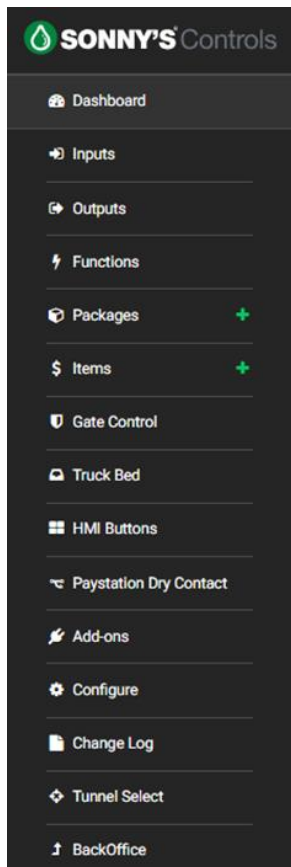# Sonny's CarWash Controls Tunnel Controller

Inputs

Devices wired to Sonny's Tunnel Controller entrusted to inform the PLC of the devices status. The Sonny's controller has 64 digital inputs that provide a high or low signal back to the PLC. The user can then decide, whether or not to alarm off that input and if they choose to alarm, whether to alarm when the input signal is high or low.

Outputs

Devices wired from Sonny's Tunnel Controller that will control equipment based on the function settings. The Sonny's Tunnel Controller has 128 digital outputs that provide a high (24VDC+) or low (0VDC) from the PLC to relay boards controlling the physical equipment.

Functions

Small programs that allow the user to control devices and equipment as it is needed. Sonny's Tunnel Controller has 170 functions. There are 3 major function categories in the Sonny's Tunnel Controller:

- Standard: used for typical equipment in car wash tunnel
- Special: used for special equipment like Roller Up, Auto Shut Off, and etc.
- Sign: Used to control signs inside and outside of the car wash tunnel

There are more functions than outputs. This allows for the user to configure up 5 functions to control 1 output.

Items

Items are directly tied to the POS (Point of Sale)/ Kiosk. They give the user flexibility when selling items for tunnel controller to include a wash, service, and retract package.

Gate Control

Organizes car wash purchases into a queue using a gate to control how vehicles are placed into the tunnel. The gate allows the vehicles to enter the tunnel based on when their purchase. This is standard for Sequential Mode with pay stations.

Truck Bed

System detects a vehicle is a truck and detects where the truck bed begins within respect to the vehicle. If the user enables a function to retract, the function will retract equipment at the truck bed location each time a truck is detected.

Configure

There are some settings that are vital the Sonny's Tunnel Controller's operation. Therefore, we ask that you place your tunnel in configuration mode. This requires the tunnel to be empty and conveyor to be stopped. The Tunnel Controller will be disabled while in configuration mode. Here in this mode you will change settings like pulse resolution.

Programming Guide

Sonny's Enterprises, Inc.

5605 Hiatus Road

Tamarac, Florida 33321

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INTRODUCTION

This User Guide contains information that is vital to for a successful setup/programming of the Sonny's CarWash Controls Tunnel Controller system.

Please read and understand the full content of this manual to get a well-rounded understanding of how to program your Sonny's Tunnel Controller. Keep this manual in a location where it may be used for ongoing reference.

This manual is up to date as October 2nd, 2018 – please note that newer system versions may present slight changes, as well as feature updates.

Should you have any questions on the programming of the Sonny's Tunnel Controller system, please contact us directly at:

SONNY"S CARWASH CONTROL SYSTEMS
TECHNICAL SUPPORT
5605 HIATUS ROAD
TAMARAC, FL 33321
TOLL FREE (US) PHONE: 800.327.8723 ext. 251
LOCAL PHONE: 954.720.4100 ext. 251
REGULAR SUPPORT HOURS: Mon-Fri 8AM – 8PM EST

ControlsHelpDesk@sonnysdirect.com

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OVERVIEW

The Sonny's Tunnel Controller is abbreviated as STC. Throughout this guide we will be using the abbreviation to refer to the Sonny's Tunnel Controller.

When programming the STC we strongly suggest configuring in the following order:

- Tunnel setup
- Inputs
- Outputs
- Functions.

Once these are configured all packages, such as washes, services, overrides, etc., and other options can be enabled and/or configured.

> **NOTE:** The STC cannot be placed into "Configuration Mode" if the conveyor is running or if there is a vehicle in queue.

Terminology

- **STC** Sonny's Tunnel Controller
- **PBS** Push Button Station
- **HMI** Human Machine Interface
- **MCC** Motor Control Center
- **PLC** Programmable Logic Controllers

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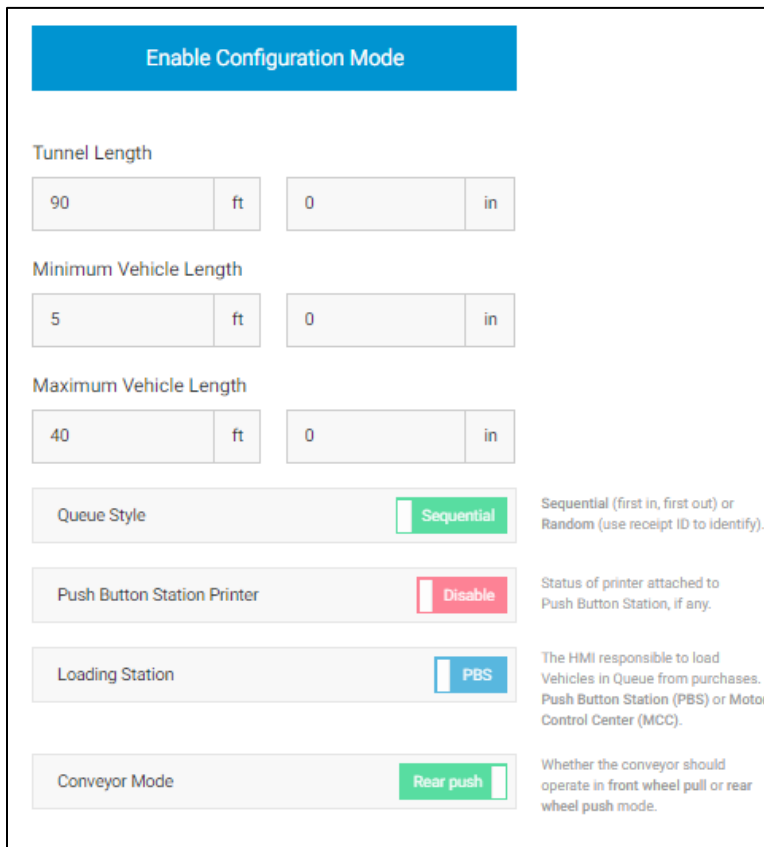Sonnys_Tunnel_Controller_Programming_Guide_v 1

