

Hold n' Treat

Holding Tank component system

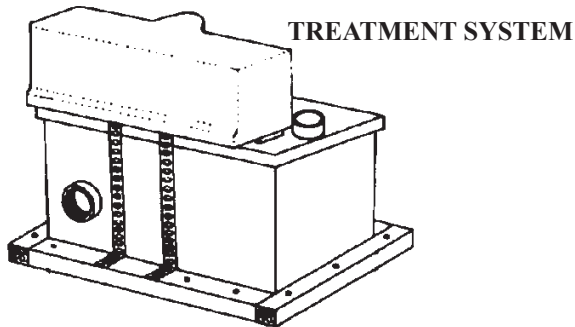
Installation and Maintenance Instructions

THE FOLLOWING ARE CAUTIONARY STATEMENTS THAT MUST BE READ AND FOLLOWED DURING BOTH INSTALLATION AND OPERATION

WARNING: *Raritan Engineering Company, Inc. recommends that a qualified person or electrician install this product. Equipment damage, injury to personnel or death could result from improper installation. Raritan Engineering Company, Inc. accepts no responsibility or liability for damage to equipment, or injury or death to personnel that may result from Improper installation, trouble shooting, repairs to or operation of this product.*

WARNING: HAZARD OF SHOCK AND FIRE - Always use recommended fuse/circuit breaker and wire size. The components are not ignition protected and must not be installed in a gas engine room or exposed to the possibility of spark.

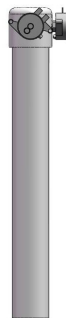
For use with Lectra/San MC manufactured August 2004 and later (Last four digits of serial number 0804) ,Purasan model numbers PST1203 or PST2403 , all models of electroscan with HNT control and PST EX. Contact customer service to update current Lectra/San or Purasan or electroscan



Hold n' treat Controller with Key switch
(Not needed for Electroscan HNT treatment)



PUMP WITH RELAY



LEVEL SENSOR

The Hold n' Treat is designed to integrate both a Type I and Type III MSD (Marine Sanitation Device) to provide the user with a system that will be legal in all areas.

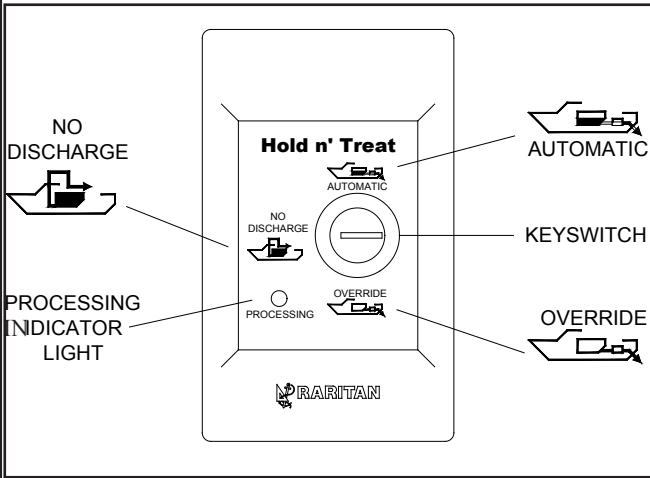
All waste is stored in a holding tank and the treatment mode will determine how the waste is processed. This system eliminates the need for pump-out stations in most areas.

To complete a Hold n' Treat system, following components are needed:

1. Treatment system such as Electroscan or Purasan
2. Macerator pump to transfer waste from holding tank to treatment system
3. Level Sensor for holding tank
4. Controller such as Hold n' Treat or Electroscan -HNT

Raritan can provide all or some of the above component to complete a system.

SYSTEMS WITH Hold n'Treat CONTROLLER



PROCESSING INDICATOR LIGHT

When key switch is in automatic position:

- blinks when level is above HIGH LEVEL
- on solid between HIGH and LOW LEVEL
- off once below LOW LEVEL

When key switch is in no discharge position:

- light will not be active

When key switch is in override position:

- blinks all the time

Where discharge of treated waste is allowed

- Turn KEY SWITCH to AUTOMATIC. Waste in holding tank will be processed automatically until waste is below LOW LEVEL.

OVERRIDE mode:

- Turn KEY SWITCH to OVERRIDE. This mode is provided to process waste below LOW LEVEL, allowing tank to be completely emptied. **Important:** The system must be monitored and turned off once tank is emptied to avoid damage to macerator pump.

Once in a No Discharge Zone

- Turn KEY SWITCH to NO DISCHARGE Position and remove KEY. Hold n' Treat will be off. Removing Key prevents accidental discharge. All waste will be stored in the holding tank.

Basic Operation:

When the Hold n' Treat System is set to the

AUTOMATIC position, the waste in the holding tank is checked every 30 seconds. When this level is sensed above the LOW LEVEL, the controller sends a signal activating the treatment system. The treatment system will then activate a macerator pump that moves waste (approximately 1 gallon) of waste from the holding tank to the treatment tank. This cycle is repeated for every five minutes until the level in the tank falls below the LOW LEVEL. If the LOW LEVEL is not reached after three cycles, the system will enter into a COOL DOWN mode for fifteen minutes. When the system is set to NO DISCHARGE, waste will enter the holding tank and will not be treated until the key switch position is moved to AUTOMATIC.

SYSTEM WITH ELECTROSCAN -HNT



PRESS TO TOGGLE BETWEEN MODE

PRESS TO SWITCH TO THIS SCREEN

NOTE:

- Read Treatment system manual for proper operation
- Lock Seacock in closed position while in no Discharge Zone.

