Manual Testing Features:

Edge Pump: Press MENU to enter Program Menu 3, see "Test Mode", page 6. If a variable Speed Pump is used, make sure the Pump Type and Address are correct in the Programming section, page 6. Press NEXT to move the cursor under 'EPump' and the UP/DOWN to change speeds; note, the Aux relays assigned as "2-Speed" or to match the Edge Pump will also turn On and Off appropriately.

Fill Valve: There are 2 ways: 1)Press MENU to enter Program Menu 3, see "Test Mode", page 6. 2)In the Information Mode, if the Fill Valve is Off, press DOWN to start a countdown timer in seconds for the Fill Valve to be On. Press CANCEL to cancel the timer to return to normal operation.

Discharge Mode: Press MENU to enter Program Menu 3, see "Test Mode", page 6.

Aux 1 & 2 Relays: In Program Menu 3 "Test Mode", press NEXT until cursor is under Aux 1 or 2, pressing Up/Down toggles Aux 1 or 2 Relay On and Off.

Secret Screens (advanced) are accessed by pressing the BACK button and then the MENU button. These screens show the status of relays and internal Timer and Sensor values.

Secret screen 1:

Sensor voltage values: 2.4volts when Out of water. 4.4 to 4.7 volts when In water. When the sensor is In water and voltage drops below 4.0 volts, this may indicate that cleaning build-up on sensor probes with acid is needed.

Secret screen 2: Timer Values.

RIn=0 or RIn=1
EdgePump Relay Input Status: from External Pool Controller

ROut=0 or ROut=1
EdgePump Relay Output On-Off State: 0=Off, 1=On

V=0 or V=1
Valve Actuator State 0=Off, 1=On

TC=x
Number of Cycles in a row that the Trough filled to hit Hi Sensor in approximately the same time

Cy=xx
Number of Cycles that Trough rises to hit Hi Sensor within a 2 hour period. Discharge Mode begins after 12 Cycles

RTxxx
1 Minute Elapse Reset Timer: After 2 hours, it causes the Cycle Counter (CYxx) to reset to 0. Discharge Mode begins after 12 Cycles.

Secret screen 3: (Pressing CANCEL button cancels EMO)

PTmr=
Minutes Edge Pump has been On Continuously:
1) External Controller turn Pump On.
2) Hi Water Sensor In Water.

EMO=
Edge Pump Minimum On Timer: Time in minutes before Pump turns Off. (On for a minimum of 20 minutes)

PD
Pre-Discharge Mode Timer. While High Sensor is in water, a 15 minute elapse Timer before going into Discharge Mode.

D
Time Elapsed in Discharge Mode (Maximum set in Program Menu 4)

DMM=
Discharge Mode Minimum On Timer: Time before Discharge Mode Ends in seconds (150 seconds minimum).

Secret screen 4:

74
Firmware Revision Number

LWR=xx
Low Water Alarm Reset TD: Hours that have elapsed since Low Water Alarm. Resets after 12 hours.

FVR=xx
Fill Valve Limit Reset Timer: Hours that have elapsed since Fill Valve reached Limit. Resets after 24 hours.

DTOR=xxx
Discharge Mode Time-Out Reset Timer: the time remaining in minutes before the Alarm resetsthat was triggered when the Discharge Mode exceeded its Max Limit

TF=xxx
2-Second Elapse Trough Fill Timer: the time from when the Edge Pump turns Off to when water rises in Trough to hit Hi Sensor; i.e. 15 means 30 seconds.

Secret screen 5: First Line shows latest 7 types of Commands Rx'd on Comm Line from Controller to Pump indicated by a '1' in: '**Com000 0000**' In order**: 1)Chng Sw Cmd, 2)Status Request Cmd, 3)Set RPM/GPM Cmd. 4)Drive Enable Cmd, 5)Pump On Cmd, 6)Drive Disable Cmd, 7)Pump Off Cmd.**
"**P0C0**": "**P**" followed by 0 or 1 shows if Pump is On or Off. "**C**" followed by 0 or 1 shows if Comm Relay is On or Off.

2nd Line: "Spd=00-00" shows the last RPM/GPM speed Command received**.** "**#000**": the next 3 digits show the number of Command messages **received** directed to the Edge Pump (of correct Address & Type).

