

Hold n' Treat

SYSTEM with PURASAN

Installation and Maintenance Instructions

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

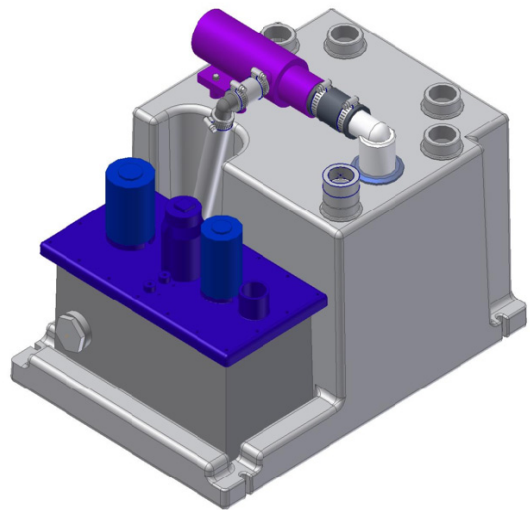
WARNING: *Raritan Engineering Company, Inc. recommends that a qualified person or electrician install this product. Equipment damage, injury to personnel or death could result from improper installation. Raritan Engineering Company, Inc. accepts no responsibility or liability for damage to equipment,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

The Hold n' Treat System 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. The Hold n' Treat System combines the Hold N' Treat Control, PURASAN (USCG Type I MSD) and a holding tank into one convenient system. All waste is stored in a 15 gallon holding tank with the key switch position determining how the waste is processed. This system eliminates the need for pump-out stations in most areas.

OVERVIEW

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 PURASAN treatment system. The PURASAN will then activate a macerator pump that moves approximately one gallon of waste from the holding tank to the treatment tank before continuing its normal treatment process. 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 COOLDOWN mode for fifteen minutes. When the system is set to NODISCHARGE, waste will enter the holding tank and will not be treated until the key switch position is moved to AUTOMATIC.



Important

- When Hold n' Treat is activated, ensure the PURASAN is operating properly. Refer to the PURASAN manual for proper operation.
- Use of certain chemicals in toilet or holding tank will cause damage to the PURASAN. We recommend ONLY Raritan C.P. Cleans Potties and Raritan K.O. Kills Odors.
- A KEY SWITCH is provided to prevent activation of the Hold n' Treat when in No Discharge Zones.

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 when below LOW LEVEL

When key switch is in NO DISCHARGE position:
light will not be active

When key switch is in OVERRIDE position:

- blinks continually

Where discharge of treated waste is allowed

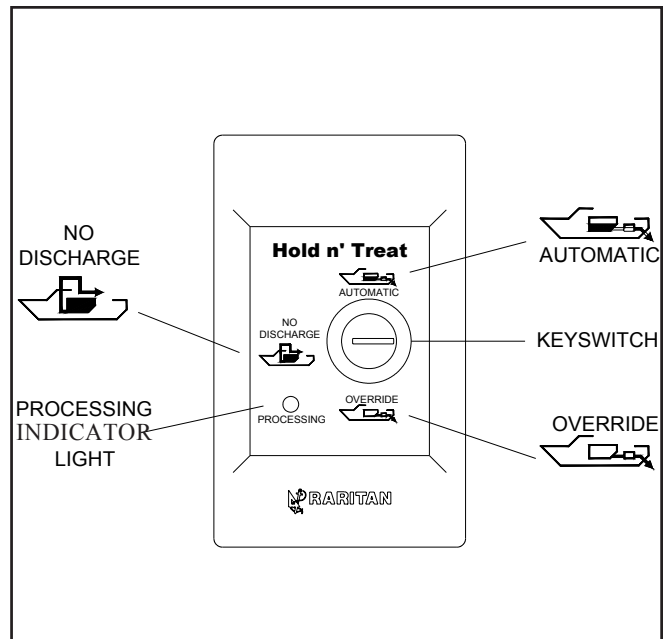
- Turn KEY SWITCH to AUTOMATIC. Waste in holding tank will be processed automatically once LOW LEVEL (approximately 1/4 full) is reached and will stop below LOW LEVEL.

