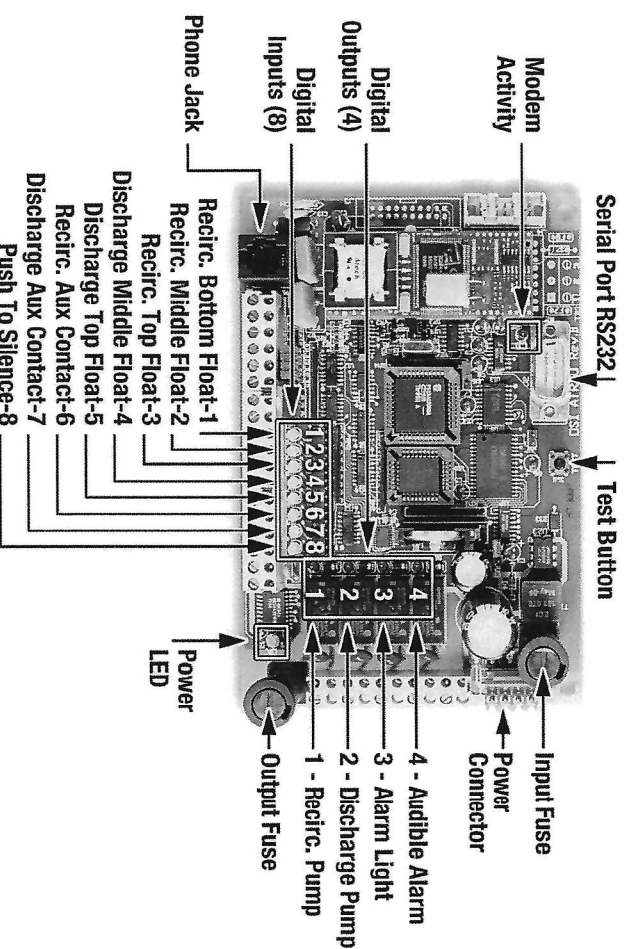
To silence local alarms, press the “Hold-To-Silence” button until the audible alarm stops.

**The procedures outlined in the remainder of this document are to verify proper installation; they should be conducted in the sequence outlined while in “Test Mode”.**

## Inputs & Output Definitions

The following inputs and outputs are used with your control panel:

(Fig. 1)



Note:

1. Digital inputs are the yellow LEDs horizontally aligned along the bottom of the controller.
2. Digital outputs are the red LEDs vertically aligned on the right side of the controller.
3. Inputs and outputs are activated by various events (e.g., floats are activated when the float is in the up position, “Hold-To-Silence” is activated when the push button, located on the front of the panel is pressed).

Analog Input:

1. Analog Input #1 – Discharge bottom float (Green indicator light on the bottom float relay).



## Verify System Status

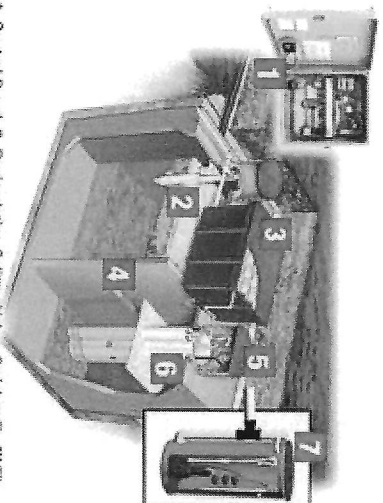
- ❑ Ensure that the panel installation instructions have been completed.
- ❑ Verify that the circuit breakers are in the on position.
- ❑ Verify controller status. The "Power LED" located on the controller (see Fig. 1, pg. 1) will either be:
  - Blinking – indicating the controller is operating normally, or
  - Off (when power is applied) – indicating there is a possible problem with:
    1. The input fuse on the PC board,
    2. The main fuse located inside the panel,
    3. The controls circuit breaker located inside the panel, or
    4. The incoming line voltage.

## Enable Test Mode

While in test mode, the alarm light will be flashing if there is NOT an alarm condition present. During an alarm condition the alarm light will be steady.

- ❑ Hold the "Hold-To-Silence" button on the front of the panel until the audible alarm sounds (approximately 15 seconds) to enable test mode:
  - Digital input #8 should be illuminated when the button is held in.
  - When the audible alarm sounds to indicate the panel is in test mode, release the button.
- ❑ While in test mode, the panel will operate in the following manner:
  - The "Call Home" function is disabled.

