FLUSH HANDLE CONTROL FOR
ATLANTES FREEDOM™ TOILET VORTEX-VAC™
Installation and Maintenance Instructions

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

WARNING:

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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, injury or death to personnel that may result from improper installation or operation of this product.

WARNING: **HAZARD OF SHOCK OR FIRE**

Always use recommended fuse, circuit breaker and wire size.

DO NOT install in the area requiring "Ignition protected" devices.

FLUSH LEVER POSITIONS

EMPTY BOWL
FLUSH

TIMED
FLUSH

FILL
WATER

Pull Handle   **Push Handle**

Description:
"02" model:
The 02 model is designed to work as a momentary unit using only microswitches to activate the motors. It is also a "fail safe" mode for the toilet control in the 03 model.

"03" model:
The "03" model contains a smart toilet control which provides timed operation while still having momentary functionality if toilet control is removed.

Operation:

IMPORTANT: Discharge and Inlet Pump / Valve MUST BE wired for proper operation and programming.

Pull Handle Forward:
Model 03 - Pull handle forward and release: starts a timed flush, intake pump starts followed by discharge pump.

Model 02 - Pull handle forward and hold to add water.

Push Handle Backward:
Discharge "dry bowl" flush momentary operation, for both 02 and 03 models.

If vessel is equipped with a Marine Sanitation Device and you want to start the MSD from Toilet Control:
03 Models: Electroscan or Purasan EX, see page 6, figures 7 and 8.
02 Models or other MSD (such as Purasan, LectraSan MC or EC) Call Raritan Customer Service or visit www.raritaneng.com
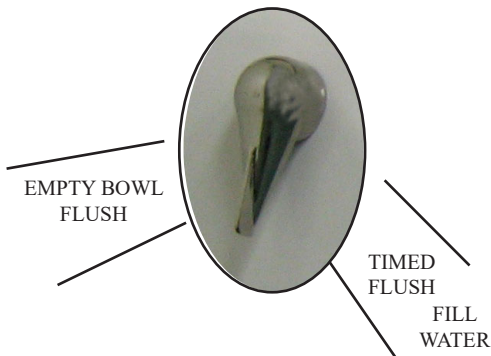
WIRING

NOTES: for Wiring

1. Distances are from source to unit and back to source.
2. Distance from power source to remote intake pump MUST be included when determining total distance.
3. Recommended conductor wire minimum AWG (mm²) for 3% voltage drop.
4. Recommended conductor sizes are based on 105°C rated insulation. Single conductor (not bundled), refer to ABYC Standards for sizes with other insulation ratings.
5. For 120/240 VAC units, use 12VDC specifications from transformer to unit.

CONVERSIONS

Wire - AWG to mm²

AWG	16	14	12	10	8	6	4	2
mm²	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

Recommended Wire and Fuse/Circuit Breaker Sizes

Table 1 Raw Water Model
(sizes based on both remote intake and discharge pumps amp added together)

Units Voltage	Circuit Breaker/ fuse size (amps)	Toilet Discharge Pump Amps draw	Remote Intake Pump Amp draw	10 feet	15 feet	20 feet	30 feet	40 feet	50 feet
12 VDC	30	18	10	10 AWG	8 AWG	6 AWG	4 AWG	4 AWG	2 AWG
24VDC	20	10	5	16 AWG	14 AWG	12 AWG	10 AWG	10 AWG	8 AWG

Table 2 Pressurized Fresh Water Model

Units Voltage	Circuit Breaker/ fuse size (amps)	Amp draw	10 feet	15 feet	20 feet	30 feet	40 feet	50 feet
12 VDC	25	18	10 AWG	10 AWG	8 AWG	6 AWG	6 AWG	4 AWG
24 VDC	15	10	16 AWG	16 AWG	14 AWG	12 AWG	10 AWG	10 AWG

Table 3 Remote Intake Pump Only (Raw Water and Seafresh Models)