Edge-Master 50

Automatic Water Leveler for Edge Pools

INSTRUCTION MANUAL

The Edge-Master is an automatic water level controller especially designed for "Vanishing Edge" pools. Using 3 water level sensors, the Edge-Master has the following features:

- Saves energy, the Edge pump can remain Off for the most part and will automatically turn On when the trough level reaches the high Sensor.
- Prevents pump damage from losing prime due to low trough water levels.
- Dumps excess water to waste in rainy conditions.
- Controls single, 2-speed & variable speed (Pentair & Jandy) pumps.
- Diagnostics: records the time the Fill Valve has been On for up to 2 years.
- Using only 1 output from either a Pentair or Jandy Pool/Spa Controller (an Aux relay-output or the Comm line), the Edge-Master can control up to 3 single-speed or 4 variable speed pumps.
- Two Auxiliary Relay Outputs are available with 8 programmable functions.
- Relay output is protected to prevent shorting and miss wiring.
- By-Pass Mode inactivates Edge-Master & allows the Remote Controller to directly control Edge Pump without any interference from Edge-Master.
- Test Mode for manually testing Edge pump, Fill Valve & Discharge Mode.

CONTENTS

Operation and Purpose of the three Water Level Sensors

The **HIGH** water sensor serves a dual purpose:

1) To keep the trough from overflowing due to splash-over by bathers.
2) To drain excess water to waste due to rain (**Discharge Mode)**.

When the High sensor is out of water, the pump is normally controlled by the Pool Controller. When the sensor is in water, the Edge-Master will turn on the pump (at high speed with variable speed pumps) or turn on the 2-Spd Relay; when the High sensor goes out of water, a "Edge Pump Minimum On" timer is loaded to keep it on for 20 more minutes or until Middle sensor is uncovered.

There are 3 ways to enter Discharge Mode (if Enabled see Program Menu 4):

1) When the Edge pump has been on for at least 20 minutes, either by the Pool Controller or by the Edge-Master (due to the High sensor being covered), a 15 minute Pre-Discharge Timer will then start. If the High Sensor remains covered for the entire 15 minute Pre-Discharge time (now for a total of 35 minutes). If at any time the HIGH sensor goes out of water, the Pre-Discharge timer is canceled and the pump turns off after "Edge Pump Minimum On" timer expires in 20 minutes.
2) After 5 successive Cycles where the time from when the Edge Pump turns Off to when the water in the trough rises to hit the Hi Sensor is approximately the same (+-20%).
3) After 12 successive Cycles of the Edge Pump turning Off and the water rising to hit the Hi Sensor. If the time between Cycles is greater than 120 minutes, the Cycle counter resets back to 0.

To illustrate, when raining, say the level in trough raises to eventually cover the HIGH Sensor causing the Edge Pump to turn on (Hi-speed). At first the trough will then lower & uncover the HIGH Sensor by building up an 1/8" to 3/16" layer of water on the Pool surface. After 20 minutes, the Pump turns Off and pool water drains raising the water level in the trough; if it then hits the HIGH sensor, the cycle starts again. In this example the time between Cycles is approximately the same and after 5 of these Cycles, Discharge Mode will start.

In the case where bathers cause enough splash-over to raise the level in the though to cover the High Sensor: the Edge Pump goes to Hi-speed lowering the level in the trough. After the Hi Sensor uncovers, the Edge Pump runs in Hi-speed for 20 minutes more before shutting Off. If during the 20 minutes, the water lowers to Middle Sensor, the Timer is canceled and the Edge Pump shuts Off. In this example, the time between Cycles will rarely be the same 5 times in a row.

Discharge Mode: the pump runs at normal speed (if variable speed pump used), the Discharge Valve opens and discharging will continue for 2.5 minutes after the HIGH sensor is uncovered or until the MIDDLE sensor is uncovered which ever comes first. If the HIGH sensor is still covered after the maximum time allowed for discharging (set in Program Menu 4), an alarm is thrown, the Discharge Mode is canceled and the Edge-Master gives control back to the Pool Controller and acts as if the HIGH sensor is always out of the water until the alarm is reset manually.

For pools using a discharge valve: In Program Menu 4, select enough time for a full trough to discharge enough water to uncover the HIGH sensor. In Program Menu 5, program the Alarm to reset manually since something is wrong if the pump can not dump enough water to uncover the HIGH sensor in the time allowed for Discharge Mode.

For pools not using a discharge valve: Some pools use a drain installed near the top of the trough in which case the Hi Sensor should be installed at a level just below the drain level.