- Local audible and visual alarms are activated as alarm conditions occur.
- System data logs are suspended, and
- Timer cycles are shortened.



1. Control Panel 2. Recirculating Splitter Valve 3. Advantix™ Filter  
4. Processing Tank 5. Splice Box 6. Biocide™ Pump Vial  
7. Pump Basin Float Assembly, Pump

## Manual Pump Test

- ❑ Verify that the recirculation pump is submerged in water before continuing. If the RO (bottom) float drops, the alarm will sound.
- ❑ Press down the spring-loaded "MAN/AUTO" switch for the recirculation pump located inside the panel. The recirculation pump should immediately activate. For verification:
  - Digital input #6 should illuminate (see Fig. 1, pg. 1), indicating the recirculation pump auxiliary contact is on.
- ❑ Verify that the discharge pump is submerged in water before continuing. If the Off (bottom) float drops, the alarm will sound.
- ❑ Press down the spring-loaded "MAN/AUTO" switch for the discharge pump located inside the panel. The

- discharge pump should immediately activate. For verification:
- Digital input #7 should illuminate (see Fig. 1, pg. 1), indicating that the discharge pump auxiliary contact is on.

## Combined Pump Test

- ❑ Verify that the recirculation and discharge pumps are submerged in water before continuing.
- ❑ Press down the spring-loaded "MAN/AUTO" switch for both pumps. Digital inputs #6 & #7 should illuminate (see Fig. 1, pg. 1), indicating the auxiliary contacts are on for both pumps.
- ❑ Measure the voltage and amperage of the pump.
  - Measure the voltage at each of the pump terminals in the panel while both pumps are running. A low voltage condition could indicate that the site wiring is improperly sized.
  - Using a loop ammeter, place the ammeter clamp around the loop of wire located above the pump circuit breaker. (This should be done for each pump.) The amperage should be within the specifications of the pump.



## Recirculation Float Test

While in test mode, the recirculation floats will function as described:

**High Level Alarm (top float):** This float activates the alarm light (steady) and audible alarm when lifted. Pressing and holding the illuminated “Hold-To-Silence” button on the front of the control panel will silence the audible alarm. The alarm light will remain on (steady) until the float is lowered.

**Override On/Off (middle float):** This float activates the override timer when lifted. The override timer controls the pump during high flow conditions. The override timer function will remain active until the set minimum number of override cycles has been completed and the float has lowered.

**Redundant Off & Low Level Alarm (bottom float):** This float enables the timer function when lifted. The timer function controls the pump during normal flow conditions. Note: The timer will start with its off cycle. This float also disables the pump, when lowered, and activates the alarm light (steady) and the audible alarm. Pressing and holding the illuminated “Hold-To-Silence” button on the front of the control panel will silence the audible alarm.

*To perform the following test, a sufficient effluent level in the recirculation tank is required. If there is not enough effluent, turn the recirculation pump circuit breaker off.*

To test the functionality of the recirculation floats and ensure that the panel is installed correctly, follow the steps below:

### 1. RO/Low Level Alarm Float Test

- ❑ Pull the recirculation float assembly out of the pump vault and position it so that all the floats are in the down position.

- ❑ If the discharge high level (top) float is lifted (digital input #5 is illuminated), then pull the discharge float assembly out of the pump vault and position it so that all the floats are in the down position also.
  - Digital inputs #1, #2, #3, and #5 should NOT be illuminated.
  - The alarm light should be on (steady); the audible alarm may be sounding.

- ❑ Lift and secure the bottom float in the up position.
  - Digital input #1 should be illuminated.
  - Within a few seconds, the audible alarm should shut off and the alarm light should be flashing.
  - The recirculation pump will start to cycle in approximate 36-second intervals, starting with the off cycle.
  - Digital input #6 and digital output #1 should be illuminated during the on cycle.

### 2. Override Timer Float Test

- ❑ Lift and secure the middle float in the up position.
  - Digital inputs #1 and #2 should be illuminated.
  - The recirculation pump cycle will shorten to approximate 24-second intervals.
  - Digital input #6 and digital output #1 should illuminate when the recirculation pump is on.

### 3. High Level Alarm Float Test

- ❑ Lift and secure the top float in the up position.
  - Digital inputs #1, #2, and #3 should be illuminated.
  - The audible and visual (steady) alarms should activate. Digital outputs #3 and #4 should illuminate.