When Display is set to AUTOMATIC the level of waste in the holding tank is monitored. Once the waste level reaches the LOW LEVEL the 'EST-HNT' control unit activates the treatment cycle. Control also activates a macerator pump which moves waste (approximately 1 gallon) from the holding tank to the Electroscan. After the fifth cycle, the system enters a *cool down* cycle. It will remain in the *cool down* cycle for fifteen minutes. After *cool down*, the process will resume until the waste in the tank drops below LOW LEVEL

See Electroscan HNT manual for more details

SPECIFICATIONS

Treatment Capacity: 140 gallons (530 liters)/week

Hold n' Treat processes approximately six gallons (23 liters) per hour.

NOTES: for wiring

1.	Distances are from source to unit and back to source.
2.	Recommended conductor wire minimum AWG (mm ²) for 3% voltage drop.
3.	Recommended conductor sizes are based on 105°C rated insulation. Refer to ABYC Standards for other insulation ratings.

**Table 1
Recommended Wire and Breaker size for Complete system supplied from same conductors**

Units Voltage	Treatment Unit	Circuit Breaker/Fuse sizes(AMPS)	Amp. draw @ nominal voltage	Macerator amps @ nominal voltage	10 Feet	20 Feet	30 Feet	40 Feet	50 Feet
12V	Electroscan	60	37	17	4AWG	4AWG	2AWG	1AWG	0 AWG
	PURASAN	30	10	17	8AWG	6AWG	6AWG	6AWG	4AWG
24V	Electroscan	50	27	9	10AWG	8AWG	6AWG	6AWG	4AWG
	PURASAN	20	8	9	14AWG	12AWG	10AWG	10AWG	8AWG

**Table 2
Recommended Wire and Breaker size for Macerator pump if supplied from separate conductors
(See treatment system manual for Wire and Breaker sizes for treatment system)**

Units Voltage	Circuit Breaker/Fuse sizes(AMPS)	Macerator amps @ nominal voltage	10 Feet	20 Feet	30 Feet	40 Feet	50 Feet
12V	25	17	12AWG	10AWG	8AWG	6AWG	6AWG
24V	15	9	14AWG	10AWG	10AWG	8AWG	6AWG

Operation in EPA designated No Discharge Zones affects the MSD installation on every vessel that enters or stays in those waters. Flow-through devices are permitted if adequately secured to prevent discharges of any sewage, treated or untreated. Closing the seacock and padlocking, using a non-releasable wire-tie, removing the seacock handle would be sufficient means of securing. Owner/operators should determine whether the intended area of operation is a No Discharge Zone.

NOTE:

Discharge of raw, untreated sewage is prohibited in all U.S. waters inside the three mile limit except in the Gulf of Mexico where the limit is nine miles. "Y" valves, if installed, must direct toilet discharge to a U.S.C.G. approved treatment system or holding tank and must be secured in that position while inside the three-mile limit.

The EPA standards state that in freshwater lakes, freshwater reservoirs or other freshwater impoundments whose inlets or outlets are such to prevent the ingress or egress by vessel traffic subject to this regulation, or in rivers not capable of navigation by interstate vessel traffic subject to this regulation, marine sanitation devices certified by the U.S. Coast Guard installed on all vessels shall be designed and operated to prevent the overboard discharge of sewage, treated or untreated, or any waste derived from sewage. The EPA standards further state that this shall not be construed to prohibit the carriage of Coast Guard-certified flow-through treatment devices which have been secured so as to prevent such discharges. They also state that waters where a Coast Guard-certified marine sanitation device permitting discharge is allowed including coastal water estuaries, the Great Lakes and interconnected waterways, freshwater lakes and impoundments accessible through locks, and other flowing waters that are navigable interstate by vessels subject to this regulation (40 CFR 140.3)

MAINTENANCE

Refer to Lectra/San MC or Purasan or Purasan EX and Macerator Pump Manuals for Maintenance Instruction

Important: Use of certain chemicals in toilet or holding tank will cause damage to Lectra/San MC or Purasan. Refer to Lectra/San MC or Purasan Manual concerning their use.

WINTERIZING

Disconnect or shut down power to unit. Refer to Lectra/San MC or Purasan and Macerator Pump Manuals for Winterizing Instruction

Important: Remove antifreeze if used from holding tank before activating 'Hold n' Treat'.

IMPORTANT: Read all instructions before proceeding with installation.

Hold n' Treat instructions describe installation of the components contained in the kit. For instructions regarding installation, operation and maintenance of the other components (Electroscan, Purasan, Pump, . . .) refer to their respective manuals.

Instructions for Hold n' Treat Controller:

WARNING: Do not install in the area requiring ignition protected devices.

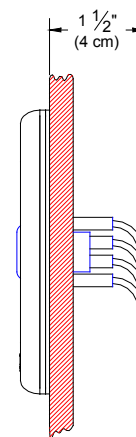
Mounting the Key Switch Panel

Note: Several options are available for mounting the Key Switch Panel

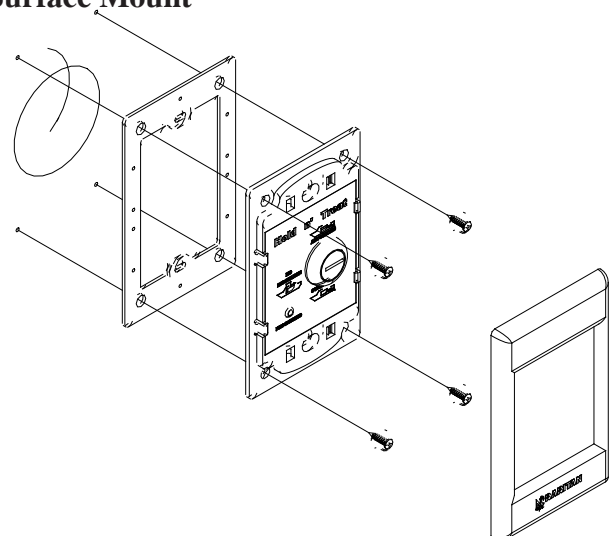
- Choose a location that is easily seen, accessible and not exposed to the weather
- Locate where wires can be routed
- Minimum depth of 1 1/2" (4 cm) from surface is required