Override mode

- By turning KEY SWITCH to OVERRIDE the system will process waste until key is turned to NO DISCHARGE or AUTOMATIC positions. This mode is provided to process waste below LOW LEVEL, allowing tank to be completely empty before entering into No Discharge Zone. **Important: When in Override Hold n' Treat will not shut off automatically. The system must be monitored and turned off once tank is emptied to avoid damage to macerator pump due to dry run.**

When in a No Discharge Zone

- Turn KEY SWITCH to NO DISCHARGE Position and remove key. Hold n' Treat will be off. Removing key from keyswitch ensures Hold n' Treat will not be turned on and discharge treated waste. All waste will be stored in the holding tank while in No Discharge Zone (NDZ). Removing key meets U.S.C.G. requirement for having a secured system while in an NDZ.



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.

MAINTENANCE

Refer to PURASAN and Macerator Pump Manuals for Maintenance Instruction

Important: Use of certain chemicals in toilet or holding tank will cause damage to PURASAN. Please refer to the proper manual concerning their use.

WINTERIZING

Disconnect or shut down power to unit. Refer to PURASAN and macerator pump manuals for winterizing instruction

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

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)

Website for a current list of No Discharge Zones:

http://www.epa.gov/owow/oceans/regulatory/vessel_sewage/vsdnozone.html

INSTALLATION

IMPORTANT: Read all instructions before proceeding with installation.

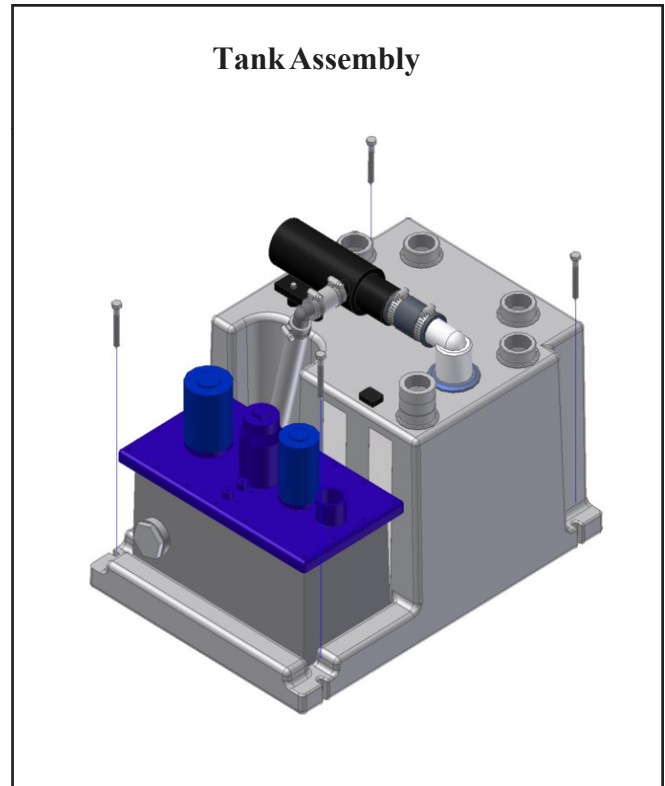
Hold n' Treat System instructions describe installation of the complete system . For specific instructions regarding installation of PURASAN components refer to the PURASAN manual.

WARNING: Not for use in areas requiring ignition protection.

