

SMART TOILET CONTROL

WITH *FlushSense*[®]

Installation and Maintenance Instructions

Part# STCFS

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, 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.

Motors used with this product are “Ignition Protected”. They are not however, explosion-proof as defined in 46CFR 110.15-65(e), Subchapter J-Electrical Engineering.



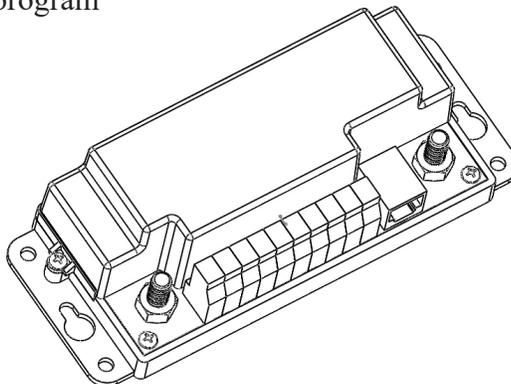
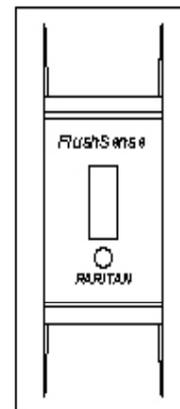
DO NOT run continuously for more than 30 seconds.

Raritan’s FlushSense[®] control is designed to automatically activate a flush cycle without touching the control. Simply waving your hand within 2” of the sensor will begin a sequential flush cycle that offers guests a simple and sanitary solution to flushing the toilet.

FlushSense[®] Control:

Consists of a controller, panel switch and 7’ of cable, designed to automatically start a flushing cycle if **a hand is within 2” from switch.**

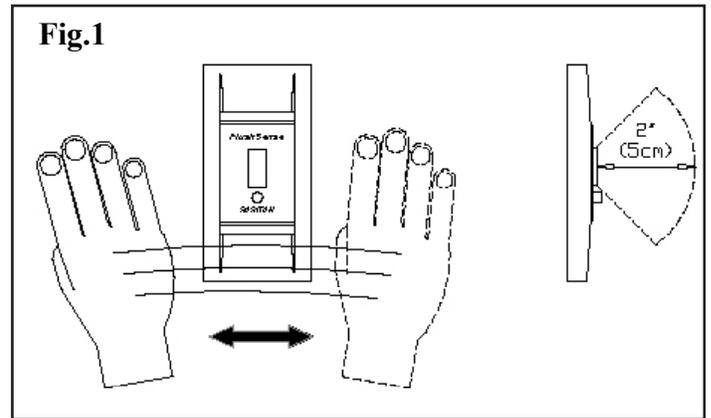
Flush timing of initial fill , discharge and final fill are factory programmed. Optional multi-function panel is required to re-program



OPERATION

Moving your hand in front of the switch within 2 inches will activate a flush cycle. The flush cycle consists of a cycling between bringing in water and running the macerator for three cycles. This allows for an efficient flush with less water usage.

DO NOT use any chemical to clean lenses on the sensor, use only soap and water.



Mounting control Panel:

FlushSense panel:

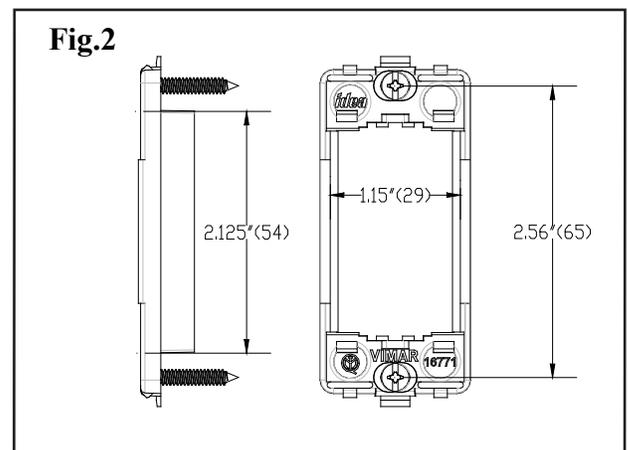
Location:

FlushSense will activate if any object is within 2" of the switch. To avoid any nuisance activation, switch should be located such that normal occupying of the bathroom or seating on the toilet does not activate switch. Avoid locations where switch will be exposed to direct light source such as sunlight or tungsten lamp.