Option 1): in Program Menu 4, set Max Discharge Time equal to 0 minutes. In Program Menu 5, set the Discharge Mode Reset Time to say 15 hours. This way the Edge Pump will still turn on automatically upon bather splash-over when Hi-sensor is reached. But if in heavy rains the Discharge Mode starts due to 1 of the 3 ways listed above, the alarm is immediately thrown showing "Discharge Mode has exceeded Maximum Time Limit" and the Edge-Master immediately gives control back to the Pool Controller and acts as if the HIGH sensor is always out of the water. The alarm is reset in 15 hours to try again after the water has been given a chance to drain or evaporate some.

Option 2): in Program Menu 4, set Max Discharge Time to "Disabled". The Edge Pump will stay On (in Hi speed) and not time out for as long as the Hi Sensor is in water and continue On for 20 minutes after the Hi Sensor goes out of water.

The purpose of MIDDLE Water Sensor is to control the water level. When the sensor is out of water, the Fill Valve turns on; when the sensor is in water, the Fill Valve turns off after 20 seconds. If time the Fill Valve is On exceeds its programmed daily Limit, it shuts off and throws an alarm. The alarm will reset: 1) automatically after 24 hrs, 2) manually by pressing the CANCEL button while viewing the error message "Fill Valve Off at Daily Limit" or 3) when the Middle Sensor is in water.

The purpose of LOW water sensor is to prevent the Edge pump from loosing it's prime. If LOW Sensor is out of water, the Edge Pump is disabled and will not operate again until one of the following occur:

1) The Low Sensor is In water and the "Cancel" button is pressed while viewing the "Low Water Sensor Tripped" error message on the LCD screen.
2) The Low Sensor is In water and 12 hours have passed since the Edge Pump was disabled.
3) The Middle Sensor is In water.

Note: if this Sensor is not used, a wire jumper must be placed between the "LOW" and the "COM" on the Water Level Sensor terminal block.

7) Pump Address: selects which Edge Pump addresses are active: 1,2,3 & 4; Edge pump Relay Outputs will respond to any incoming Comm commands to active addresses (see example Diagram 3,4 pg5). The letters "H" & "R" accompany each Address (i.e."1HR"). The "**H**" means the High water Sensor affects the pump with that address; i.e. "1H-" means if the Edge Pump is Off and then the water raises above the High water Mark, the Edge-Master will send Comm commands to turn pump #1 On (a "-" means the High Mark is ignored). If in Step 6, the Comm Method is "Cntrl In: AuxRly" (as in Diagram 3 pg5), the "**R**" means Edge-Master's Remote Input (from a Pool Controller's Aux) affects the pump with that address; i.e. if the Pool Controller's Aux is calling for an edge Pump to be On or Off, the Edge-Master will send On/Off commands on the Comm line to all pumps selected (1,2,3 & 4). A "-" means the Remote Input is ignored and no commands are sent to that pump address. **Note**: any time water level falls to the Low Water Mark, Edge-Master always sends Off commands to all variable speed pumps selected and turns all Edge Pump relays Off.

Example 1: a pool has 2 Pentair variable-speed Edge Pumps set to Addresses 2 & 3 that both return to the Pool. The Pool Controller uses Aux3 to control both pumps & is connected to the Edge-Master's Remote Input as in Diagram 2, page 4. In Mode 6, set "**Cntrl In**" ='AuxRly' and Pump Addresses ="2HR" and "3HR". This way when Aux3 is On, the Edge-Master sends commands to Pumps #2 & #3 to turn On to the normal speed set in Mode 2; also if water raises to High Water Mark, the Edge-Master sends commands to Pumps #2,#3 to turn On to the High speed set in Mode 2; & if water falls to the Low Water Mark, the Edge-Master sends commands to turn Off Pumps #2, #3.

Example 2: a pool has 2 Pentair VS Edge Pumps set to Addresses 2 & 3. Pump#2 returns to the Pool only and Pump#3 returns to the Pool & Spa. The Pool Controller's Aux3 is connected to the Edge-Master's Remote Input as in Diagram 2 on page 4. Aux 3 is configured in Pentair as a "Cleaner" so in Spa Mode Aux3 remains Off thus keeping both Pumps Off if normally calling to be On. In Mode 6, set "**Cntrl In**" ='AuxRly' & '**Comm-Out**' ='PentVS'. Program Pump#2 to "2HR" so in Pool or Spa Mode, if water raises to High Mark, Edge-Master turns On Pump#2 and if water falls to Low Mark, it keeps Pump#2 Off. Program Pump#3 to "2-R" so in Pool or Spa Mode, if water raises to High Mark, Edge-Master ignores this & does not turn On Pump#3, but if water falls to Low Mark, it keeps Pump#3 Off.