Location

- Install on a flat and level surface.
- Mounting surface must support weight of unit when filled with water.
- Mounting area must be well ventilated
- Temperatures must not exceed 120° F.
- Must have access for maintenance

TIP: Mount where macerator pump and treatment system are accessible for maintenance



Mounting Tank Assembly

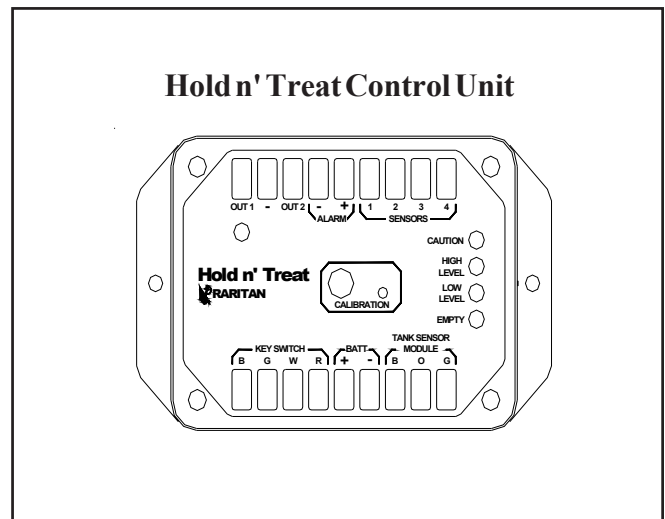
1. Secure tank assembly to deck using 3/8” bolts or screws. Note: type of fasteners will depend on the deck material, thickness and access.

Mounting Control Units

Important

- The control units must be mounted near the tank assembly dictated by their respective wiring cable lengths.
Hold n' Treat Control unit cable lengths 6' (1.8 m)
- Locate in a dry area.
- Locate in an accessible area

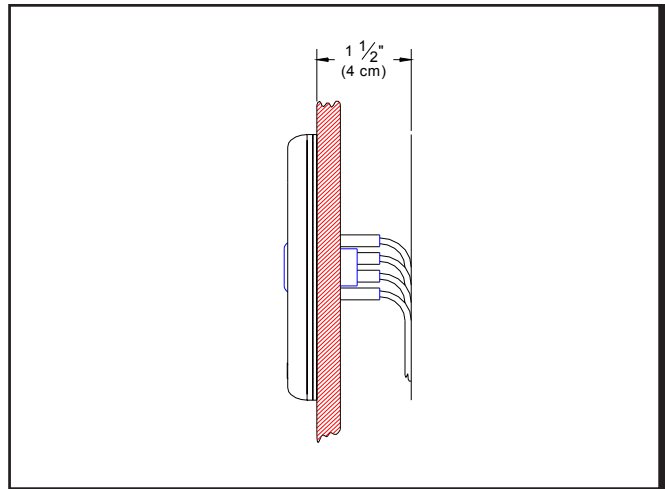
1. Secure to wall with proper fasteners using the mounting holes as indicated.



Mounting Key Switch Panel

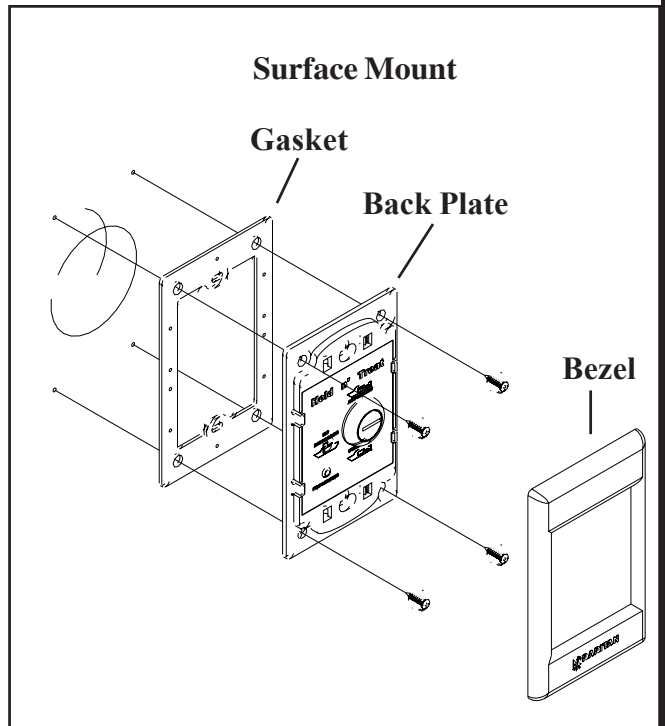
Note: Several options are available for mounting the key switch panel.