1. Cut out a hole per Fig. 2, mark mounting holes using base plate as guide.
2. Route wire/cable to the toilet and control.
3. Secure control using mounting screws

Smart Toilet Control Box;

1. Locate box near toilet in a dry and accessible area
2. Using two screws fasten the control to wall with connectors at the bottom.
3. Using one of the wiring diagram route all wires.



Switch Mounting

ATLANTES FREEDOM VORTEX VAC AND MARINE ELEGANCE

Sea Water Model - Recommended Wire and Fuse/Circuit Breaker Size

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

Pressurized Freshwater Model - Recommended Wire and Fuse/Circuit Breaker Size

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

SEAERA TOILET

Sea Water Model - Recommended Wire and Fuse/Circuit Breaker Size

Units Voltage	Circuit Breaker/fuse size (amps)	Remote Pump and lower base Amp. draw	Remote Pump only Amp. draw	15 feet	20 feet	30 feet	40 feet	50 feet
12 VDC	25	23	10	10 AWG	8 AWG	6 AWG	6 AWG	4 AWG
24 VDC	15	12.5	5	14 AWG	14 AWG	12 AWG	10 AWG	10 AWG

Pressurized Freshwater Model - Recommended Wire and Fuse/Circuit Breaker Size

Units Voltage	Circuit Breaker/fuse size (amps)	Amp. draw	10 feet	15 feet	20 feet	30 feet	40 feet	50 feet
12 VDC Lower Base	25	13	12 AWG	10 AWG	10 AWG	8 AWG	6 AWG	6 AWG
24 VDC Lower Base	15	7.5	14 AWG	12 AWG	10 AWG	10 AWG	8 AWG	6 AWG
12 and 24 VDC Water Solenoid Valve	3	2	16 AWG					

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. Same wire size MUST be used for lower base and remote intake pump.
3. Recommended conductor wire minimum AWG (mm) for 3% voltage drop.
4. Recommended conductor sizes are based on 105C rated insulation. Refer to ABYC Standards for other insulation ratings.
5. For 120/240 VAC units use 12VDC specifications from transformer to unit.

NOTES: for Wiring

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		

WIRING

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.
- Use proper wire terminals for all wire connections.

1. Determine proper wire size by measuring distance from:
 - Power Source to control box and back to power source.
 - Remote pump units: determine proper wire size for remote pump from wiring diagram.
2. Select proper wire and fuse/circuit breaker size from Specifications on Table 1.
3. Install fuse/circuit breaker in positive line at source.
4. Wire control to the toilet and battery using one of the following wiring diagrams.

Reverse Polarity Protection

Control is reverse polarity protected. In case of reverse polarity motors and solenoid will activate as soon as power is connected. After reverse polarity is corrected (within 10 minutes), unit will work as normal.

MSD OPERATION (see fig. 6)

To start Electrosan from toilet control, run a wire from “to MSD “ to terminal marked “EXT TRIG” inside Electrosan control module (black box).

To start toilet equipped with Smart toilet control from Electrosan, connect “Head1” to “FROM MSD “.