Surface Mounting

1. Attach template provided to mounting surface. Make certain it is level.
2. Drill four 5/64" (2 mm) holes.
3. Drill 2" (50 mm) hole with hole saw.
4. Install gasket on back plate.
5. Connect cable (See Wiring).
6. Secure back plate to surface using #4 x 1/2" screws (4).
7. Attach bezel to back plate.

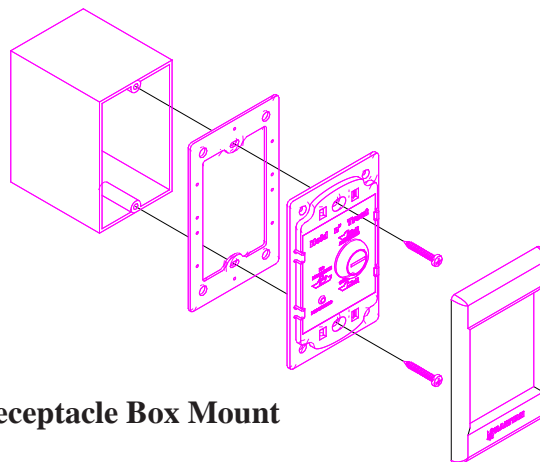


Surface Mount



Receptacle Box Mounting

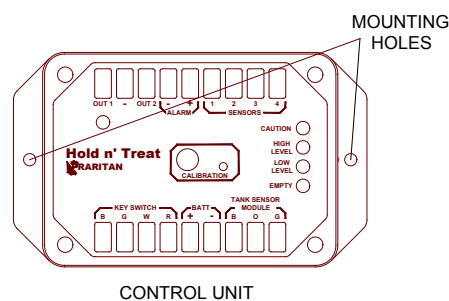
1. Cut out surface the size of receptacle box.
2. Mount receptacle box.
3. Install gasket on back plate.
4. Connect cable (See Wiring).
5. Secure back plate to receptacle using #6-32 x 7/8" screws (2).
6. Attach bezel to back plate.



Receptacle Box Mount

Control Unit Mounting

1. Locate in an accessible area
2. Secure to wall with proper fasteners using the mounting holes as indicated.



CONTROL UNIT

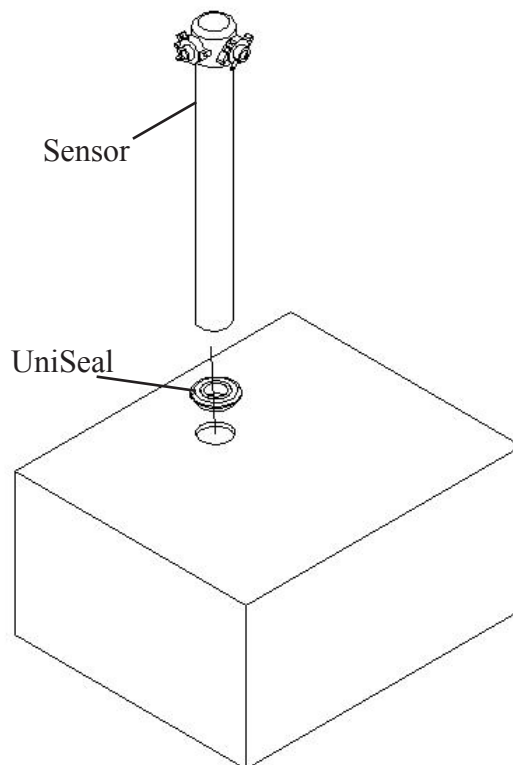
INSTALLATION:

A. SENSOR:

Measure tank height. Cut the sensor tube 3/4" less than the measured height.

1. Drill 2 1/2" hole in tank. Clean edges.
2. Insert UniSeal into the tank with wide side up.
3. Using soap water lubricate outside of the tube end to be inserted into the UniSeal.
4. Insert and push sensor tube into the seal completely.

Note: Do not use hammer to insert to avoid damage to pressure switch.



B. Macerator pump relay:

1. Choose a location near macerator pump that is accessible and dry.
2. Using relay as template, mark mounting holes.
3. Drill to proper size from screws.
4. Secure using screws (not included)