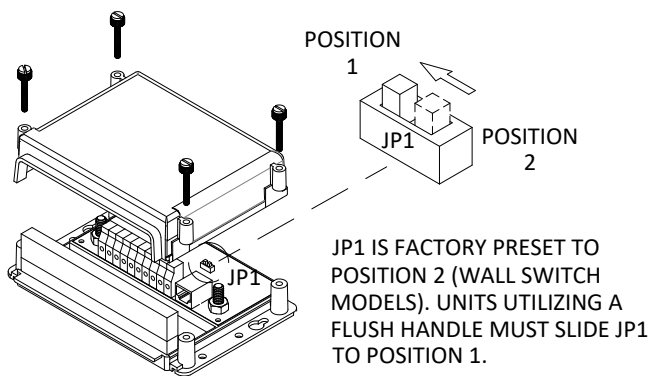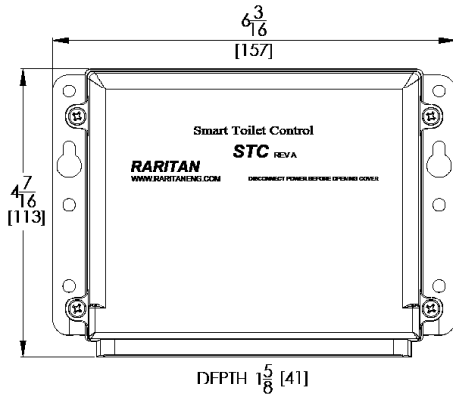| Units Voltage	Circuit Breaker/ fuse size (amps)	Amp draw	10 feet	15 feet	20 feet	30 feet	40 feet	50 feet
12 VDC	15	10	14 AWG	12 AWG	10 AWG	10 AWG	8 AWG	6 AWG
24 VDC	10	5	16 AWG	16 AWG	16 AWG	16 AWG	14 AWG	12 AWG

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MOUNTING CONTROL 03 MODELS

**NOTE: The panel included is for programming purposes ONLY. It is NOT intended to be mounted for regular use. Please refer to page 6 for programming instructions.

MOUNTING CONTROL BOX:
1. Locate a place for control box near toilet. Do not install box more than six feet away to avoid excessive volatage drop
2. Route wires between toilet and control, *Cut all extra lengh of wires to keep voltage drop to minimum.*

IMPORTANT: Discharge and Inlet Pump / Valve MUST BE wired for proper operation and programming.

Smart Toilet Control (03 Models)

JP1 IS FACTORY PRESET TO POSITION 2 (WALL SWITCH MODELS). UNITS UTILIZING A FLUSH HANDLE MUST SLIDE JP1 TO POSITION 1.

WIRING

WARNING: Hazard of Shock and Fire
- **Always use proper wire, wire connectors and fuse/circuit breaker. See Specification Chart.**
- **Secure wire properly.**
- **Do not connect appliances to toilet circuit.**
- **Make sure power is off before proceeding.**
1. Determine proper wire size by measuring distance from:
   - Power Source to toilet and back to power source.
   - Remote pump units - also include distance from power source for remote pump to remote pump and back. Same wire gauge must be used for both discharge and remote pump.
2. Select proper wire and fuse/circuit breaker size from Specifications on specification page.
3. Install fuse/circuit breaker in positive line at source.
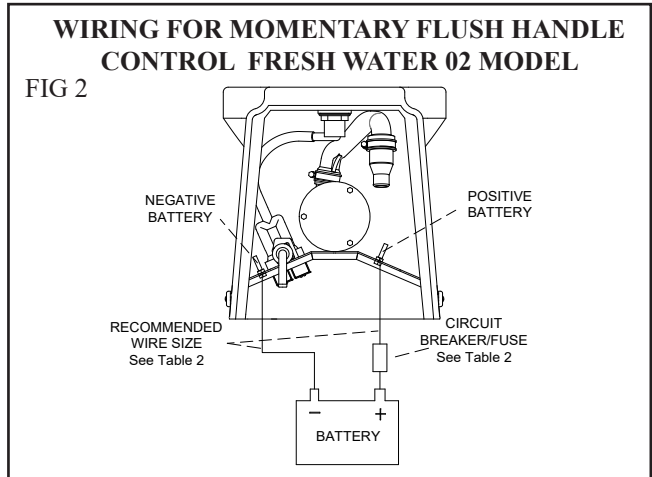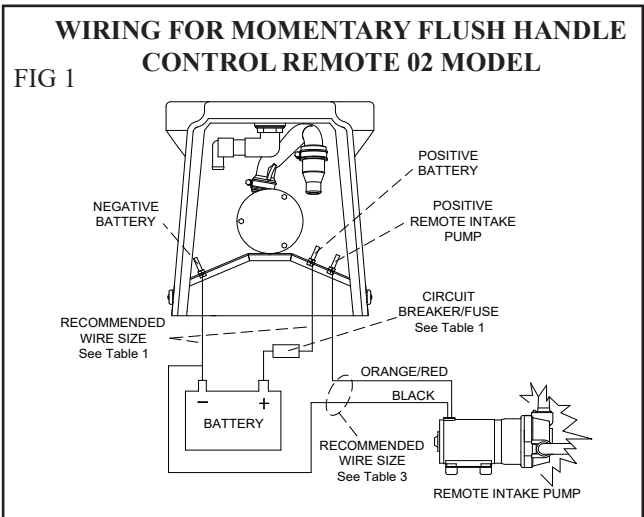4. Wire using Fig. 1, 2, 3, 4, 5, or 6.