For Lectra/San MC, EC call Raritan Customer Service

Fig. 3 WIRING FOR SMART TOILET CONTROL , FRESHWATER MODEL

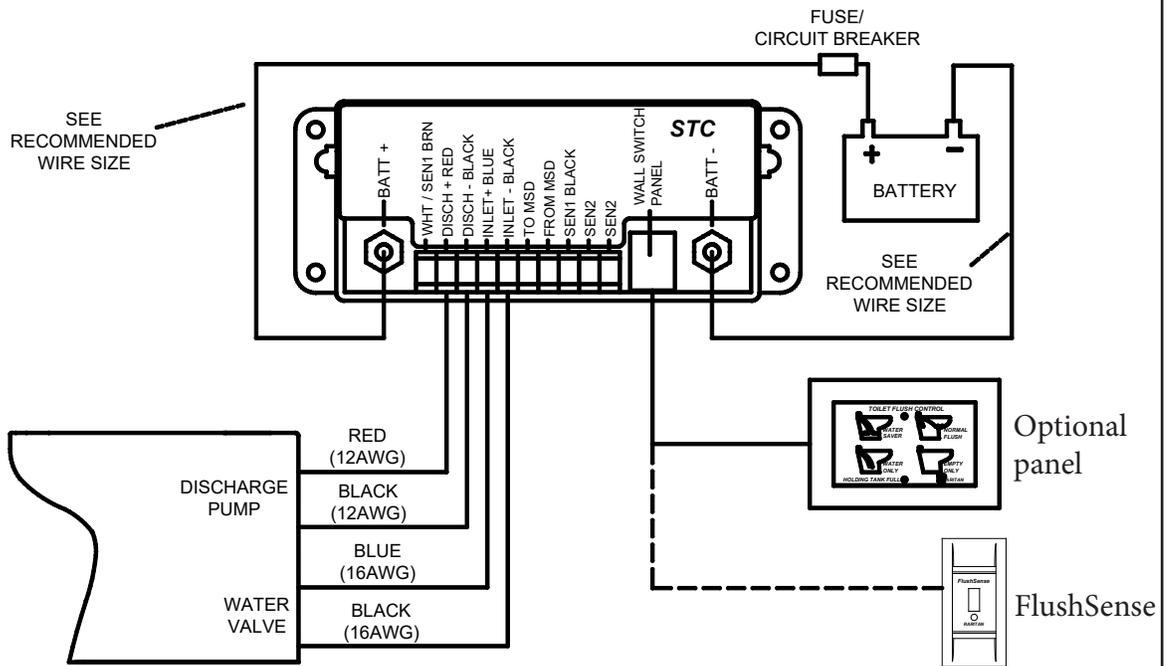


Fig. 4 WIRING FOR SMART TOILET CONTROL REMOTE PUMP MODEL

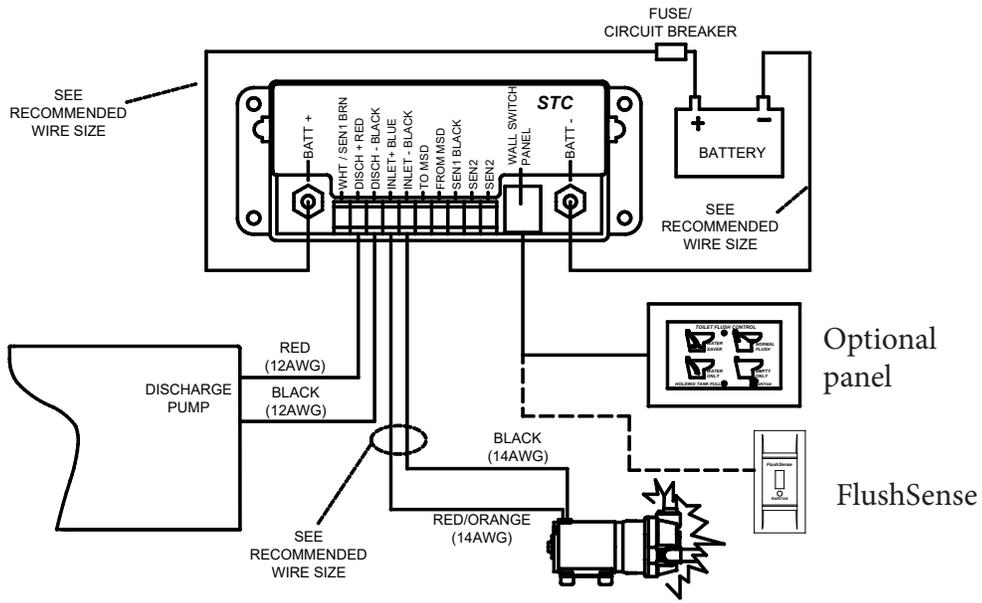