C. Macerator pump

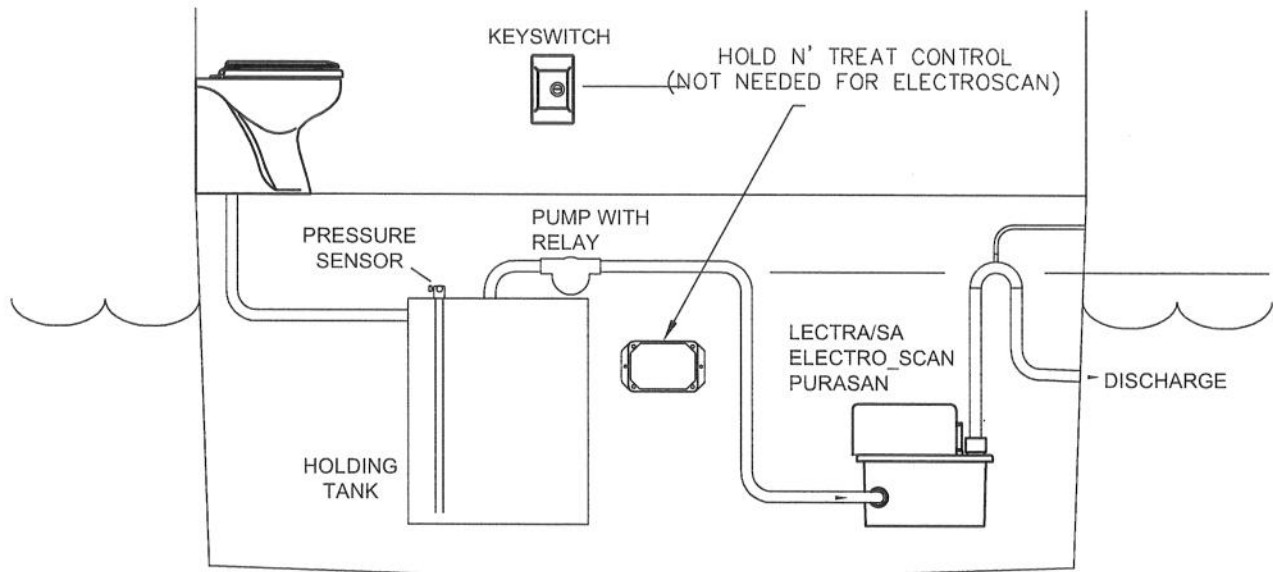
1. Install macerator pump at or above holding tank using instructions provided with the pump.

PLUMBING

Important:

- Mount the Lectra/San MC or Purasan within six feet (1.5 meters) of holding tank. If this distance is longer, use SANI/FLEX hose to avoid odors.

Below is a typical plumbing diagram.



TYPICAL PLUMBING DIAGRAM

WIRING

Important

- Do Not Connect wire from OUT 1 (OUT 2) to treatment system until after calibration has been completed.
- Refer to wire charts on page 3 wire and fuse type size. If macerator pump power is supplied from treatment system conductors, ampacity of treatment and macerator pump is combined and conductor should be sized as per table 1 on page 3. If macerator pump power is supplied directly from battery than use table 2 on page 3 for macerator pump and treatment system manual for treatment system wiring. All other wiring may be 18 AWG if using multiple conductors with outer sheathing. For single conductors use 16 AWG minimum.

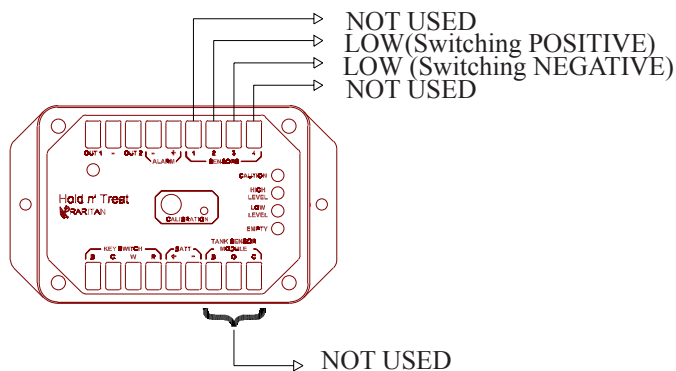
Control Unit must be wired to following components of the system:

- Key switch panel
- Tank level sensor (existing or the sensor supplied with unit)
- Treatment system control board
- Battery positive and negative supply
- Macerator pump relay also needs to wired to treatment system control board.

WIRING FOR HOLD AND TREAT CONTROLLER W /KEY SWITCH

Wiring of Control unit to tank sensor:

- Using 3 16 AWG WIRES from sensor module to control unit terminals marked “ sensors”. Each terminal is identified as 1 (HIGH) 2(LOW) . Use ¼” male quick connect terminals at control unit and terminal at the pressure switches on the sensor. Connect RED wire from sensor to terminal marked O on "tank sensor module"1
- Secure wires to avoid stress on the quick connect terminals.



(OPTIONAL) Wiring of control unit with existing or float type sensors:

Use this option if your holding tank already has a level sensor system. Note: Treatment starts when there is signal at LOW

- Determine if existing sensors switch ground wire or positive wire. If sensor give a positive (12V) signal when level has reached it is considered switching positive. If a sensor changes from positive (12V) to ground when level is reached it is considered switching negative.

Note: some level sensors use combination, e.g. low level may switch positive and middle (half) level may switch negative.

- Connect 2 wire 18 AWG cable or 16 AWG wires from level sensors to control unit at the terminal marked sensors .Use terminal 1 & 2 for positive switching sensors and terminal 3&4 for negative switching sensor. If your tank has Low, Mid and high level sensor, use only low and mid level sensors.
- Use ¼” quick connects at the control unit to connect wires from sensors. Secure wire such that there is no stress on the terminals.

Wiring of control unit to LECTRA/SAN and PURASAN:

- Use ¼” quick connect and 16 AWG wire to connect terminal marked out1 to Lectra/san control board “EXT TRIG” terminal. LECTRA/SAN control board is located on the treatment tank of the LECTRA/SAN control under the blue cover.