WIRING FOR MOMENTARY FLUSH HANDLE CONTROL REMOTE 02 MODEL

FIG 1

WIRING FOR MOMENTARY FLUSH HANDLE CONTROL FRESH WATER 02 MODEL

FIG 2

FIG 3

WIRING FOR FLUSH HANDLE CONTROL WITH SMART TOILET CONTROL FRESH WATER 03 MODEL

CIRCUIT BREAKER/ FUSE
See Table 2

RECOMMENDED
WIRE SIZE
See Table 2

STC

BATT +
WHITE
DISCH + RED
DISCH - BLACK
INLET+ BLUE
INLET - BLACK
TO MSD
FROM MSD
SENSALEVEL
COMMON
FLOAT
WALL SWITCH PANEL
BATT -

BATTERY
+ −

RECOMMENDED
WIRE SIZE
See Table 2

6FT (1.8M) LENGTH
WIRES PROVIDED

WHITE
(12AWG)

RED
(12AWG)

DISCHARGE
PUMP

BLACK (12AWG)

BLUE (16AWG)

WATER
VALVE

BLACK (16AWG)
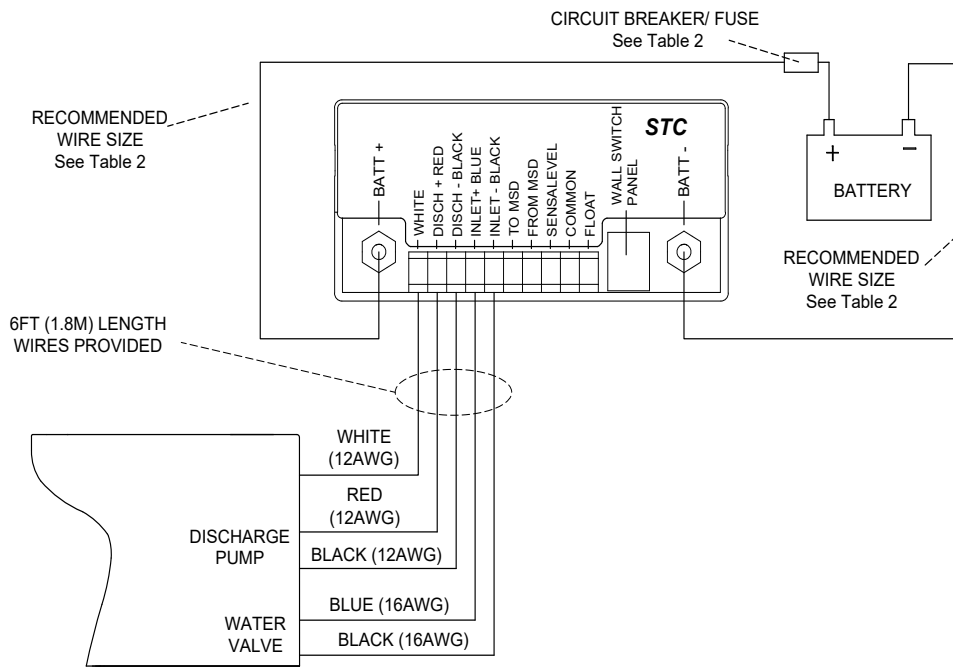
FIG 4

WIRING FOR FLUSH HANDLE WITH SMART TOILET CONTROL WITH REMOTE PUMP 03 MODEL

CIRCUIT BREAKER/ FUSE
See Table 1

RECOMMENDED
WIRE SIZE
See Table 1

STC

BATT +
WHITE
DISCH + RED
DISCH - BLACK
INLET+ BLUE
INLET - BLACK
TO MSD
FROM MSD
SENSALEVEL
COMMON
FLOAT
WALL SWITCH PANEL
BATT -