TUNNEL SETUP

Below are the steps to get into the Configuration section of the STC:

1. Log into BackOffice and scroll down to "Config"
2. Select "Tunnel Administration" and select the target icon ✛ at the top right
3. Once in STC admin click on the bottom left "Configure"
4. Click on "Enable Configuration Mode"
5. Click on "I'm ready"
6. Once configuration has been completed, click "Save"

Breaking Down Tunnel Setup

This section will discuss and explain the options and terminology found in the Tunnel Setup configuration section.

- **Tunnel length** will be the entire tunnel length including any equipment outside the conveyor length. For example, it will include the distance from the photo eyes to the Wait/Go light.
- **Minimum Vehicle Length** will be set to 5ft.
- **Maximum Vehicle Length** will be set to 40ft.
- **Queue style** varies but can be toggled between "Sequential" and "Random". Most washes queue in order so it will be configured in "Sequential".

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- **Push Button Station Printer** will be "Disabled" for "Sequential" configurations. It will be enabled for "Random" configurations where the wash generation is done from the Push Button Station.
- **Loading Station** will be "PBS" by default. The "MCC" will only be needed for backup situations where the PBS is not available.
- **Conveyor Mode** varies but will be either "Front Pull" or "Rear Push". "Rear Push" is the most commonly used for setups that have enough room at the entrance so the vehicle can get on the conveyor and only needs rollers to push it from the back. "Front Pull" is used for sites where the vehicle there is not enough room for the vehicle to get on the conveyor fully and it needs rollers for the front tire to start pulling the vehicle through and then more rollers in the back to continue pushing it.

Pulse Switch

Pulse Switch Device

Hydropulse (ACE84)

Telemacanique   Hydropulse (ACE84)   Heco Pulse

Pulse Timing Type

External (Default)   ▼

Pulse Switch Resolution

| 8 | inches/pulse | Resolution of physical Pulse Switch device. |

- **Pulse Switch** Within this section we find all the settings regarding the Pulse Switch.

    - **Pulse Switch Device** intended as an identification field in which you can click on either "Telemacanique" or "Heco Pulse". (Hydropulse (ACE84) is no longer recommended).

    > **NOTE:** Not selecting one of the options will just leave a blank label type in this field and will have no bearing on programming or equipment.

    - **Pulse Timing Type** options are External (Default), High Speed, BackUp and Simulated.

        ✓ External (Default) pulse is used when the pulse is wired directly into TB2 200 and 202(Standard Gen II - Wago PLC).
        ✓ High Speed pulse is used when the pulse is wired into TB8 800 and 801(Standard Gen I - Schneider PLC).
        ✓ Simulated pulse is used when there is an outside pulse being generated that is using a higher pulse resolution and we want to "simulate" that pulse but at a lower resolution (E.g. DRB pulse switch).

    > **NOTE:** If placing in Simulated Pulse mode, both the simulated pulse and the actual physical pulse will need to be inputted

        ✓ Backup pulse is used when the physical pulse switch is not working properly or at all but the user wants to keep the car wash up and running. This will generate a software pulse signal.

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> **NOTE:** If placing Pulse Type in BackUp Pulse mode, the Pulse resolution "ms" will need to be added by calculating the following: Roller travel in CPH or Inches divided by 15 seconds -> 135/15=9. If wash is setup to do 8 inches per pulse divide by 9 -> 8/9=0.888.
> Take that result and multiply by 1000 -> 0.888 * 1000=888ms
> Take that result and place it in the (ms) field -> 888ms

- **Pulse Switch Resolution** is how many pulses per inch the physical switch is rotating. This is typically between 6-8 inches.

> **NOTE:** Pulse resolution is determined by roller travel in 300", divided by the amount of pulses counted at the PLC. (E.g. 50 pulses counted in 300" = 50/300 or 6ipp

Automatic Entrance Switch

Auto-Generate Wash	Disable	If enabled, when the entrance switch (Photo-Eye) is broken, the specified wash package will be applied.
Photo-Eye Bypass	Disable	If enabled, the software Photo-Eye will not be used to measure the length of incoming vehicles.

- **Automatic Entrance Switch** Within this section we find all the settings regarding the Entrance Switch.
    - **Auto-Generate Wash** varies depending if customer wants a wash package configured and enabled should the eyes be triggered without a wash in queue in order to prevent equipment/vehicle damage.
    - **Photo-Eye Bypass** this can be configured when the photo eye signal is not working. It will allow the user to have the system simulate an entrance signal and continue to wash cars until the photo eye signal is restored.

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INPUTS

Below are the general steps when programming Inputs.