Fig. 5 WIRING FOR SMART TOILET CONTROL SEA/FRESH MODEL

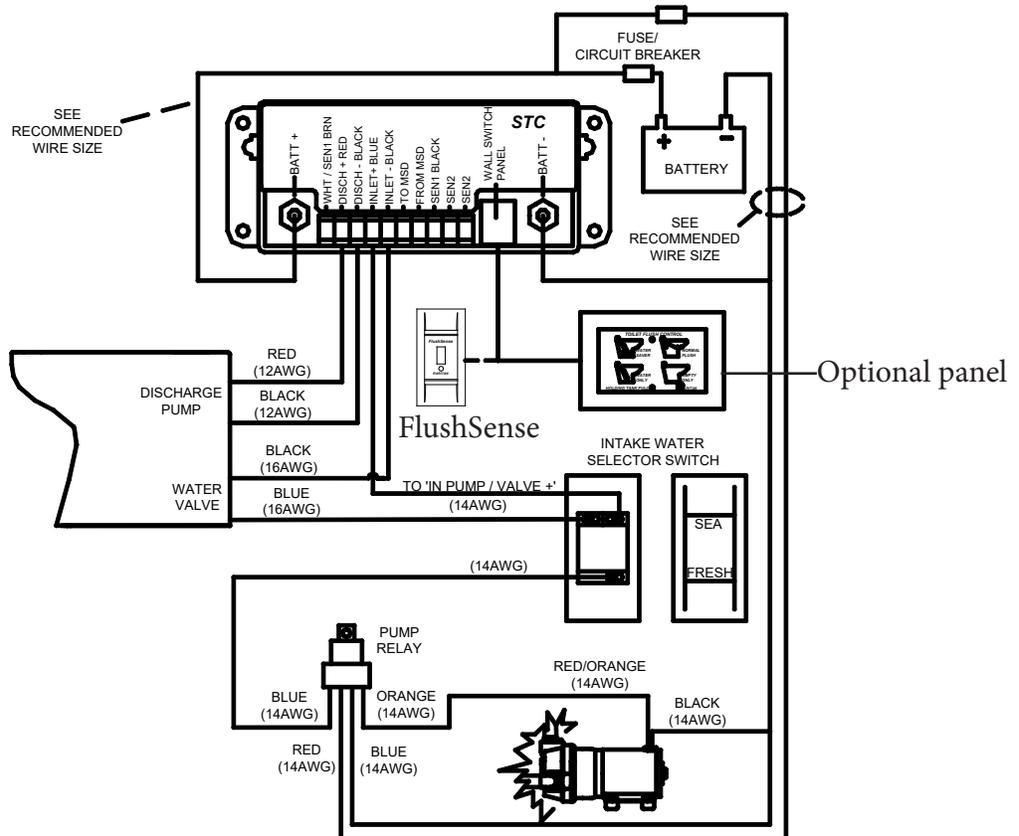


Fig. 5
WIRING FOR SMART
TOILET CONTROL
WITH MSD
 Toilets activates MSD

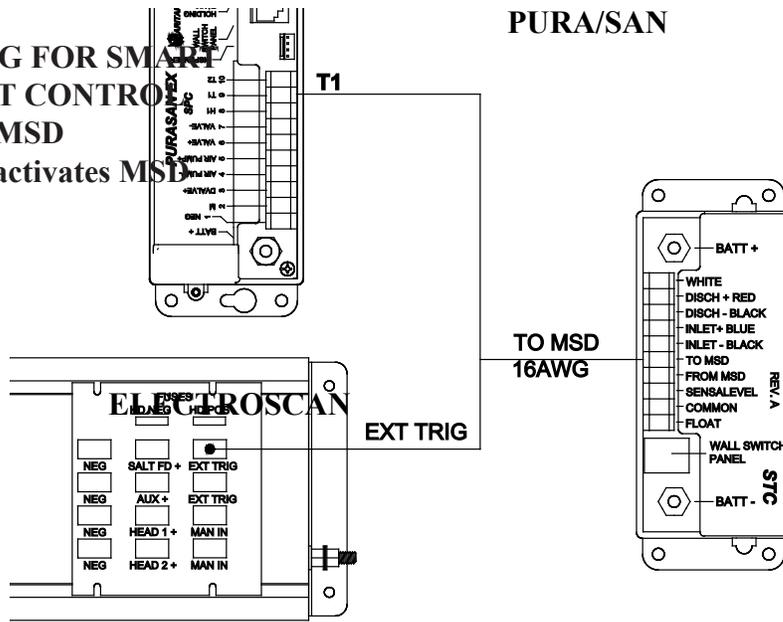
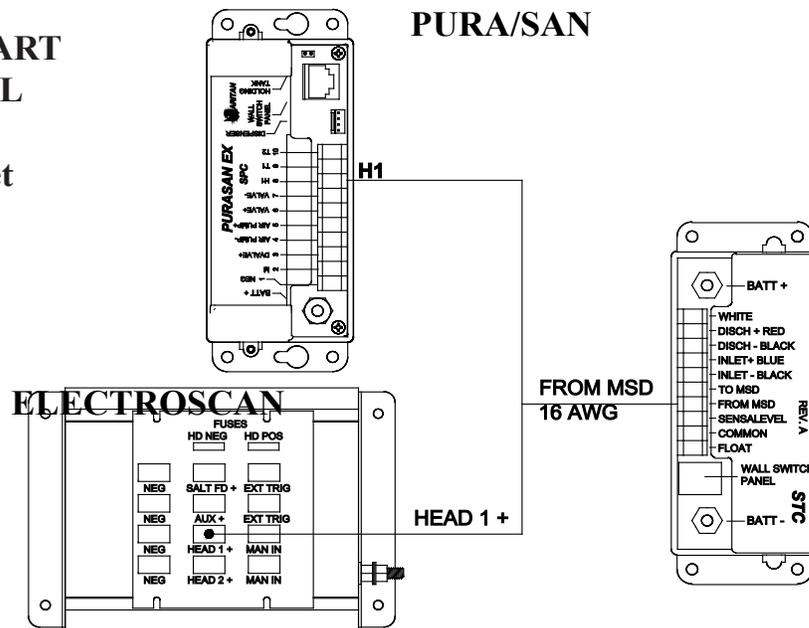