BATTERY
+ −

RECOMMENDED
WIRE SIZE
See table 1

RECOMMENDED
WIRE SIZE
See Table 3

6FT (1.8M) LENGTH
WIRES PROVIDED

WHITE
(12AWG)

RED
(12AWG)

DISCHARGE
PUMP

BLACK (12AWG)

BLACK

RED/ORANGE

BLUE (12AWG)

INTAKE
PUMP

BLUE (12AWG)

REMOTE INTAKE PUMP

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FIG 5   WIRING FOR FLUSH HANDLE CONTROL WITH SMART TOILET CONTROL SEAFRESH 03 MODELS

CIRCUIT BREAKER/FUSE
See Table 3

CIRCUIT BREAKER/FUSE
See Table 2

RECOMMENDED WIRE SIZE
See Table 2

STC

BATT +
WHITE
DISCH + RED
DISCH - BLACK
INLET + BLUE
INLET - BLACK
TO MSD
FROM MSD
SENSALEVEL
COMMON
FLOAT
WALL SWITCH PANEL
BATT -

+ BATTERY −

RECOMMENDED WIRE SIZE
See Table 3

DISCHARGE PUMP

WHITE (12AWG)
RED (12AWG)
BLACK (12AWG)
ORANGE (16AWG)
ORANGE (16AWG)

WATER VALVE

BLACK (16AWG)
BLUE (16AWG)

INTAKE WATER SELECTOR SWITCH

2   L1

SEA

FRESH

3

(14AWG)

(BACK VIEW)

PUMP RELAY

RED/ORANGE   BLACK

BLUE   ORANGE

RED   BLUE

REMOTE INTAKE PUMP

FIG 6   WIRING FOR MOMENTARY FLUSH TOILET CONTROL SEAFRESH 02 MODELS

CIRCUIT BREAKER/FUSE
See Table 3

RECOMMENDED WIRE SIZE.
See Table 2

CIRCUIT BREAKER/FUSE
See Table 2

+ BATTERY −

POSITIVE BATTERY

NEGATIVE BATTERY

RECOMMENDED WIRE SIZE
See Table 3

ORANGE (16AWG)

WATER VALVE

BLUE (16AWG)

INTAKE WATER SELECTOR SWITCH

2   L1

SEA

FRESH

WHITE (16AWG)

3

(BACK VIEW)

PUMP RELAY

RED/ ORANGE   BLACK

BLUE   ORANGE

RED   BLUE

REMOTE INTAKE PUMP
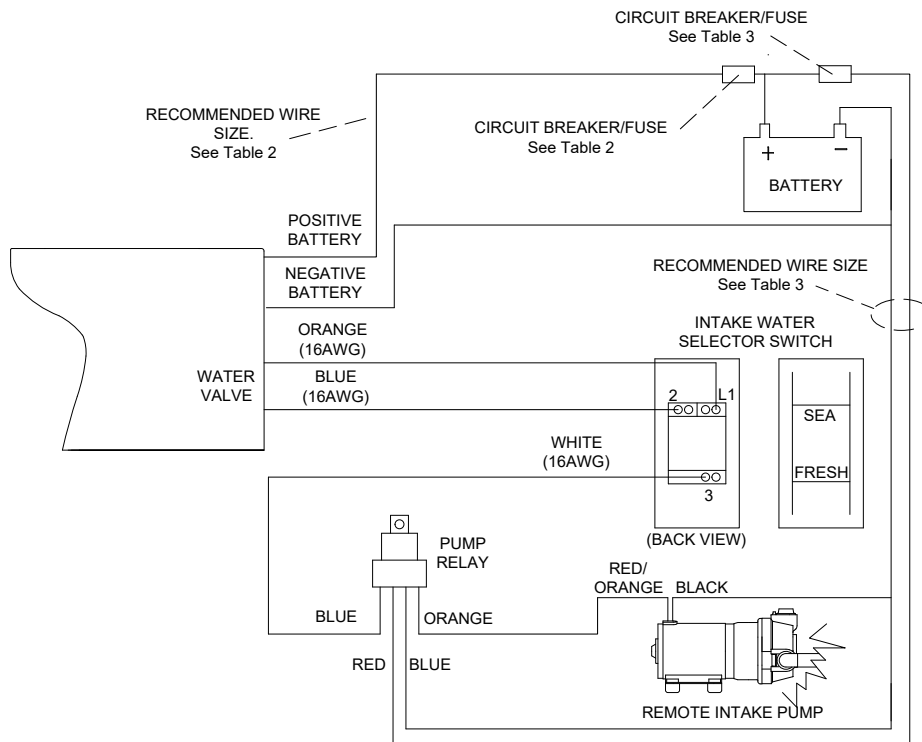
MSD OPERATION

Atlantes Models ending with 03 (equipped with Smart Toilet Control) only.