1. Log into BackOffice and scroll down to "Config".
2. Select "Tunnel Administration" and select the target icon ✛ at the top right.
3. Once in STC admin click on "Inputs".
4. Click the "Create Input" button at the top right.
5. Select the corresponding Input number.
6. Select the source of the Input.
7. Add a descriptive name, "Label", for the Input.
8. Setup an "On Debounce" and an "Off Debounce" time.
9. By default all alarms will be set to "Disabled".
10. Once configuration has been completed, click "Save".

> **NOTE:** If the source is compatible with alarms, when enabled it will trigger an alarm when it meets designated alarm values.

GEN I - SCHNEIDER Inputs Standards

For best practices we have determined the following standards when wiring and configuring inputs for Gen I controllers.

Number ▲	Source Name ⇕	Delay On ⇕	Delay Off ⇕
0	Entrance Switch	200 ms	300 ms
1	Pulse Switch	1 ms	1 ms
2	Conveyor iLock	10 ms	10 ms
3	Tire Tape Switch	0 ms	500 ms
4	Anti-Collision Mat	100 ms	100 ms
5	Roller-Up	0 ms	100 ms
14	PLC Emergency Stop	50 ms	50 ms
15	Uninterrupted Power Supply	50 ms	50 ms
16	Conveyor Start Button 1	50 ms	50 ms
21	Conveyor Stop Button 1	1 ms	50 ms

Input No.	STC Terminals	Label	Delay On	Delay Off	Mandatory - Optional
0	TB2 - 200/201	Entrance	200 ms	300 ms	Mandatory
1	TB8 - 800/801	Pulse Switch	1 ms	1 ms	Mandatory
2	TB2 - 200/203	Conveyor iLock	10 ms	10 ms	Mandatory

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3	TB2 - 200/204	Tire Tape Switch	0 ms	500 ms	Mandatory
4	TB2 - 200/205	AntiCollision Mat	100 ms	100 ms	Mandatory
5	TB2 - 200/206	Roller Up	0 ms	100 ms	Optional
6	TB2 - 200/207	Unattended Roller Up	0 ms	100 ms	Optional
7	TB2 - 200/208	Sonny's Pay Station 1 Help Button			Mandatory, if equipped
8	TB2 - 200/209	Sonny's Pay Station 2 Help Button			Mandatory, if equipped
9	TB2 - 200/210	Sonny's Pay Station 3 Help Button			Mandatory, if equipped
10	TB2 - 200/211	Sonny's Pay Station 4 Help Button			Mandatory, if equipped
14	Pre-wired	PLC Emergency Stop	50 ms	50 ms	Mandatory
15	Pre-wired	Uninterrupted Power Supply	50 ms	50 ms	Mandatory
16	TB2 - 220/221	Conveyor Start Button 1 - PBS	50 ms	50 ms	Mandatory
17	TB2 - 220/222	Conveyor Start Button 2	50 ms	50 ms	Optional
18	TB2 - 220/223	Conveyor Start Button 3	50 ms	50 ms	Optional
19	TB2 - 220/224	Conveyor Start Button 4	50 ms	50 ms	Optional
20	TB2 - 220/225	Conveyor Start Button 5	50 ms	50 ms	Optional
21	TB2 - 220/226	Conveyor Stop Button 1 – PBS	1 ms	50 ms	Mandatory
22	TB2 - 220/227	Conveyor Stop Button 2	1 ms	50 ms	Optional
23	TB2 - 220/228	Conveyor Stop Button 3	1 ms	50 ms	Optional
24	TB2 - 220/229	Conveyor Stop Button 4	1 ms	50 ms	Optional
25	TB2 - 220/230	Conveyor Stop Button 5	1 ms	50 ms	Optional

GEN II – WAGO Inputs Standards

For best practices we have determined the following standards when wiring and configuring inputs for Gen II controllers.

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Number ▲	Source Name ⇕	Delay On ⇕	Delay Off ⇕
1	Entrance Switch	200 ms	300 ms
2	Pulse Switch	1 ms	1 ms
3	Conveyor iLock	100 ms	100 ms
4	Tire Tape Switch	10 ms	20 ms
5	Anti-Collision Mat	100 ms	100 ms
15	PLC Emergency Stop	50 ms	50 ms
16	Uninterrupted Power Supply	50 ms	50 ms
17	Conveyor Start Button 1	50 ms	50 ms
24	Conveyor Stop Button 1	1 ms	50 ms

Input No.	STC Terminals	Label	Delay On	Delay Off	Mandatory - Optional
1	TB2 - 200/201	Entrance	200 ms	300 ms	Mandatory
2	TB2 – 200/202	Pulse Switch	1 ms	1 ms	Mandatory
3	TB2 - 200/203	Conveyor iLock	10 ms	10 ms	Mandatory
4	TB2 - 200/204	Tire Tape Switch	0 ms	500 ms	Mandatory
5	TB2 - 200/205	AntiCollision Mat	100 ms	100 ms	Mandatory
6	TB2 - 200/206	Roller Up	0 ms	100 ms	Optional
7	TB2 - 200/207	Unattended Roller Up	0 ms	100 ms	Optional
8	TB2 - 200/208	Sonny's Pay Station 1 Help Button			Mandatory, if equipped
9	TB2 - 200/209	Sonny's Pay Station 2 Help Button			Mandatory, if equipped
10	TB2 - 200/210	Sonny's Pay Station 3 Help Button			Mandatory, if equipped
14	TB2 - 200/211	Sonny's Pay Station 4 Help Button			Mandatory, if equipped
15	Pre-wired	PLC Emergency Stop	50 ms	50 ms	Mandatory
16	Pre-wired	Uninterrupted Power Supply	50 ms	50 ms	Mandatory
17	TB2 - 220/221	Conveyor Start Button 1 - PBS	50 ms	50 ms	Mandatory
18	TB2 - 220/222	Conveyor Start Button 2	50 ms	50 ms	Optional
19	TB2 - 220/223	Conveyor Start Button 3	50 ms	50 ms	Optional
20	TB2 - 220/224	Conveyor Start Button 4	50 ms	50 ms	Optional