Fig. 6
WIRING FOR SMART
TOILET CONTROL
WITH MSD
 MSD activates Toilet



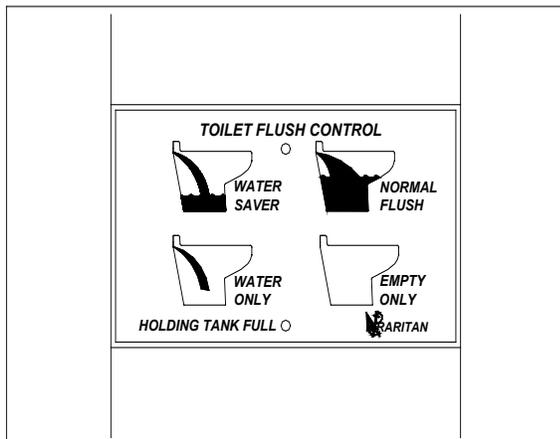
Multifunction panel Operation and Programming

Optional multifunction panel includes an RJ45 splitter and cable. If installing multifunction panel permanently then use this splitter to connect both panels; multifunction and FlushSense. If using Multifunction panel just to program, then connect this panel to RJ45 socket during programming and reconnect FlushSense panel after programming is done.

Multifunction panel operation:

1. **Press Empty Only:** to evacuate the bowl.
Discharge pump runs as long as this button is held with an eight second limit. If holding tank full LED is on this button still works.
2. **Press Water Only:** to add water in the bowl.
Inlet water solenoid/pump runs as long as button is pressed with an eight second limit. After limit is reached Water Only button is disabled to prevent overflow of the bowl. To enable again, Empty Only button must be pressed.
3. **Press Normal:** once and timed flushing cycle starts. If holding tank full LED is on this button is disabled. There are three cycles of inlet and discharge. First cycle removes most of the waste. Second cycle removes remaining waste, Third cycle clears all discharge housing and lines with clean water. Last fill is to retain water in the bowl for next use.
4. **Press Water saver:** a water saver cycle starts. If holding tank full LED is on this button does not work. This cycle has only one cycle of inlet and discharge to clear liquid waste. Last fill is to retain water in the bowl for next use.

NOTE: Holding tank full light will only illuminate if the tank sensor has been added to the control.



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Programming of FlushSense using Optional Multifunction Control Panel

NOTE: Flush control is set at factory to work in most installations and no additional programming. Use following instructions to re-program if desired to change flush times

Programming timing for “NORMAL” flush cycle:

Normal cycle has initial fill time (T1), Discharge pump time (T2), and water retention fill time (T3). All three times (T1,T2 and T3) are programmable.