Wiring with existing float type switches

SEE WIRING
DIAGRAMS
PAGES 9,10,11

- Use ¼” quick connect and 16AWG wire to connect terminal marked out1 PURASAN control board “S6” terminal. PURASAN control board is located on the treatment tank of the PURASAN.
- Use 1/4" quick connect and 16 AWG wire to connect terminal marked out1 to PURASNEX control board "Toilet 1" terminal. PURASAN EX control is located inside the control module box.
- Connect pressure switches to Electroscan control box as per wiring diagram.
- IF using second treatment system use “out2” terminal on control unit to make connection as above

Wiring the key switch to control unit:

- Terminals on the key switch and control box are marked B, G, W and R. Connect both end using a cable (18 AWG) or wires (16 AWG).
- Secure wires near control and the key switch.

Wiring the MACERATOR pump:

1. Raritan Macerator pump is supplied with the instruction manual for fuses size and wire sizes. If using other pump refer to manufacturer's recommendations for wire sizes and fuse/breaker size.
2. Connect positive from battery to the relay and from relay to the pump. Connect NEG from battery directly to pump.
3. Connect relay coil connections (2) to LECTRA/SAN control board's AUX OUT terminals.
4. For PURASAN use wiring diagram for wiring the pump.
5. For Electroscan, see wiring diagram

Wiring control unit to Battery:

DO NOT CONNECT POSITIVE UNTIL YOU HAVE DOUBLE CHECKED ALL WIRING AND HAVE COMPLETED CALIBRATION

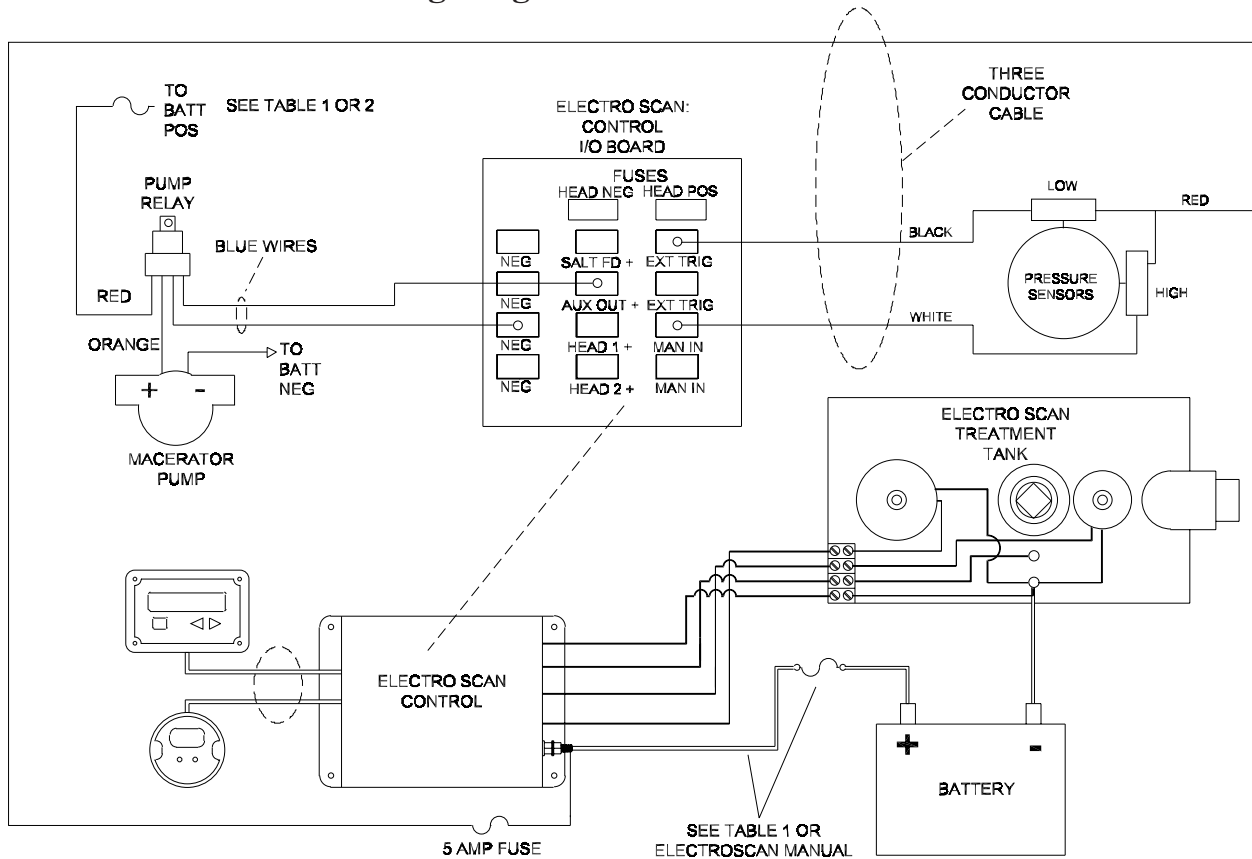
1. For Power connection use 16 AWG wire from battery positive and NEG to connect to control unit terminal marked as BATT + and — .
2. Install the provided in-line fuse holder with 5 amp fuse in positive line close to battery.