- 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.



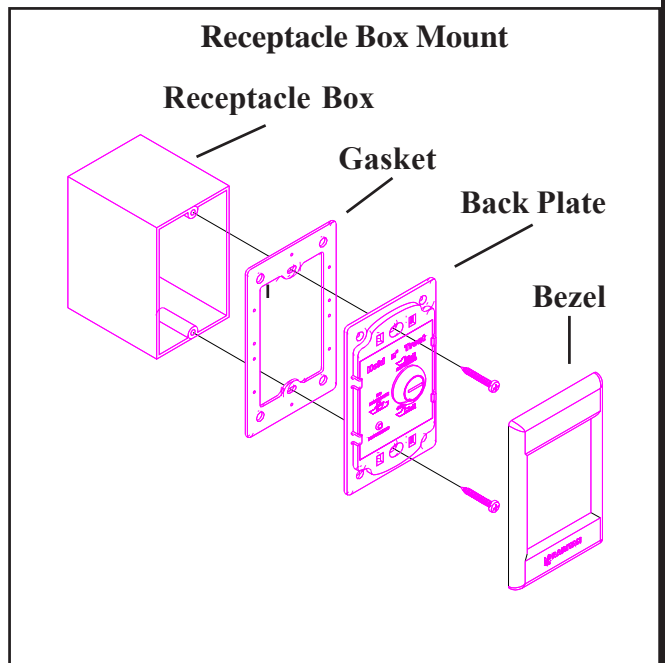
Surface Mounting

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.

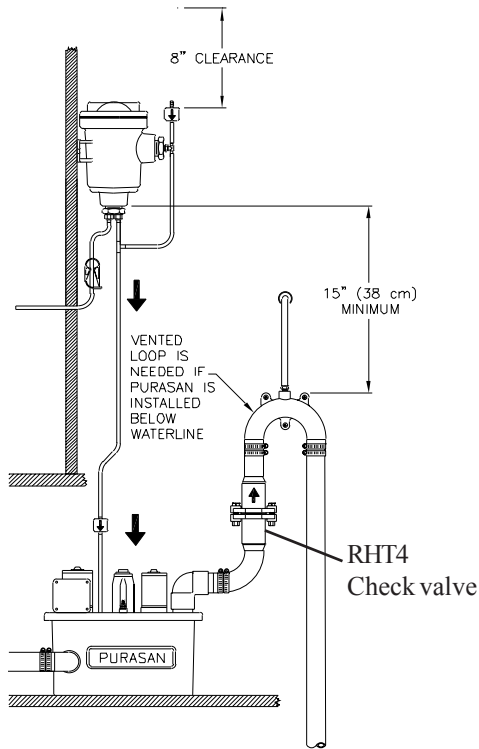


Receptacle Box Mounting

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.



INSTALLATION



Mounting of PURASAN tablet dispenser:
Refer to PURASAN manual for details

PLUMBING

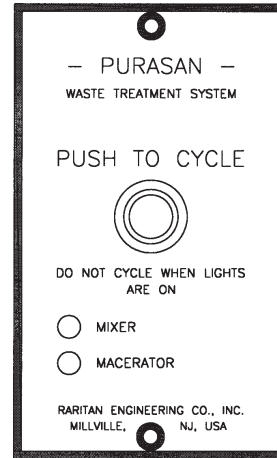
WARNING:

- All installations made below the waterline **MUST** be protected by installing vented loops in proper location
- Always double clamp fittings below waterline
- Do Not use metal fittings

NOTE:

- Use PTFE tape or nonpermanent thread sealing compound on threaded PVC fittings and connections.
- Avoid low areas in hose that would allow untreated waste to collect.