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21	TB2 - 220/225	Conveyor Start Button 5	50 ms	50 ms	Optional
22	TB2 - 220/226	Conveyor Stop Button 1 – PBS	1 ms	50 ms	Mandatory
23	TB2 - 220/227	Conveyor Stop Button 2	1 ms	50 ms	Optional
24	TB2 - 220/228	Conveyor Stop Button 3	1 ms	50 ms	Optional
25	TB2 - 220/229	Conveyor Stop Button 4	1 ms	50 ms	Optional
26	TB2 - 220/230	Conveyor Stop Button 5	1 ms	50 ms	Optional

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OUTPUTS

Below are the general steps when programming Outputs.

1. Log into BackOffice and scroll down to "Config".
2. Select "Tunnel Administration" and select the target icon ✛ at the top right.
3. Once in STC admin click on "Outputs".
4. Click on the corresponding Edit ✏ icon at the far right.
5. Enter the equipment name and location.
6. Once completed, click "Save".

Equipment Name

Wrap1 DS Air

Equipment Location

| 7 | ft | 0 | in |

Physical location of the hardware relative to the start of the tunnel.

| Input Interlock | Disable |

Interlock up to 3 unique Inputs per Output. When interlocked, alarming is automatically enabled on the Input.

Attached Functions

Wrap1 DS Air

Wrap1 DS Air FG

Wrap1 DS Air TH

Wrap1 DS Air FG TH

| Save | Cancel |

NOTE: The Naming scheme we recommend is Equipment name – Identifier – Function
E.g. Top Omni H20 Pump, Wrap1 Air, Mirror Rinse1, Blower3 Flip

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FUNCTIONS

Functions define how, when, and for how long an output turns on. Below are the general steps when programming Functions.

1. Log into BackOffice and scroll down to "Config".
2. Select "Tunnel Administration" and select the target icon ✛ at the top right.
3. Once in STC admin click on "Functions".
4. Click on the "Create Function" button at the far right. There are 3 types of Functions: Standard, Sign and Special.

> **NOTE:** The Naming scheme we recommend is Equipment name – Identifier – Function
> E.g. Top Omni H20 Pump, Wrap1 Air, Mirror Rinse1, Blower3 Flip
> Follow the same exact scheme used in the Output

- ▪ **Standard** The standard programmable or de-programmable functions which is used for most pieces of equipment.

Name

| Wrap1 DS Air |

Output/Equipment

| 6: Wrap1 DS Air ▾ |

| Status | Enabled |

| Delete? | No |

| Default Mode | On | Default to ON (default) or OFF (programmable) unless selected package configured otherwise.

When Conveyor Interlock Signal is Lost

| No delay after signal returns ▾ | How long to wait, if at all, to regain iLock signal before turning back on.

| Mirror Bump? | No |

| Targets Tires? | No |

| Retract for Truck Beds? | No |

Equipment Location

| 7 | ft | 0 | in | Physical location of the hardware relative to the start of the tunnel.

On Location

| 7 | ft | 0 | in | Before Front ▾ | Relative distance between the section of vehicle and the hardware. Cannot exceed Off Location.

Off Location

| 5 | ft | 0 | in | After Rear ▾ | Relative distance between the section of vehicle and the hardware. Cannot preceed On Location.

Remain On Distance

| 0 | ft | 0 | in | Distance relative to the equipment to look back for an upcoming vehicle before turning off. Especially useful for blowers.

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NOTE: "When Conveyor iLock Signal is Lost" should always be set to "No Delay after signal returns" EXCEPT in the case of Blower Motors. All Blower Motors should be set to "Remain On."

- **Sign** There are 3 types of Sign functions - Location, Purchase and Signal.

    ✓ Location Sign Very much similar to a standard function in that it has a standard "Equipment Location", "On Location" and "Off Location" modifiers.
    ✓ Purchase Sign Used typically for purchase signs and activated whenever a purchase is triggered. Duration typically would be set to 3 seconds.
    ✓ Signal Used typically for equipment like Tunnel Horn where both the "On Signal" and "Off Signal" would be set to "Tunnel Safety Horn". Other common uses would be pieces of equipment elected to be interlocked with the conveyor; in which case "On Signal" and "Off Signal" would both be set to "Conveyor iLock".

- **Special** Used for programming "Anti-Collision Restart," "Anti-Collision Stop," "Auto Shut-Off," "Roller-Up," and "Scheduler."

    ✓ Anti-Collision Restart This function is responsible for automatically restarting the conveyor once the vehicle ahead leaves the Anti-Collision Mat.

    ✓ Anti-Collision Stop This is the configuration for the Anti-Collision Mat. An actual physical location will need to be given for the "Mat Location." "Event Location" is the location in which when the approaching vehicle arrives at this Event Location, while the other vehicle is currently on the mat, will stop the conveyor.
    The "Buffer Distance" is the distance the approaching vehicle is allowed to travel past the Event Location while the Anti-Collision Mat is still being activated. An example of a good starting point, for example would be:

    - Mat Location: 90FT (If actual physical location)
    - Event Location: 70FT (Subtract 20FT from the Mat Location)
    - Buffer Location: 0FT

NOTE: Test this configuration and if adjustments need to be made you can always increase the Buffer Location.

    ✓ Auto Shut-Off This is the tunnel Auto-Shutoff program. It will trigger the conveyor to stop after vehicle exits tunnel length, and once the set time has elapsed. Typical configuration on this is 2 minutes.