CALIBRATION:

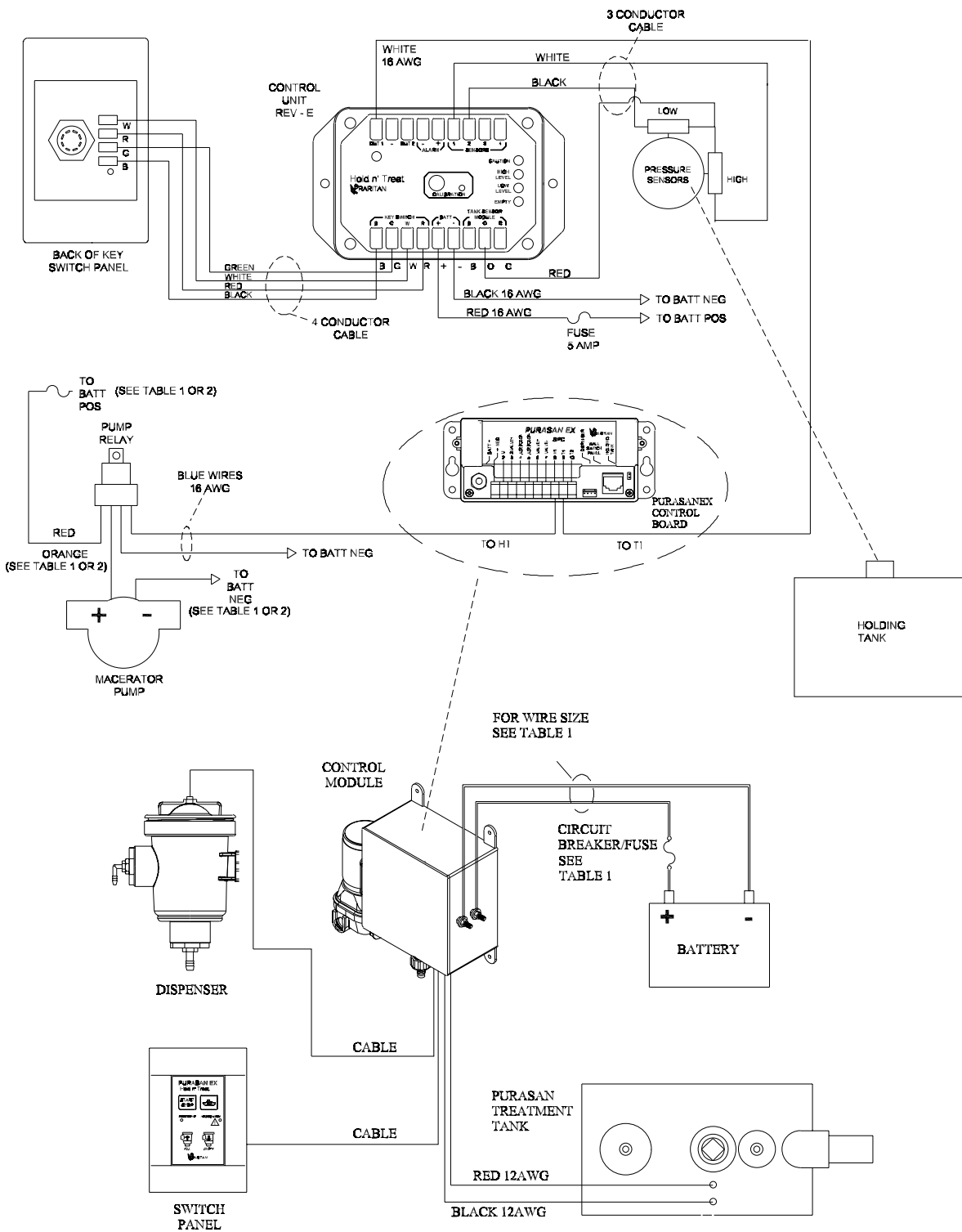
Pressure sensor is self calibrating.

Tank must be empty for pressure switch to self calibrate. If pressure switch sensor was installed while tank was not empty, then tank must be emptied for proper self calibration.