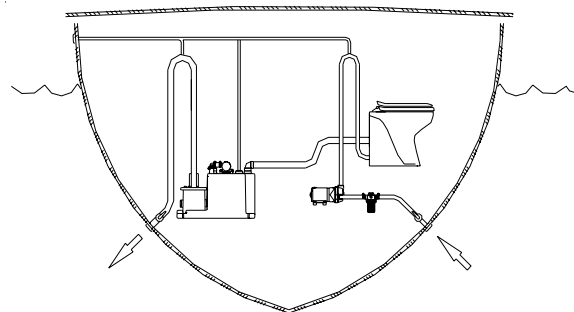
The tank assembly has four 1 1/2" NPT female ports available for connecting toilet(s) and vent line(s). Tank assembly also has a port dedicated for Pump-Out plumbing. unused port(s) **MUST** be plugged.



Mounting PURASAN switch panel: refer to PURASAN manual for details and template

Note: Panel is required to be mounted in order to indicate status of treatment and motor indicators. PUSH TO CYCLE button need not be used as Hold n' Treat sensor activates the system. Activating PUSH TO CYCLE button will start the cycle even if system is in no discharge mode.

Plumbing Example

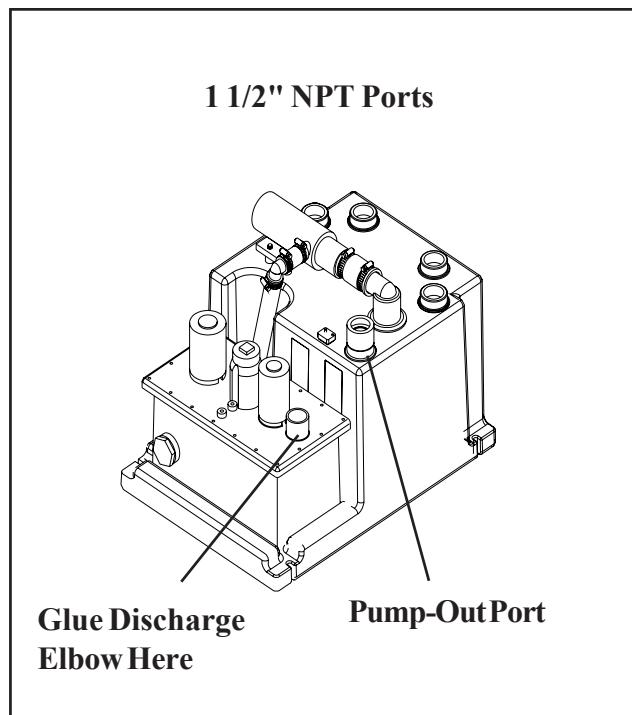


1. Connect discharge of toilet to one port on tank
2. Other ports are for a second toilet, vent line and pump-out fitting. (See Installing Vents below)
3. Plug unused ports.
4. Connect pump-out plumbing to pump-out port.
5. Determine position and glue discharge elbow to top of treatment tank using PVC cement. (refer to the PURASAN manual)
6. Connect hose from discharge elbow to thru hull fitting. An adapter fitting is provided for connecting discharge elbow (31-120) to hose.

Installing Vents

NOTE:

- Do not vent into a confined space onboard.
- Vents must not have sags, loops or obstructions where water can collect, restricting air flow.
- Vent lines should be sloped to allow condensation to drain from vents into tanks.
- Do not locate vent through-hull fittings near galley, sleeping or high use areas.



WIRING

WARNING: Hazard of Shock and Fire

- Always use proper wire, wire connectors and fuse/circuit breaker. See Specification Chart (page 9)
- Secure wire properly.
- Do not connect other appliances to PURASAN circuit.
- Make sure power is off and key switch is in the NO DISCHARGE position before proceeding.
- Improper wiring can damage the circuit board and void warranty.
- Refer to the PURASAN manual's specification page for proper wire gauge and fuse/circuit breaker size to battery .