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✓ Roller-Up Configuration for Auto-Roller up is based off the "Tunnel Configuration" parameter of either "Front Wheel Pull" or "Rear Wheel Push."

- If tunnel is setup for **"Rear Wheel Push"** you will need to input your *"Rear Trap Door Distance"*, which is the time the rear trap door will stay open for the rear tire.

- If tunnel is setup for **"Front Wheel Pull"**, it will require:

  ◦ *"Front Tire Trap Door Distance"* The distance the Roller-Up trap door will remain open for the Front Tire.
  ◦ *"Tire Trap Door Wait Distance"* The distance the Roller-Up trap door remains closed between the front and rear tires.
  ◦ *"Rear Tire Trap Door Distance"* The distance the Roller-Up trap door will remain open for the Rear Tire.

- *"Roller-Up Delay"* The amount of time elapsed before triggering the actual Roller-Up relay. Typically set to zero seconds for immediate trigger.

- *"Require Valid Queue Order"* When this feature is set to "Yes," it will require a vehicle in queue before the Roller can be activated; Otherwise if set to "No" there will be no vehicle queue validation and roller will be called with or without vehicle in queue.

- *"Automatic"* This is the Automatic Roller-Up feature, when if enabled, a roller will be called when activated by a Roller-Up switch. When set to "No," this will require manual Roller-Up from the Sonny's Push Button Station.

Type			
Roller-Up			
Front Tire Trap Door Distance			
7	ft	0	in
Tire Trap Door Wait Distance			
7	ft	0	in
Rear Tire Trap Door Distance			
7	ft	0	in
Roller Up Delay			
0			s
Require Valid Queue Order?		Yes	
Automatic		Yes	

✓ Scheduler This feature is used for any piece of equipment you would like to put on a schedule. You would need to give it a "Name," "Output Equipment" and "Type" would be "Scheduler." Finally the applicable "Day(s)" of the week must be selected as well as time of day the equipment will "Start" and "Stop." Typically this is used for putting lights on a schedule.

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5. Once completed, click "Save".

Special Behavior Functions

There are functions created to accomplish "special type of behavior" on equipment. For example, turning equipment on/off earlier/later for specific vehicles. These types of special behaviors are usually referred to as "Truck Bed Retracts", "Grill Brush Retracts", "Trailer Hitch Retracts", and are manually added to a wash by pressing a button on the PBS. How to configure a button to accomplish this is described in the later section Special Retract Button – Dual Override. In this section will show some of the examples, and standards, we use when programming such type of functions later use for the "Service Packages" and "Dual Override Buttons".

Wrap Front Grill (FG)

The settings displayed below are the standards used when programming a function to have the Wraps output turn on late on a vehicle. Note the "On Location" setting.

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Name

Wrap1 DS Air FG

Output/Equipment

6: Wrap1 DS Air

Status	Enabled

Delete?	No

Default Mode	Off

Default to ON (default) or OFF (programmable) unless selected package configured otherwise.

When Conveyor Interlock Signal is Lost

No delay after signal returns

How long to wait, if at all, to regain iLock signal before turning back on.

Mirror Bump?	No

Targets Tires?	No

Retract for Truck Beds?	No

Equipment Location

7	ft	0	in

Physical location of the hardware relative to the start of the tunnel.

On Location

4	ft	0	in	After Front

Relative distance between the section of vehicle and the hardware. Cannot exceed Off Location.

Off Location

5	ft	0	in	After Rear

Relative distance between the section of vehicle and the hardware. Cannot preceed On Location.

Remain On Distance

0	ft	0	in

Distance relative to the equipment to look back for an upcoming vehicle before turning off. Especially useful for blowers.
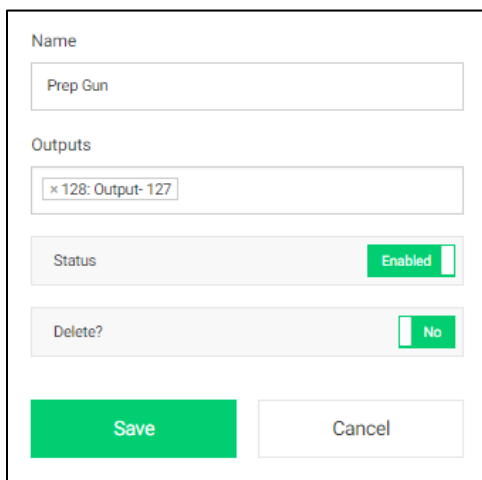
Wrap Trailer Hitch (TH)

The settings displayed below are the standards used when programming a function to have the Wraps shut off early on a vehicle that has a trailer hitch, therefore not allowing the wraps to come in contact with the rear trailer hitch. Note the "Off Location" setting.

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Name

Wrap1 DS Air TH

Output/Equipment

6: Wrap1 DS Air

| Status | Enabled |

| Delete? | No |

| Default Mode | Off | Default to ON (default) or OFF (programmable) unless selected package configured otherwise.

When Conveyor Interlock Signal is Lost

No delay after signal returns   How long to wait, if at all, to regain iLock signal before turning back on.

| Mirror Bump? | No |

| Targets Tires? | No |

| Retract for Truck Beds? | No |

Equipment Location

| 7 | ft | 0 | in | Physical location of the hardware relative to the start of the tunnel.

On Location

| 7 | ft | 0 | in | Before Front | Relative distance between the section of vehicle and the hardware. Cannot exceed Off Location.

Off Location

| 4 | ft | 0 | in | Before Rear | Relative distance between the section of vehicle and the hardware. Cannot preceed On Location.

Remain On Distance

| 0 | ft | 0 | in | Distance relative to the equipment to look back for an upcoming vehicle before turning off. Especially useful for blowers.