Example 3: a pool has a variable-speed Filter pump set to #1 & a single-speed Edge pump that both suck from the same trough. The Pool Controller's Aux3 is used to control the Edge pump & is wired as in Diagram 1, page4. The Filter pump is wired as in Diagram 4, page5. Both the Filter & Edge pumps need to turn off when the water level falls below the Low Mark. In Mode 6, set "**Cntrl In**" ="AuxRly" and Pump Address to "1—"; this way the Controller's Aux 3 controls only the Edge Pump & not the Filter pump. Comm commands from the Controller still operate the Filter pump as normal. Also if water raises to High Water Mark, the Edge-Master turns On the Edge pump but not the Filter pump, and if water falls below Low Water Mark, the Edge-Master turns Off both the Edge pump and Filter pump.

Example 4: a pool has 2 single-speed Edge Pumps that both return to the Pool. The Pentair Controller uses a 'Feature Circuit 1' for a Pump on Address #2 to control both pumps & is connected to the Edge-Master's Comm Input as in Diagram 3 on page 5. In Mode 6, set "**Cntrl In**" ='PentVS' and Pump Addresses to "2H-" or "2—". In Mode 8 set Aux1 to "Match Edge Pump". This way when the Pool Controller sends On/Off Comm commands to Pump#2 using 'Feature 1', the Edge-Master turns On/Off both the Edge Pump & Aux1 relays. If the water raises to High Water Mark, the Edge-Master turns these relays On; & if water falls to the Low Water Mark, the Edge-Master turns these relays Off.

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8) Aux 1 & 2 Relay Functions, 8 choices. Each Relay can be programmed to: 1)Match the Relay output to the Edge pump. 2)Match the Edge pump but ignore Hi Sensor, i.e. goes Off in Low water otherwise it matches the state of Edge Pump Relay Input. 3)Go On if Low Water Sensor is Tripped. 4) Go On during Discharge Mode. 5)Go On in Hi speed mode for 2-Speed Edge pumps. 6)Go On when Hi Sensor is in water. 7)Go On when Fill valve is On. 8)Go On with any Error. Use the NEXT button to move the cursor either under the Relay # or Function, and the UP button to change function.

9) Reset History: To reset or clear the history for the Fill Valve Run Time, press the UP button & then the CANCEL button at the same time.

10) Record Fill Valve History in either *minutes per week* for 120 weeks or *tenths of minutes per day* for 120 days. Note: changing this setting also resets the entire History as in Program step #9.

11) By-Pass Mode disables the water sensors so they have no effect on Edge Pumps or the Fill Valve. This allows the Pool Controller to directly control the Edge Pump (and Aux relays assigned to match the Edge pump) by by-passing the Edge-Master based on settings in Program Modes 6 & 7. The Fill valve can be turned on Manually for 120 seconds and state of Edge Pump and 3 water Sensors can be viewed.

The Edge-Master is in 1 of 2 Modes: **Information Mode** or **Programming Mode**.

Information Mode (Press "Enter"). Use the NEXT/BACK buttons to change screens:

1) **Sensor Status** shows if sensors are In or Out of water.

2) **Fill Valve & Pump Speed** screen shows if Fill Valve is On or Off. If about to turn Off, a count-down timer appears showing the time remaining, otherwise the current pump speed is displayed.
The Up/Down buttons can turn the Fill Valve On for the selected seconds.
The CANCEL button cancels either the "Fill Valve Minimum On" or "Edge Pump Minimum On" timers.

3) **History** screen shows the number of minutes Fill Valve has been On in previous weeks. For the current week, the number of hours elapsed so far is displayed. There are 168 hours in one week.

4) **Error (Alarm) Messages** this screen appears if any Errors/Alarms are active:
A) "Water Sensor Error": a sensor is in or out of the water when it shouldn't be, i.e. if the High sensor indicates that it is in water, the Middle and Low sensor should also be.
B) "Low Water Sensor Tripped": Pump is Off due to Low water level in trough. This error is reset either by pressing Cancel button or when water raises to cover Middle sensor.
C) "Fill Valve Off At Daily Limit"" Fill Valve On time has exceeded its daily limit. This error is reset by pressing Cancel button while viewing the Error message or if the Middle sensor is In the water.
D) "Error Discharge Timed-Out": the Maximum Time allowed to be in Discharge Mode has been exceeded. This can be programmed to reset automatically (in Program Menu 5). To reset manually, press the "Cancel" button while viewing the error message on the LCD screen.