- To start Electroscan or Purasan EX from Toilet Flush Handle, wire per Fig 7.
- To start/flush toilet by activating the Electroscan or Purasan EX, wire per Fig. 8.

For lectra/san MC, EC or Purasan call Raritan Customer Service.

FIG 7
WIRING FOR SMART TOILET CONTROL WITH MSD

PURASAN EX

ELECTROSCAN

FIG 8
WIRING FOR SMART TOILET CONTROL WITH MSD

PURASAN EX

ELECTROSCAN
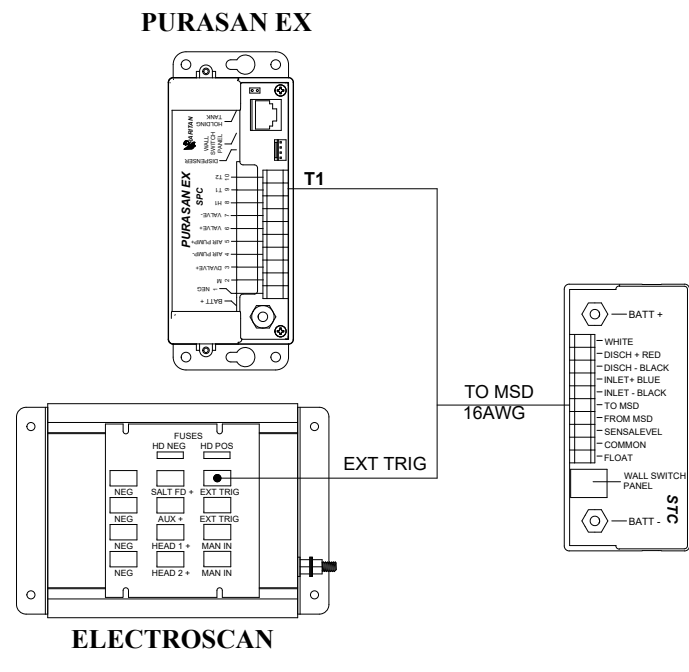
Programming of Toilet Flush Control

NOTE: Flush control is set at factory to work in most installations. Use following instructions to re-program if adjustment on water levels and timings are needed.

The Raritan Smart Toilet Control offers two different flush modes to choose from:

Sequential Flush: In this mode, the toilet will add water and discharge waste separately. This fill/empty cycle will repeat three times during the NORMAL FLUSH cycle. At the end of this sequence cycle, a short pause will be followed by a final fill to leave water remaining in the bowl.

This mode is designed to provide the most efficient flush possible while using the least amount of water. It keeps the discharge pump flooded while providing powerful suction to remove waste from the bowl.

NOTE: All toilets as shipped from factory are set to the Sequential mode.

Continuous Flush: In this mode, the toilet will add water to wet the bowl first and then follow with the inlet and discharge motors flushing together for the remainder of the cycle. At the end of this continuous cycle, a short pause will be followed by a final fill to leave water in the bowl.

This mode may be more suitable for installations in which a continuous flow of water is desired and water use is not as great a concern.

Changing flush mode from Sequential to Continuous and vise versa:

1. Hold the WATER ONLY and EMPTY ONLY buttons down together for three seconds. The Holding Tank Full LED will flash THREE times indicating you have entered program mode.
2. Push the WATER SAVER button once.
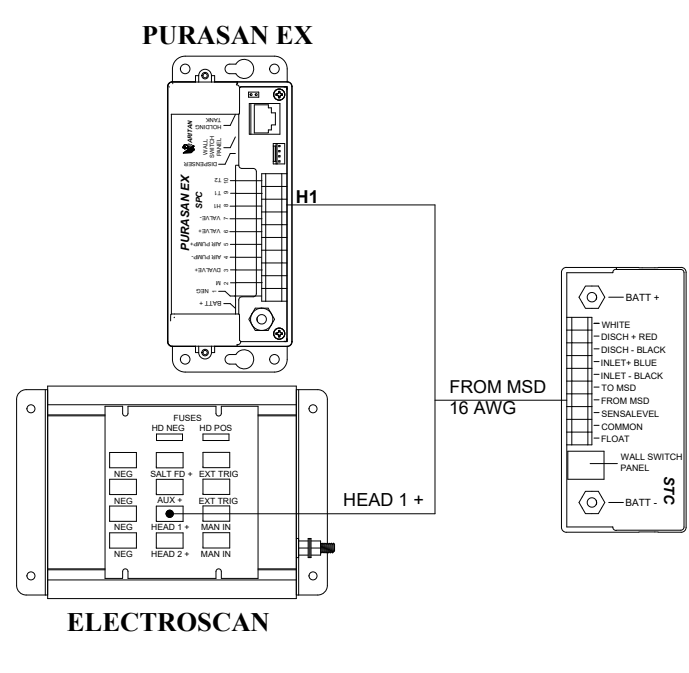
3. Push the EMPTY ONLY ▽ button. Flush mode will switch from Sequential to Continuous or vice versa. The Holding Tank Full LED will flash THREE times indication you have left program mode.

Programming your Smart Toilet Control:

The Raritan Smart Toilet Control is factory set to work in most installations and no programming is required. The following instructions can be used to modify timings if desired:

All flush cycles have an initial fill time **(T1)**, Discharge/Empty time **(T2)** and water retention fill time **(T3)**.

Factory default settings for the NORMAL FLUSH ☛ are as follows:

Sequential mode: T1= 3 sec, T2= 3 sec, T3= 2 sec

Continuous mode: T1= 3 sec, T2= 12 sec, T3= 2 sec

Step 1 - Entering program mode:
Hold the WATER ONLY ▽ and EMPTY ONLY ▽ buttons down together for 3 seconds. The Holding Tank Full LED will flash THREE times indicating you have entered program mode - release both button.

Setting T1 initial fill time:
After entering program mode (Step 1 above) push the NORMAL FLUSH ☛ button once. Continue to press the NORMAL FLUSH ☛ button equivalent to the number seconds you wish water to enter the bowl: (one push= 1 second, 2 pushes= 2 seconds, etc.). The Tank LED will flash after each valid key push. The maximum inlet time is 20 seconds.

When finished, push the EMPTY ONLY ▽ button to store this value and exit. The Holding Tank Full LED will flash THREE times indicating you have left program mode.

Setting T2 Discharge Pump Time:
After entering program mode (Step 1 above) push the EMPTY ONLY ▽ button once. Continue to press EMPTY ONLY ▽ button equivalent to the number of seconds you wish water to exit the bowl: (one push= 1 second, 2 pushes= 2 seconds, etc.).

The Tank LED will flash after each valid key push. The maximum empty time is 20 seconds. When finished, push the NORMAL FLUSH ☛ button to store this value and exit. The Holding Tank Full LED will flash THREE times indicating you have left program mode.

NOTE: When in Continuous mode, the WATER SAVER ↳ empty time will operate at half of the NORMAL FLUSH ☛ time setting (Wall switch models only).

Setting T3 Water Retention Fill Time:
After placing the unit in program mode (step 1) push the WATER ONLY ▽ button once. Continue to press the WATER ONLY ▽ button as follows to leave water standing in the bowl: (1 push= ZERO seconds, 3 pushes= 2 seconds, 4 pushes= 3 seconds, etc).

The Tank LED will flash once indicating a valid key push. The maximum water retention time is 10 seconds. When finished, push the NORMAL FLUSH ☛ button to store this value and exit. The Holding Tank Full LED will flash THREE times indication you have left program mode.

Extending pause for water retention:
Some installations may require adjustment if water siphons out of the bowl after the flush cycle is complete. This adjustment will increase the pause time between the final empty time and the water retention fill time. The factory set pause is for 2 seconds, but can be changed to 10 seconds by following the procedure below:
1. Hold the WATER ONLY ▽ and EMPTY ONLY ▽ buttons down together for 3 seconds. The Holding Tank Full LED will flash THREE times indicating you have entered program mode.
2. Push the WATER SAVER ↳ button. This will disable/enable the 10 second pause mode.
3. Push the WATER SAVER ↳ button again to exit program mode. The Holding Tank Full LED will flash THREE times indicating you have left program mode.

Repeat steps 1 to 3 to re-enable change between pause modes.

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. 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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