Wrap Front Grill and Trailer Hitch Combo (FG/TH)

The settings displayed below are the standards used when programming a function to have the Wraps output turn on late for the front grill preventing grill entanglement and shutting off early to prevent contact with the rear trailer hitch. Note the "On Location" and "Off Location" settings.

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Name

Wrap1 DS Air FG TH

Output/Equipment

6: Wrap1 DS Air ▾

| Status | Enabled |

| Delete? | No |

| Default Mode | Off | Default to **ON** (default) or OFF (programmable) unless selected package configured otherwise.

When Conveyor Interlock Signal is Lost

No delay after signal returns ▾   How long to wait, if at all, to regain iLock signal before turning back on.

| Mirror Bump? | No |

| Targets Tires? | No |

| Retract for Truck Beds? | No |

Equipment Location

| 7 | ft | 0 | in | Physical location of the hardware relative to the start of the tunnel.

On Location

| 4 | ft | 0 | in | After Front ▾ | Relative distance between the section of vehicle and the hardware. Cannot exceed Off Location.

Off Location

| 4 | ft | 0 | in | Before Rear ▾ | Relative distance between the section of vehicle and the hardware. Cannot preceed On Location.

Remain On Distance

| 0 | ft | 0 | in | Distance relative to the equipment to look back for an upcoming vehicle before turning off. Especially useful for blowers.

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PACKAGES

There are different types of packages that can be programmed in the STC. These packages are Overrides, Retracts, Services, Washes and Wet-Down. This section describes how to program each of this type of packages.

Overrides

Overrides allow a user to turn specific outputs on/off at any time by pressing a button on the PBS. To create an Override package, follow the steps below:
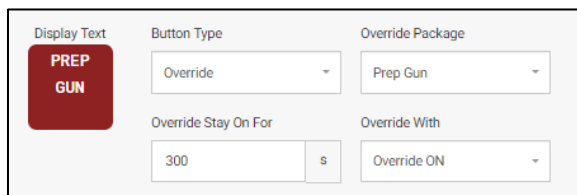
1. Log into BackOffice and scroll down to "Config".
2. Select "Tunnel Administration" and select the target icon ✛ at the top right.
3. Once in STC admin click on "Packages".
4. Click on "Overrides".
5. Click on "Create Package" at the top right corner.
6. Enter a "Name" for the corresponding equipment/function.
7. Select the Output that to override.
8. Once completed, click "Save".

Override Button Settings

When adding an Override buttons to a PBS there will be 2 options:
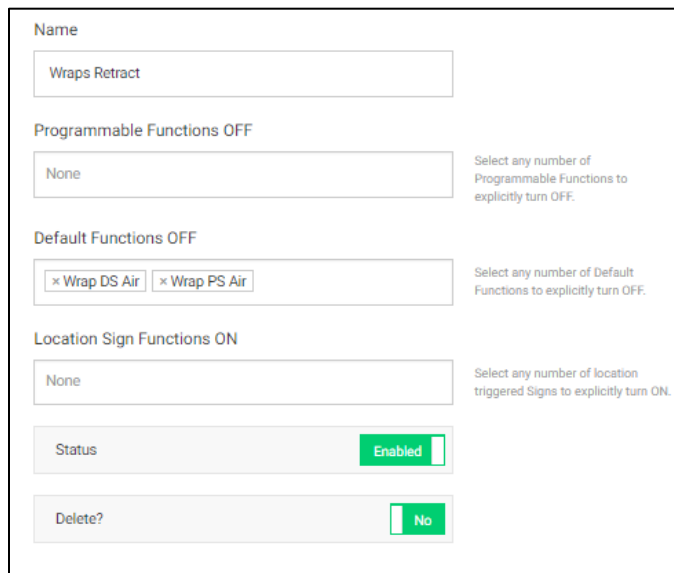
- **Timed** Add customers requested time window in seconds and goes off automatically or if button is pressed will go off.
- **No Time** Override will activate when pressed and will remain on indefinitely until button is pressed again to turn it off.

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Retracts

Retracts allow you to turn functions off for a specific vehicle's wash by attaching the Retract to the wash by pressing a button on the PBS. To create a Retract package, follow the steps below:

1. Log into BackOffice and scroll down to "Config".
2. Select "Tunnel Administration" and select the target icon ✛ at the top right.
3. Once in STC admin click on "Packages".
4. Click on "Retracts".
5. Click on "Create Package" at the top right corner.
6. Enter the Equipment Name to describe the type of retract package being programmed.
7. Add any "Programmable Functions" that need to be turned off (if applicable).
8. Add any "Default Functions" that needs to be turned off (if applicable).
9. Add any "Location Sign Functions" that needs to be turned off (if applicable).
10. Once completed, click "Save".

```
Name

  Wraps Retract

Programmable Functions OFF

  None                            Select any number of
                                  Programmable Functions to
                                  explicitly turn OFF.

Default Functions OFF

  × Wrap DS Air   × Wrap PS Air   Select any number of Default
                                  Functions to explicitly turn OFF.

Location Sign Functions ON

  None                            Select any number of location
                                  triggered Signs to explicitly turn ON.

Status                  Enabled

Delete?                      No
```