Auto-Scrolling: every 5 seconds the above 4 Information screens will scroll through. Scrolling stops whenever the UP, DOWN, NEXT or BACK buttons are pressed. Scrolling resumes when the ENTER button is pressed.

Program Modes for Installer Setup: press the MENU button to enter the following:

1) Maximum Fill Valve Time: this sets the maximum time that the Fill Valve will stay on for one continuous time. If the maximum time has expired, the next fill period will restart in 24 hours. Pressing CANCEL while viewing the Error message will also restart another fill period.

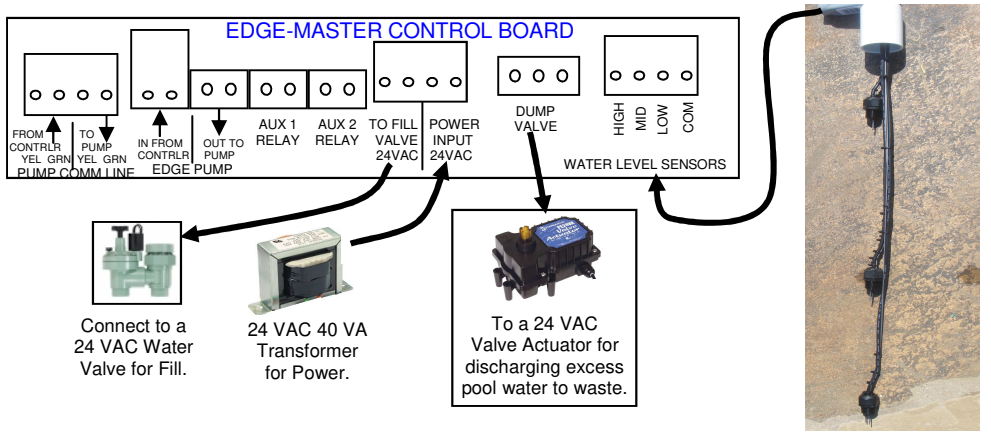
2) Pump Speed: (Non-Applicable if Single speed Edge pump is used)
A) The 1st line shows the Edge Pumps normal operating speed when it is turned On via the Relay Input (as in Diagram 2, page 4) or when in Discharge Mode. If the Edge Pump is being controlled through the Comm Line (Diagram 4, page 5), this speed does not apply since the Edge Pump runs at the speed sent by the Pool/Spa Controller over the Comm Line.
B) The 2nd line, "At Hi Sensor" refers to the pump speed when the HIGH water Sensor is in water (see page 2 under HIGH water Sensor).
Press the NEXT/BACK buttons to move the cursor between the two settings and the UP/DOWN to change the speed values.

3) Test Mode: for testing Relays and Outputs. Use the NEXT/BACK buttons to move the cursor between the following 5 items and the UP button to activated or deactivate the item. 1) Discharge Mode for a 150 seconds: this turns the Edge Pump On (for variable speed pumps: normal speed set in step2) and the Waste Valve will rotate; press CANCEL to stop test. 2) the Fill Valve On or Off. 3) Edge Pump On or Off, 30%-100% for variable speeds 4) Aux 1 On or Off and 5) Aux 2 On or Off.

4) Maximum Discharge Mode Time: this is the maximum time allowed to be in Discharge Mode. When exceeded, an alarm is thrown, Edge-Master stops discharging and gives control back to the Pool/Spa controller and ignores the High Sensor. Discharge Mode cannot be entered into again until the alarm is reset which is done either manually or automatically after the Timer expires (see Program Menu 5). If Discharge Mode is disabled (select 1 less than zero), the edge pump will stay On (in Hi speed) for as long as the High Sensor is in water and continue On for 20 minutes after the High Sensor goes out of water. See page 7 under Discharge Mode for more details.

5) Discharge Mode Time-Out Reset Time: this is the time (in Days, Hours or Minutes) before the alarm will reset automatically after the maximum time allowed for Discharge Mode (Program Menu 4) has been exceeded. If "Manually" is selected (selecting zero time), the alarm needs to be reset manually by pressing the "Cancel" button while viewing the error message on the LCD screen. After a "Reset", Edge-Master is able to enter Discharge Mode again if conditions are met.

6) Communication Method:
"**Cntrl In**": selects the method the Pool Controller is using to control the Edge-Master.
1) "AuxRly"- Pool Controller uses an Aux Output connected to "In From Contrlr" on the Edge-Master.
2) "PentVS" - Pentair Controller's Comm line connects to "From Contlrlr" on the Edge-Master.
3) "Jandy": Jandy Controller's Comm line connects to "From Contlrlr" on the Edge-Master.
"**Comm-Out**": select the method the Edge-Master's Comm line is using to control the edge pump.
1) "PentVS" - Edge-Master's Comm line "To Pump" connects to a Pentair VS edge pump.
2) "Jandy" - Edge-Master's Comm line "To Pump" connects to a Jandy edge pump.