- ❑ Drop the top float and ensure that it is in the down position.
  - The audible alarm should stop and the alarm light will flash after a few seconds. Digital output #3 will blink, and #4 should NOT be illuminated.
  - The recirculation pump should continue cycling as indicated by digital input #6 and digital output #1 being illuminated.

### 4. Returning To Normal Cycle Time

- ❑ Drop the middle float and ensure that it is now in the down position.
  - The recirculation pump should complete its minimum override cycles (default is three) and then return to its normal cycle time.
  - The recirculation pump should continue cycling as indicated by digital input #6 and digital output #1 being illuminated.
  - Digital input #1 should remain illuminated, indicating the bottom float is in the up position.
- ❑ Reinstall the recirculation float assembly into the pump vault. Ensure that all floats are free from entanglements (e.g.: float cords, etc).
- ❑ Ensure that the tank has enough effluent to maintain the RO (bottom) float in the up position (required for the cut-off test).
- ❑ The recirculation pump should continue to cycle during the discharge test.



## Discharge Float Test

While in test mode, the discharge floats will function as described:

**High Level Alarm (top float):** This float activates the alarm light (steady) and audible alarm when lifted. Pressing and holding the illuminated “Hold-To-Silence” button on the front of the control panel will silence the audible alarm. The alarm light will remain on (steady) until the float is lowered. NOTE: This float will cut-off the recirculation pump when lifted.

**Pump On (middle float):** This float activates the discharge pump when lifted.

**Pump Off (bottom float):** When lowered, this float turns the discharge pump off.

*To perform the following test, a sufficient effluent level in the discharge tank is required. If there is not enough effluent in the tank, turn the discharge pump circuit breaker off.*

To test the functionality of the discharge floats and ensure that the panel is installed correctly, follow the steps below:

### 1. Pump On Float Test

- Pull the discharge float assembly out of the pump vault and position it so that all the floats are in the down position.
  - The bottom float relay indicator light and digital inputs #4 and #5 should NOT be illuminated.
- Lift and secure the bottom and middle floats in the up position.
  - The bottom float relay indicator light and digital input #4 should be illuminated.
  - Discharge pump will activate (digital input #7 and output #2 will illuminate).

### 2. High Level Alarm Float (Recirculation Pump Cut-off) Test

- Lift and secure the top float in the up position.
    - The bottom float relay indicator light and digital inputs #4, and #5 should be illuminated.
    - The audible and visual (steady) alarms should activate. Digital outputs #3 and #4 should illuminate.
  - Silence the audible alarm by pressing and holding the illuminated “Hold-To-Silence” button, on the front of the panel, until the alarm stops.
  - The recirculation pump should stop cycling.
    - Digital input #6 and digital output #1 should NOT be cycling. (Wait a few minutes to verify).
  - Drop the top float.
    - Digital input #5 should NOT be illuminated.
    - The recirculation pump should start cycling again. (Wait a few minutes to verify; digital input #6 and digital output #1 should be illuminated during the on cycle.)
- ### 3. Pump Off Float Test
- Drop the middle float and ensure that it is now in the down position.
    - Digital input #4 should NOT be illuminated.
    - The discharge pump should continue pumping as indicated by digital input #7 and digital output #2 being illuminated.
  - Drop the bottom float and ensure that it is now in the down position.
    - The bottom float relay indicator light should NOT be illuminated.

- The discharge pump should stop. This is indicated by digital input #7 and output #2 NOT being illuminated.

- Reinstall the Discharge float assembly into the pump vault. Ensure that the floats are free from entanglements (e.g., float cords, etc).

## Communication Test

- Press and release the “Hold-To-Silence” button 15 times within a one-minute period. This instructs the panel to call the VeriComm Monitoring System.
  - A red LED (see Fig. 1, pg. 1 - Modem Activity) should illuminate, indicating the controller has established communication with the host (this may take a couple of minutes).
  - Once the communication session has ended, the modem will automatically disconnect.
  - If the LED does not illuminate within the specified time, verify that the phone line has a dial tone. This can be done by hooking up a phone to the line that is going into the panel.

## Disable Test Mode (optional)

- The panel will automatically disable test mode and return to normal operation after 30 minutes. To disable test mode immediately, hold the “Hold-To-Silence” button on the front of the panel until the audible alarm sounds (approximately 15 seconds).
  - Digital input #8 should be illuminated when the “Hold-To-Silence” button is held in.
  - When the audible alarm sounds to indicate that the panel is no longer in test mode, release the button.