FOLLOW WIRING DIAGRAM ON NEXT PAGE FOR FOLLOWING CONNECTIONS

1. Connect cable from Hold n' Treat key switch to Hold n' Treat control.
2. Fresh water solenoid valve if used must be wired to the PURASAN control board as per wiring diagram in PURASAN manual. Pump relay and waste transfer pump are already wired. Inline fuse is supplied.
3. Connect battery to Hold n' Treat control connect POS to batt +, NEG to batt -
4. Connect sensor cable to SENSOR1 and SENSOR 2 and OUT1 on Hold n' Treat control unit.
3. Connect DC power to system.
 - Connect battery Positive to POS terminal on the PURASAN treatment tank using proper wire size and fuse or circuit breaker specified in the PURASAN manual.
 - Connect battery Negative to the NEG terminal on the treatment tank.

Treatment Capacity

- Hold n' Treat System processes approximately six gallons (23 liters) per hour.
- 140 Gallons (530 liters) per week treatment
- Model 21SRP15* - 15 gallons(55 liters) holding tank (*: 12 vdc , 24 vdc)
- Maximum pitch and roll angle 15 degrees
- Black water requirements - salt water, Salt content of water not to exceed 4% (40 PPT).

Weight

Dry - 71 lbs (32.2kg)
Wet - 221 lbs (100kg)

Plumbing

Pressure max. 3 psi (21 kPa) (7 ft H2O)

Note 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. |

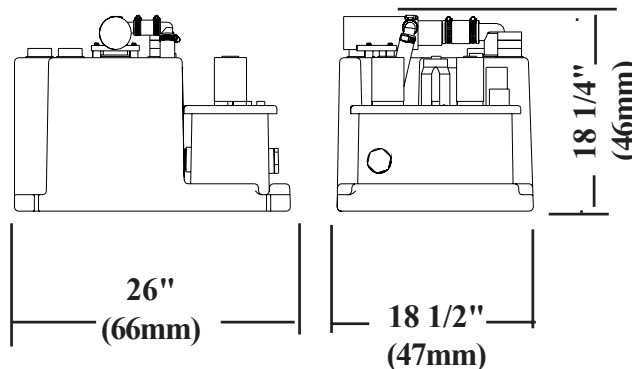
Recommended Wire and Fuse/Circuit Breaker Size

| Units Voltage | Circuit Breaker/fuse size (amps) | Amp. draw @ nominal voltage | Macerator pump Amp. draw @ nominal voltage | 10 feet | 20 feet | 30 feet | 40 feet | 50 feet |
|---------------|----------------------------------|-----------------------------|--|---------|---------|---------|---------|---------|
| 12 VDC | 30 | 10 | 17 | 8 AWG | 6 AWG | 6 AWG | 6 AWG | 4 AWG |
| 24 VDC | 20 | 8 | 9 | 14 AWG | 12 AWG | 10 AWG | 10 AWG | 8 AWG |

Fuse Specifications

| | 12 VDC Fuse type Maximum amperage part number | 24 VDC Fuse type Maximum amperage part number |
|--|--|--|
| FUSE 1 (F1) Mixer Motor | MDL 6 1/4 5 amp draw 32-218 | MDL 6 1/4 4 amp draw 32-218 |
| FUSE 2 (F2) Macerator Motor | MDL 12 5 amp draw 42-220 | MDL 6 1/4 4 amp draw 32-218 |
| MACERATOR PUMP | 25A BLADE TYPE EF25A | 15A BLADE TYPE EF15A |

| CONVERSIONS | | | | | | | | |
|-------------------------------|-----|-----|-----|-----|------|------|------|------|
| Wire - AWG to mm ² | | | | | | | | |
| AWG | 16 | 14 | 12 | 10 | 8 | 6 | 4 | 2 |
| mm ² | 1.5 | 2.5 | 4.0 | 6.0 | 10.0 | 16.0 | 25.0 | 35.0 |
| Feet to Meters | | | | | | | | |
| Feet | 10 | 15 | 20 | 25 | 30 | 40 | 50 | |
| Meter | 3.1 | 4.6 | 6.1 | 7.6 | 9.2 | 12.2 | 15.2 | |



CALIBRATION

CALIBRATION

Sensor is factory calibrated for the Hold n' Treat system tank.

Use following instructions only if factory calibration does not work or you need to do the calibration for other reasons.

Pressure switches are factory set to operate on low and high level.