INSTALLATION of Transformer, Water Sensors, Fill and Waste Valve

1) The 24 VAC Transformer is usually mounted in the high voltage section where 120-240v is available. For 120v, use the White and Black wires. For 208v, use the White & Orange wires. For 240v, use the White and Red wires. Connect the Green and Red wires to "Power Input 24 VAC". Keep power Off until all electrical connections have been finished.
2) Connect the 24 VAC water Fill valve to the terminal block marked "To Fill Valve 24 VAC".
3) For dumping excess pool water to waste, a 24 VAC valve actuator can be connected which rotates when in "Discharge Mode".
4) Aux 1&2 are for 24 VDC power relays that can be programmed to function 8 ways.
5) **Assembling Water Sensors:** with power off to the Edge-Master, turn the Edge Pump On manually. Fill the trough until water reaches the desired running level; mark this as the Middle sensor level. Measure down to where the trough water level can still be maintained without the Edge pump losing prime; this will be the position of the **Low** Sensor.
Turn the Edge Pump Off and let the water rise in the trough to its highest point. Set the position of the **High** Sensor above this point but still below the trough overflow drain line (if installed).
Each Sensor has a stainless steel rod that can be bent to hold the Sensor in position so that the probes are pointing straight down and not touching other cables, see figure to right. Zip-tie all 3 Sensors together using the two measurements referenced from the Middle sensor to form an assembly as shown on page 2.
The Water Sensor assembly is usually mounted in a 1.5" or 2" stand-pipe next to the trough which reflects the water level of the trough. Run clean water down the stand-pipe to clear any debris that might bridge sensor probes and to eliminate any air-locks. Feed the 3 cables and stainless steel rods through the PVC coupling and J-box and lower into stand-pipe pushing coupling firmly on top of the stand-pipe. Do not glue PVC coupling to stand-pipe so Sensor assembly can be removed later for maintenance.


Water Sensor bent to jog away from cables and point downward.
Zip-tie in final position

Setting Water Levels: Before permanently cutting and wiring the Sensor assembly as described below, temporarily connect the Middle and Low sensor to the Edge-Master and turn On the Edge-Master to view the Sensor Status Information screen. With the Edge Pump On and the water at running level in trough, use the stainless steel rods to lower the Sensor assembly in the stand-pipe until the **Middle** sensor contacts the water: the Sensor Status changes from "OUT" to "IN" on the screen. When satisfied with the sensor positions, bend rods over in J-box and cut excess to hold Sensor assembly in position.

Connecting Sensor Wires: the 3 water sensors are connected to a 4-conductor cable running from the stand-pipe to the Edge-Master. Before cutting the 4-conductor cable to the Sensor assembly in the J-box, leave enough length in the cable so the Sensor Assembly can be removed for maintenance. One lead from each sensor can be wired-nutted together with silicon seal* to form a "common" lead to connect to "COM" on the Edge-Master. The remaining leads from each sensor are connected* to the appropriate terminals marked "LOW", "MID" and "HIGH".
*Note: it is **important** that field splice connections to sensors be moisture proof so false readings do not occur: twist together bare ends of wires being connected, fill the wire-nut with 100% silicon seal and then screw on securely to connection, zip-tie the wires together so they won't pull apart and break the seal; then apply more silicon seal to well cover the wire insulation and the wire-nut. **Important:** Do **not** seal connections with "acrylic-latex" type caulk since these are water-based and conduct electricity.

Maintenance: the stainless steel water sensors require little maintenance when kept in a clean environment. It is possible for algae to grow on, calcium to form on or debris to lodge between sensor probes and produce false readings. If sensors are located in a stand-pipe, keep pipe capped to prevent light from entering which encourages algae growth. Remove sensor assembly for cleaning and flush stand-pipe with clean water as needed. Calcium can be removed by scrapping or with dilute acid.

Always disconnect AC Power at Circuit Breaker to Pump and to Controller before installation of Edge-Master to avoid shock and serious injury.