Factory setting :

T1= 3sec, T2= 3sec, T3= 2 sec,

To change any of the above settings re-programming is needed

Setting T1 initial fill time:

- Hold WATER ONLY & EMPTY buttons down together for 3 seconds, The holding tank LED will give three quick flashes indicating you have entered program mode - release both buttons.
- Push the “Normal Flush” button as many times as seconds required for the Water Valve/Inlet Pump time. **Note:** Minimum is 2 maximum is 8. The Tank LED will flash once indicating a valid key push.
- Once this is done, push the EMPTY button to store this value (the Holding Tank LED will flash three times indicating the time has been set and you have left program mode).

Setting T2 Discharge Pump Time:

- Hold WATER ONLY & EMPTY buttons down together for 3 seconds, The holding tank LED will give three quick flashes indicating you have entered program mode - release both buttons.
- Push the “Empty” button as many times as seconds required for the Discharge Pump time. **Note:** Minimum is 2 maximum is 8. The Tank LED will flash once indicating a valid key push.

OPTIONAL PANEL

- Once this is done, push the “Normal” button to store this value (the Holding Tank LED will flash three times indicating the time has been set and you have left program mode).

Setting T3 Water retention fill Time:

- Hold WATER ONLY & EMPTY buttons down together for 3 seconds, The holding tank LED will give three quick flashes indicating you have entered program mode - release both buttons.
- Push the “Water only” button as many times as seconds required for the Water Valve/Inlet Pump time. **Note:** Minimum is 2 maximum is 8. The Tank LED will flash once indicating a valid key push.
- Once this is done, push the “Normal” button to store this value (the Holding Tank LED will flash three times indicating the time has been set and you have left program mode).

Programming the WATER ONLY Disable Features:

1. Hold the WATER ONLY & EMPTY buttons down together for three seconds. The holding tank full LED will give THREE flashes indicating you have entered program mode .
2. Push the WATER SAVER button. The WATER ONLY and EMPTY buttons now can be disabled or enabled.
3. Pushing the WATER ONLY button will disable both WATER ONLY and EMPTY buttons. The holding tank full LED will give THREE flashes indicating you have left program mode.
4. Repeat steps 1 to 3 to re-enable these buttons.

Programming the WATER ONLY button to only work after Empty button is pushed

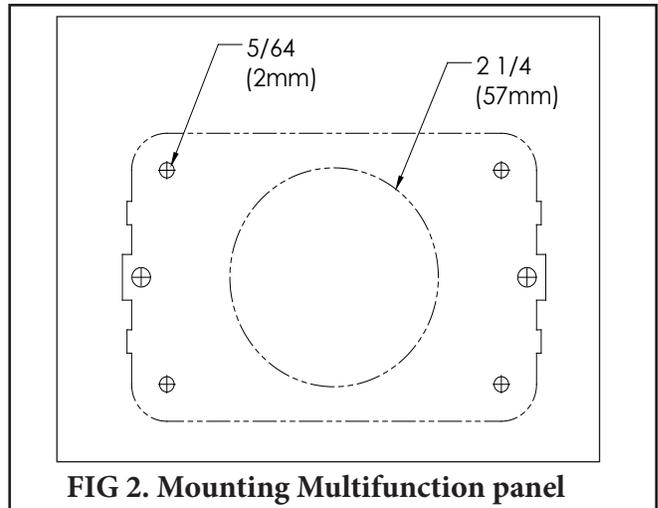
1. Repeat step 1 & 2 above
2. Pushing the EMPTY ONLY button will enable this feature. The holding tank full LED will

give THREE flashes indicating you have left program mode.

3. repeat 1 & 2 above to disable this feature.

Extending pause before water retention:

1. Some installations require longer pause between discharge pump and final retention water fill to avoid siphoning:
2. Hold the WATER ONLY & EMPTY buttons down together for three seconds. The holding tank full LED will give THREE flashes indicating you have entered program mode .
3. Push the WATER SAVER button. This will place control in disable/enable mode
4. Pushing the WATER SAVER button again. The holding tank full LED will give THREE flashes indicating you have left program mode.
5. Repeat steps 1 to 3 to shorten the pause.



Mounting Multifunction Panel:

1. Cut out a hole per Fig. 2, mark mounting holes using wall plate as guide.
2. Route wire to the toilet and control.
3. Secure control using mounting screws

FOR LIMITED WARRANTY TERMS AND CONDITION PLEASE REFER TO TOILET MANUAL



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