To recalibrate, empty out tank by:

1. Powering macerator pump with positive and negative directly or
2. Run the system in OVERRIDE mode on KEYSWITCH

When tank is empty start using system and system will auto calibrate.

TROUBLE SHOOTING:

WARNING TANK NEAR FULL

- * If tank is not full
 1. Check wiring . Level switch wires may have been switched
 2. Check high level switch with a meter. Switch must be open if tank is not full
- * If system is in AUTOMATIC mode
 1. Check macerator pump
 2. Check low level switch
- * if system is in NO DISCHARGE or OVERRIDE mode
 1. Pump out holding tank
 2. Switch to AUTOMATIC mode if treated discharge is allowed

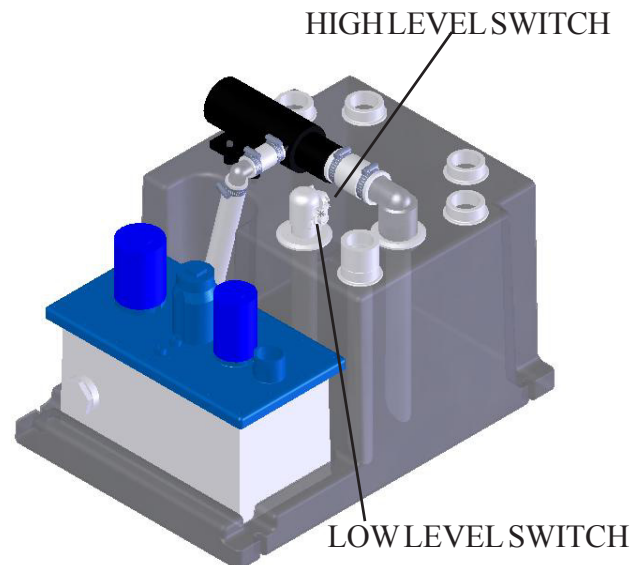
FOR ALL OTHER TROUBLESHOOTING SEE PURASAN MANUAL

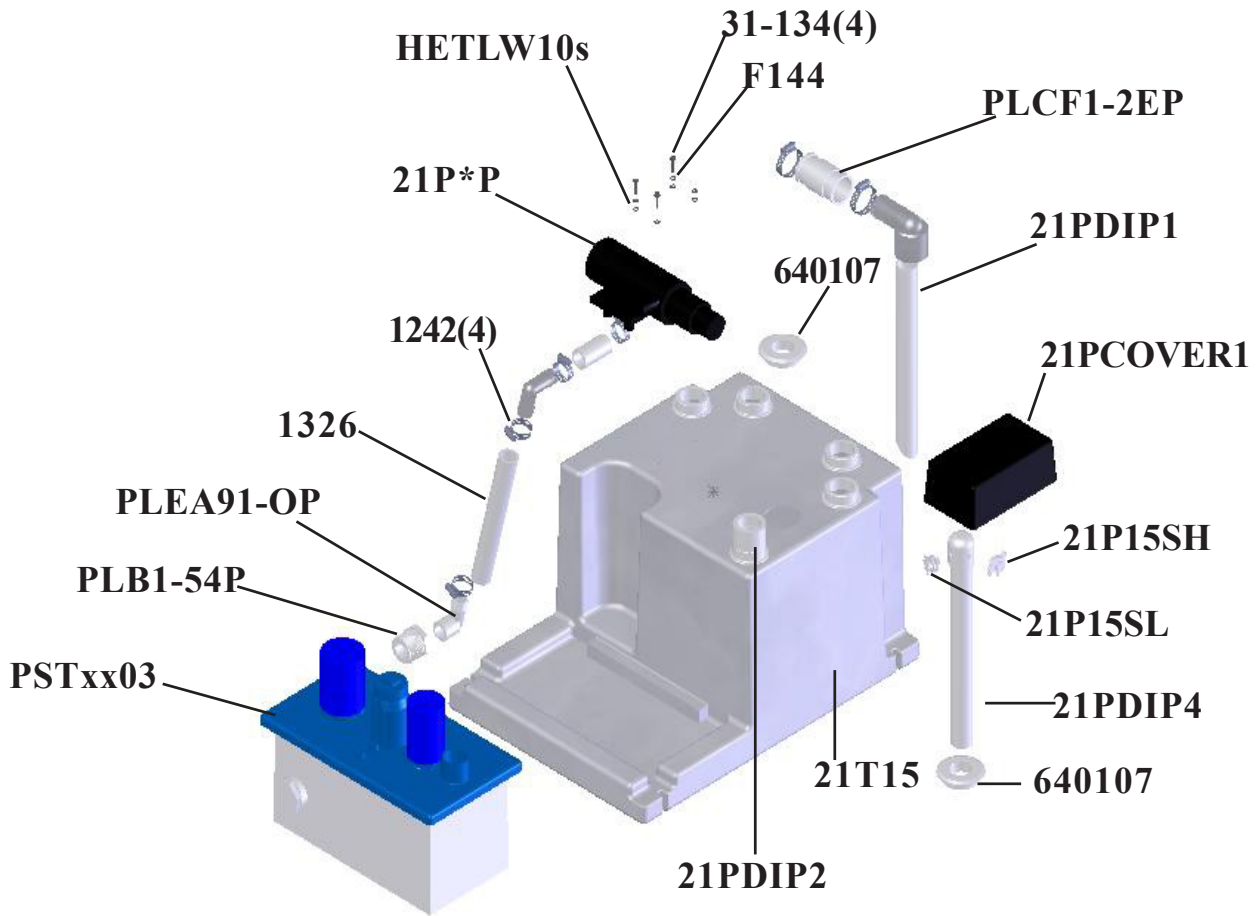
WINTERIZATION

Caution: Do not energize PURASAN with glycol in the tank to avoid severe overheating or explosion.

Tank: Pump out holding tank using pump out fitting

PURASAN : See PURASAN manual for winterization instructions.





Parts included

| | | |
|----------|------------|----------------------------------|
| 21T15 | 21T15 | Holding tank 15 Gallons |
| PSTxx03 | PSTxx03 | PURASAN, xx voltage |
| 21P* | 21P* | Macerator pump |