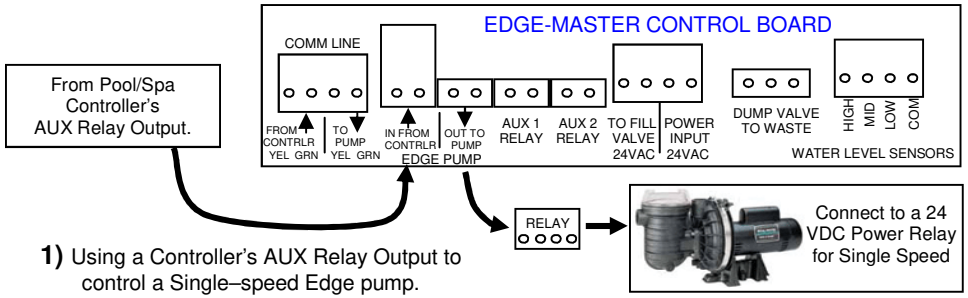
Take Care when connecting low voltage wiring into terminal blocks, insert wire ends carefully so stray strands from wire do not short with adjacent wires!

Note: Since only 24 volts AC is required for power, the Edge-Master can be installed in the low voltage compartment of the existing control box.

INSTALLATION using a Controller's Aux Relay Output

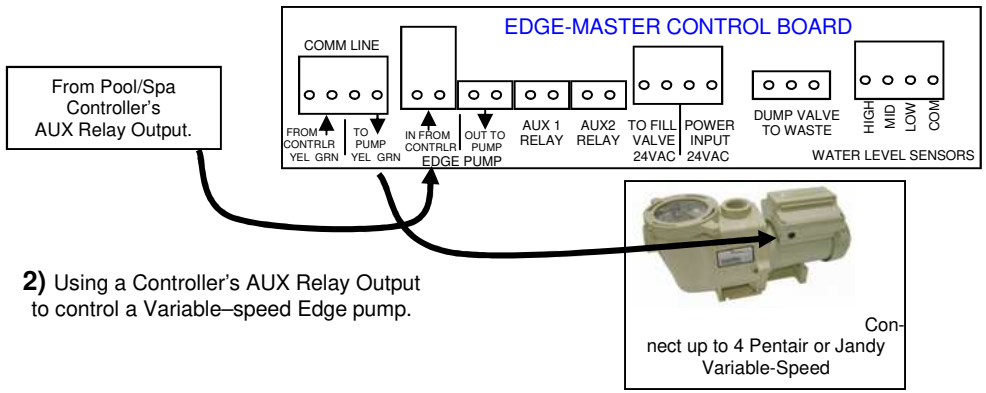
In Diagrams 1 and 2, the Pool/Spa Controller's Aux Relay output (24 VDC) which normally connects to the Edge pump relay is instead connected to the black jack marked "In From CONTRLR" on the Edge-Master. Use the adapter wire with JST jack provided. Do Not connect to terminals marked "CommLine"! This way, 1 Input can control multiple pumps.

In **Diagram 1**, the Edge-Master is controlling a single-speed Edge pump. In Program Mode 6, pg 6, set "**Cntrl In**" ='AuxRly'. Connect the 24 VDC power relay to the white JST connector marked "Out To Pump" on the Edge-Master. For **2-Speed Pumps:** program an Aux Relay for "2-Speed" and connect it to a SPDT (Single-Pole Double-Throw) 24 VDC coil Relay; the NC (Normally Closed) contacts are for Low-speed and the NO (Normally Open) contacts are for Hi-speed. Aux 1 & Aux 2 outputs on the Edge-Master can control additional Edge pumps (see Program Mode 8 on pg 7).



1) Using a Controller's AUX Relay Output to control a Single–speed Edge pump.

In **Diagram 2**, the Edge-Master can control up to 4 Pentair or Jandy variable speed Edge pumps. In Program Mode 6, pg 6, set "**Cntrl In**" ='AuxRly' & '**Comm-Out**' ='PentVS'. When Aux is On, the Edge-Master sends Comm commands to turn On VS Pump to the normal speed set in Pgm Mode 2, pg 6; if water raises to High Water Mark, the Edge-Master sends commands to Pumps to turn On to the High speed set in Mode 2; & if water falls to the Low Water Mark, the Edge-Master sends commands to turn Off Pumps.