Services

Services allow you to turn functions on for a specific vehicle's wash by attaching the Service via a sale or by adding the Service to the wash by pressing a button on the PBS. To create a Service package, follow the steps below:
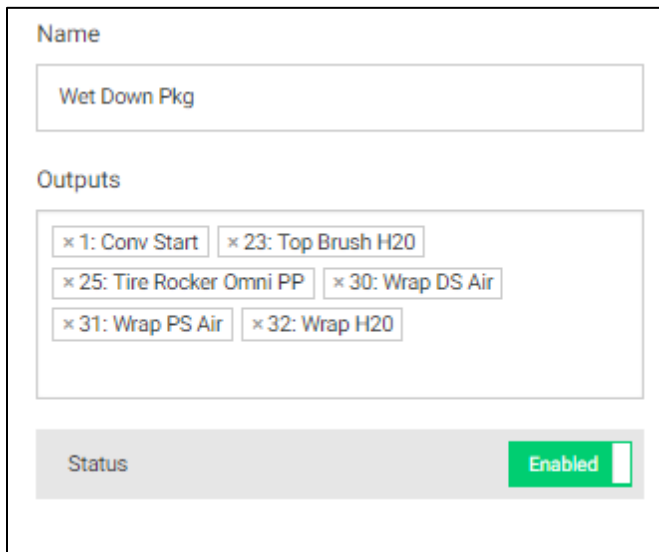
1. Log into BackOffice and scroll down to "Config".
2. Select "Tunnel Administration" and select the target icon ✛ at the top right.
3. Once in STC admin click on "Packages".
4. Click on "Services".
5. Click on "Create Package" at the top right corner.
6. Enter a descriptive Name for the Service.
7. Enter the price of the Service a price (if applicable).
8. Add any "Programmable Functions" to turn on when this service is added to a wash (if applicable).

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9. Add any "Location Sign Functions" to turn on when this service is added to a wash (if applicable).
10. Add any "Purchase Sign Functions" to turn on when this service is added to a wash (if applicable).
11. Once completed, click "Save".

There are 2 types of services that can be programmed: Charged and Non-charged services. These are discussed in the next two sections.

Charged Services

Usually used for paid services such as Tire Shine, Hot Wax, etc.

Non-Charged Services

These are the services used to turn on special programs on outputs and used for manual "Trailer Hitch", "Truck Bed" and/or "Grill" retracts. More details on these are described in the Service for a Dual Override Function section.

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Name

Wraps FG Retract

Price

$ 0

Price to charge for Package when queued directly from Controller (without POS involvement).

Programmable Functions ON

× Wrap DS FG   × Wrap PS FG

Select any number of Programmable Functions to explicitly turn ON.

Location Sign Functions ON

None

Select any number of location triggered Signs to explicitly turn ON.

Purchase Sign Functions ON

None

Select any number of purchase triggered Signs to explicitly turn ON.

Washes

The Wash Packages define what equipment will turn on for each vehicle that purchases a specific wash. To create a Wash package, follow the steps below:

Name

Basic Wash

Price

$ 7

Price to charge for Package when queued directly from Controller (without POS involvement).

Programmable Functions ON

× CTA 1   × Top Brush Foam

Select any number of Programmable Functions to explicitly turn ON.

Default Functions OFF

None

Select any number of Default Functions to explicitly turn OFF.

Location Sign Functions ON

None

Select any number of location triggered Signs to explicitly turn ON.

Purchase Sign Functions ON

× Basic Wash GE   × Instructional Sign
× Pay Station Start

Select any number of purchase triggered Signs to explicitly turn ON.

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1. Log into BackOffice and scroll down to "Config".
2. Select "Tunnel Administration" and select the target icon ✧ at the top right.
3. Once in STC admin click on "Packages".
4. Click on "Washes".
5. Click on "Create Package" at the top right corner.
6. Enter the name of the wash package.
7. Enter the price of the wash package.
8. Add the "Programmable Functions" to turn on for the wash package (if applicable).
9. Add the "Default Functions" to keep off for the wash package (if applicable).

> **NOTE:** Default Functions turn on by default on every wash package, unless the function is *explicitly* kept off as described in step 9.

10. Add the "Location Sign Functions" to turn on for the wash package (if applicable).
11. Add the "Purchase Sign Functions" to turn on for the wash package (if applicable).
12. Once completed, click "Save".

Wet-Down

This package allows you to add outputs to turn on when the Wet-Down button is pressed on the Push Button Station. This typically includes: Conv Start / Wraps / Wraps Air / Wraps H20 / Top Bush H20 / Mitters / Mitter H20.
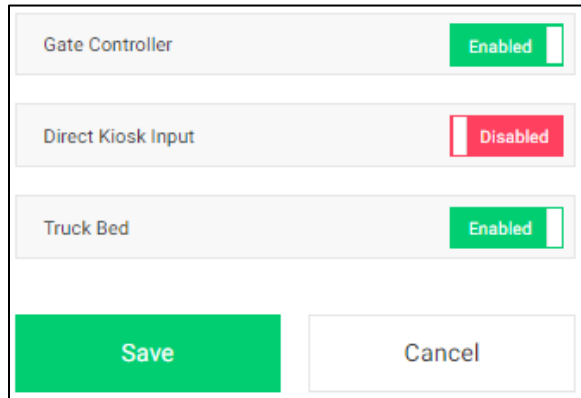
1. Log into BackOffice and scroll down to "Config".
2. Select "Tunnel Administration" and select the target icon ✧ at the top right.
3. Once in STC admin click on "Packages".
4. Click on "Wet-Down".
5. Select all the Outputs to turn on.
6. Once completed, click "Save".

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ADD-ONS

The Sonny's Tunnel Controller is equipped with a built-in Gate Controller, a Direct Kiosk Input and a Truck Bed Controller. These are referred to as Add-Ons and must be enabled prior to programming. To enable Add-Ons:

1. Log into BackOffice and scroll down to "Config".
2. Select "Tunnel Administration" and select the target icon ✛ at the top right.
3. Click on the "Add-ons" menu.
4. Enable the corresponding add-on.
5. Once completed, click "Save".

Truck Bed

To program the Truck Bed:

1. Log into BackOffice and scroll down to "Config".
2. Select "Tunnel Administration" and select the target icon ✛ at the top right.
3. Click on "Truck Bed"
4. Configure with the recommended settings shown below:

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5. Once completed, click "Save".