| 214*A | 214*A | Macerator Pump Relay (not shown) |
| 21PDIP | 21PDIP | Sensor tube assembly |
| 21P15SH | 21P15SH | Sensor high level |
| 21P15SL | 21P15SL | Sensor low level |
| ETBP4 | ETBP4 | Terminal block (not shown) |
| 21PCOVER | 21PCOVER | cover for sensor |
| 1242 | 1242 | # 14 Hose clamps for 1" hose |
| 1326 | 1326 | 1" hose |
| 31-120 | 31-120 | Elbow: 1 1/2 PVC 90 (NOT SHOWN) |
| 31-122 | 31-122 | 1 1/2 Inlet plug(not shown) |
| 31-134 | 31-134 | screw 10-32 x 1 hex hd(4) |
| | 640107 | 1 1/2 IN. seal |
| | F144 | # 10 S/S Flat washer (4) |
| | HETLW10S | # 10 ext tooth lock washer |
| | PLCF1-2EP | Coupling Flex 1 1/4" EPDM |
| | 21PDIP1 | Dip tube assembly |
| | 21PDIP2 | pump out dip tube assembly |
| | PLB1-54P | 1 1/2" X 1"bushing, MIPT X FIPT |
| | PLEA91-0P | 1" Elbow, Combo, INSERT X MIPT |
| | NOT SHOWN: | |
| | PLE91-0P | 1" Elbow INS X INS |
| | 21PSTRAP | Hold down strap assembly (NS) |
| | EFH01 | InLin fuse holder |
| | EF5 | 5 amp Fuse |
| | EF30FA | 30 AMP, ATC, fuse |
| | EFH02 | In line fuse holder(30A) |
| | 41-135 | Tablet cartridge(not shown) |

*specify voltage

See PURASAN manual for PURASAN exploded parts

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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