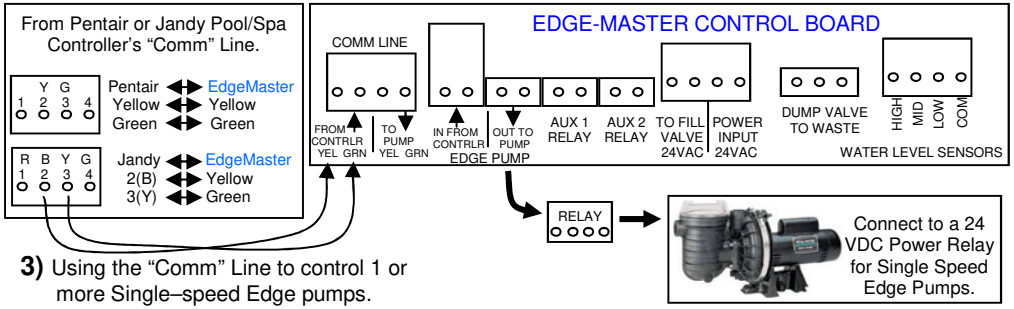


2) Using a Controller's AUX Relay Output to control a Variable–speed Edge pump.

INSTALLATION using a Controller's "Comm" Line

Connect the Comm Line from a Pentair/Jandy Controller to the Edge-Master's terminal block marked "From Contrlr" as shown below. Observe Yellow/Green wire connections. In Program Mode 6 (pg 6), select Communication Method used by the Controller "Cntrl In:" "PentVS" or "Jandy"; the "Comm-Out" should be the same.

Diagram 3, a Pentair/Jandy Pool/Spa Controller can control up to 3 single-speed Edge Pumps. When the Controller sends a Comm command to turn on a Pump whose address is active in Program Mode 7 (page 7), the Power Relay Output for the pump will energize. Aux 1 & Aux 2 Relay Outputs on the Edge-Master can control additional Edge pumps (see Program Mode 8 on pg 7). In this case, speeds selected in the Program Mode 2 for variable pumps do not apply.



3) Using the "Comm" Line to control 1 or more Single–speed Edge pumps.

Diagram 4

In the example below (see page 6&7, Program Modes 6&7): a Pentair Controller controls 2 Pentair VS pumps set to Addresses #1 & #2 and 2 single-speed pumps. In Program Mode 6, both "Cntrl In" and "Comm-Out" = PentVS". In Program Mode 7, Pump Addresses are set to "1H-" and "2H-". In Program 8, Aux1 is set to "Match Edge Pump". When the Controller sends On/Off Comm commands to Pump #1, only Pump #1 responds. Sending Pump #2 commands only affects Pump #2 . But both single-speed Pumps will respond to either a Pump #1 or a Pump #2 command since both addresses "1H-" and "2H-" are active in Pgm Mode 7. Since 'H' is set in "1H-" & "2H-", when the water level raises above the High Water Mark, the Edge-Master will override the Pool Controller and turn On both Pumps. When the water falls below the Low Water Mark, both Pumps always turn Off. See Program Mode 8 for other options for how edge pumps can operate.

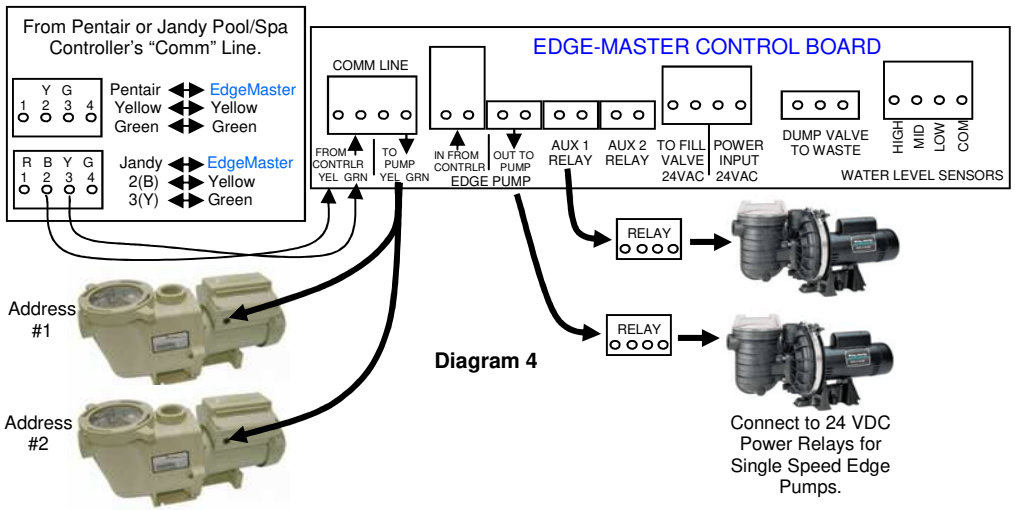


Diagram 4