Wiring Diagram for Electroscan-HNT

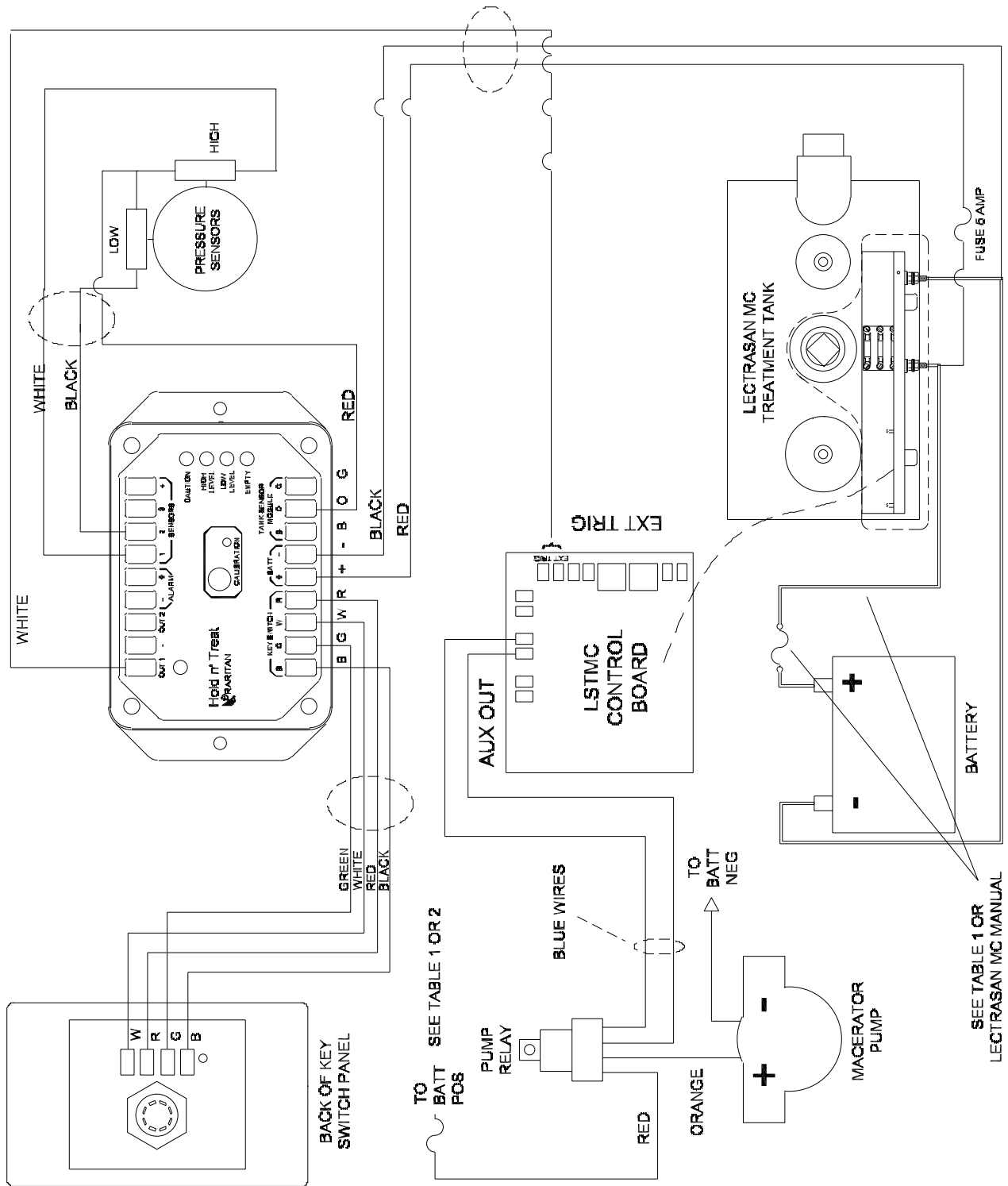


Wiring Diagram for PURASAN EX with HNT controller

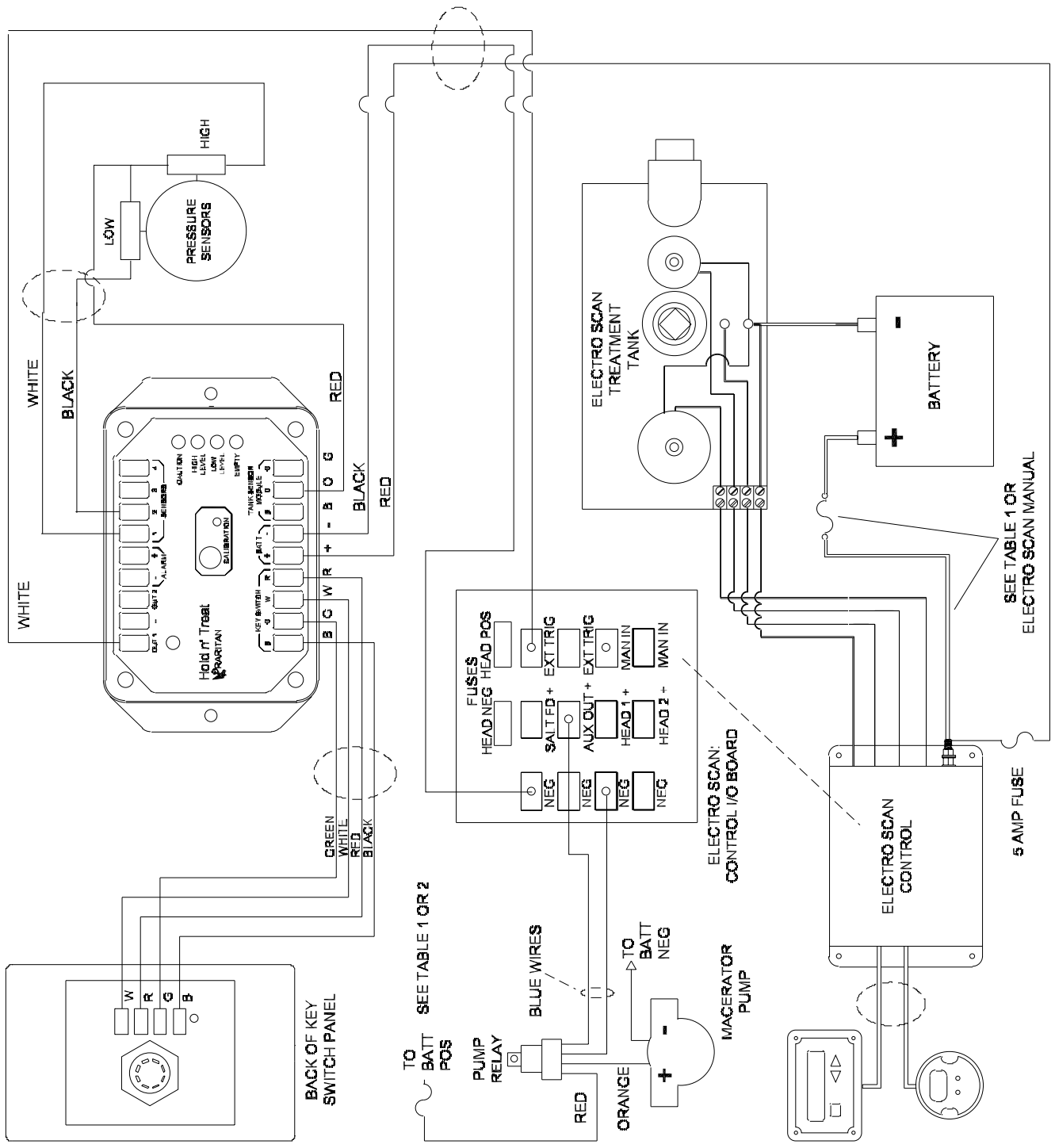


WIRING

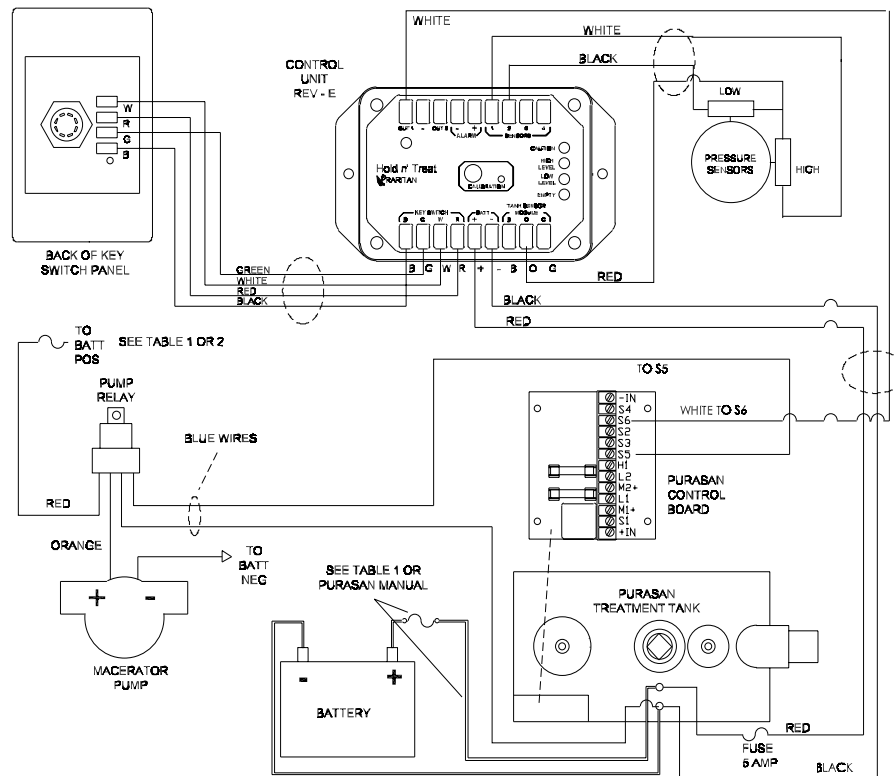
Wiring Diagram for LECTRA/SAN MC with HNT controller



Wiring Diagram for Electroscan with HNT controller



Wiring Diagram for PURASAN with HNT controller



LIMITED WARRANTY

Raritan Engineering Company warrants to the original purchaser that this product is free of defects in materials or workmanship for a period of one year from the product's date of purchase. Should this product prove defective by reason of improper workmanship and/or materials within the warranty period, Raritan shall, at its sole option, repair or replace the product.

1. TO OBTAIN WARRANTY SERVICE, Consumer must deliver the product prepaid, together with a detailed description of the problem, to Raritan at 530 Orange St., Millville, N.J. 08332, or 3101 SW 2nd Ave. Ft. Lauderdale, FL 33315. When requesting warranty service, purchaser must present a sales slip or other document which establishes proof of purchase. THE RETURN OF THE OWNER REGISTRATION CARD IS NOT A CONDITION PRECEDENT OF WARRANTY COVERAGE. However, please complete and return the owner Registration Card so that Raritan can contact you should a question of safety arise which could affect you.
2. THIS WARRANTY DOES NOT COVER defects caused by modifications, alterations, repairs or service of this product by anyone other than Raritan; defects in materials or workmanship supplied by others in the process of installation of this product; defects caused by installation of this product other than in accordance with the manufacturer's recommended installation instructions or standard industry procedures; physical abuse to, or misuse of, this product. This warranty also does not cover damages to equipment caused by fire, flood, external water, excessive corrosion or Act of God.
3. ANY EXPRESS WARRANTY NOT PROVIDED HEREIN, AND ANY REMEDY FOR BREACH OF CONTRACT WHICH BUT FOR THIS PROVISION MIGHT ARISE BY IMPLICATION OR OPERATION OF LAW, IS HEREBY EXCLUDED AND DISCLAIMED. ALL IMPLIED WARRANTIES SUCH AS THOSE OF MERCHANTABILITY AND OF FITNESS FOR A PARTICULAR PURPOSE, IF APPLICABLE, AS WELL AS ANY IMPLIED WARRANTIES WHICH MIGHT ARISE BY IMPLICATION OF LAW, ARE EXPRESSLY LIMITED TO A TERM OF ONE YEAR. SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG A LIMITED WARRANTY LASTS, SO THE ABOVE LIMITATION MAY NOT APPLY TO YOU.
4. UNDER NO CIRCUMSTANCES SHALL RARITAN BE LIABLE TO PURCHASER OR ANY OTHER PERSONS FOR ANY SPECIAL OR CONSEQUENTIAL DAMAGES, WHETHER ARISING OUT OF BREACH OF WARRANTY, BREACH OF CONTRACT, OR OTHERWISE. SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU.
5. No other person or entity is authorized to make any express warranty, promise or affirmation of fact or to assume any other liability on behalf of Raritan in connection with its products except as specifically set forth in this warranty.
6. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.



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