Gate Control

To program the Gate Controller:

1. Log into BackOffice and scroll down to "Config".
2. Select "Tunnel Administration" and select the target icon ✛ at the top right.
3. Click on the "Gate Control" menu.
4. Enable applicable Gate(s) and/or Loop (If applicable). Example shown below.

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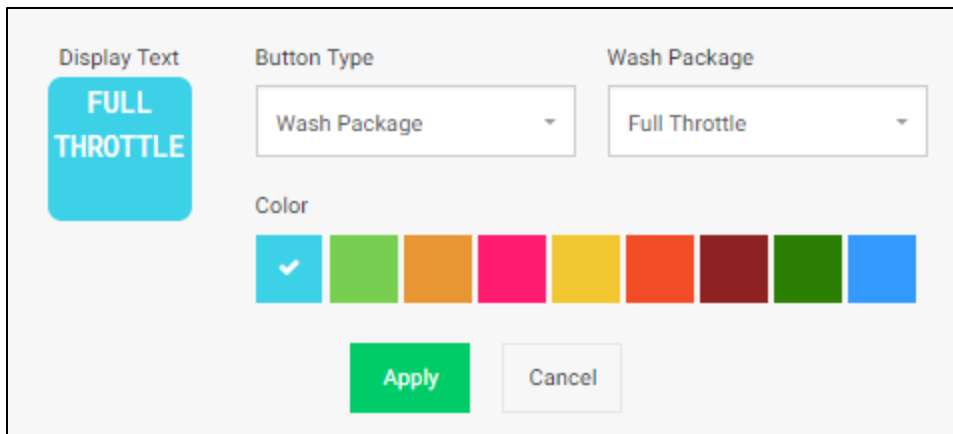
PBS BUTTONS

The buttons displayed on the Controller's Push Button Station are configured through the Tunnel Controller Web Interface (TC Admin).

To create a button, follow the steps below:

1. Log into BackOffice and scroll down to "Config".
2. Select "Tunnel Administration" and select the target icon ✛ at the top right.
3. Click on the "HMI Buttons" menu.
4. Click the "Edit Buttons" button.
5. Click on an unassigned (empty) button.
6. Select the "Button Type".
7. Select the next option of the "Button Type" – options vary based on the type of button being added.
8. Enter a name to be displayed on the button in the "Display Text" field.

Retract Buttons

In earlier sections we discussed how to setup "Retract" type of packages. Here we will discuss how to assign a button to these retracts. To setup standard retract buttons, follow the steps below:

1. Log into BackOffice and scroll down to "Config".
2. Select "Tunnel Administration" and select the target icon ✛ at the top right.
3. Click on the "HMI Buttons" menu.
4. Click the "Edit Buttons" button.
5. Click on an unassigned (empty) button.
6. Select the "Retract Package" from the "Button Type" drop down.
7. Enter the name to be displayed on the button for the corresponding retract function, such as Wrap Retract, Top Brush Retract, Tire Brush Retract, Tire Shine Retract, etc).

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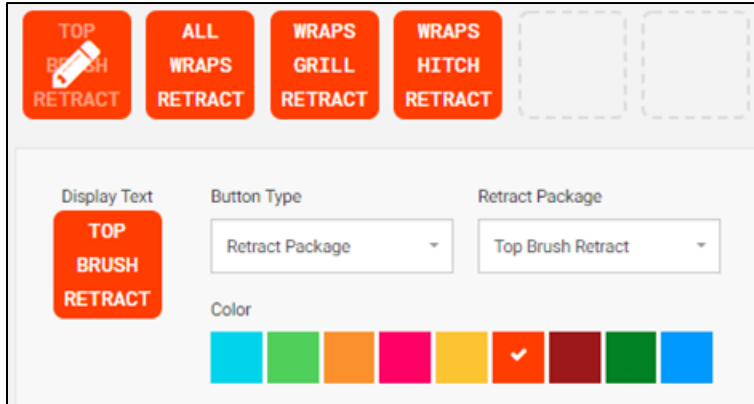
Special Retract Buttons – Dual Override

Customers may want to use "special retracts" to have equipment function differently on certain type of vehicles; for example to have the equipment come in later and/or shut off earlier. This is commonly setup for "Front Grill Retracts", "Trailer Hitch Retracts" and/or "Front Grill & Trailer Hitch Combos Retracts".

In order to accomplish this "special type of retract" behavior, there must be two types of programs configured; A Service program and a Retract program. Configuring these is described below.

Retract for a Dual Override Function

A Retract package is needed in order to keep the "normal" programming assigned to an output turned off. Let's say we want to create a "Grill Brush Retract". The end goal of this retract will be to have the Grill Brushes come on late on a vehicle with a grill so that the brushes don't get tangle on it. The "Retract Package" will be configured to keep the normal program created for the brushes **off**. To setup such retract package, follow the steps below:

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1. Log into BackOffice and scroll down to "Config".
2. Select "Tunnel Administration" and select the target icon ✛ at the top right.
3. Click on the "Packages" menu.
4. Click the "Retracts" option.
5. Click the "Create Package".
6. Click the "Default Functions Off" and select the functions to be kept off, such as "DS Grill Brush Air" and "PS Grill Brush Air".
7. Once completed, click "Save".

Service for a Dual Override Function

A Service package is needed in order to modify the "normal" programming of an output, and have it turned on as desired. As mentioned in the prior section, the end goal of the "Grill Brush Retract" is to have the Grill Brushes **come on late** on a vehicle with a grill so that the brushes don't get tangled on the grill. The "Service Package" will be configured to have the output do exactly that, turn on late. To setup such service package, follow the steps below:

Name

Grill Brush On Late

Price

$ | 0

Programmable Functions ON

×DS Grill Brush Air Delayed | ×PS Grill Brush Air Delayed

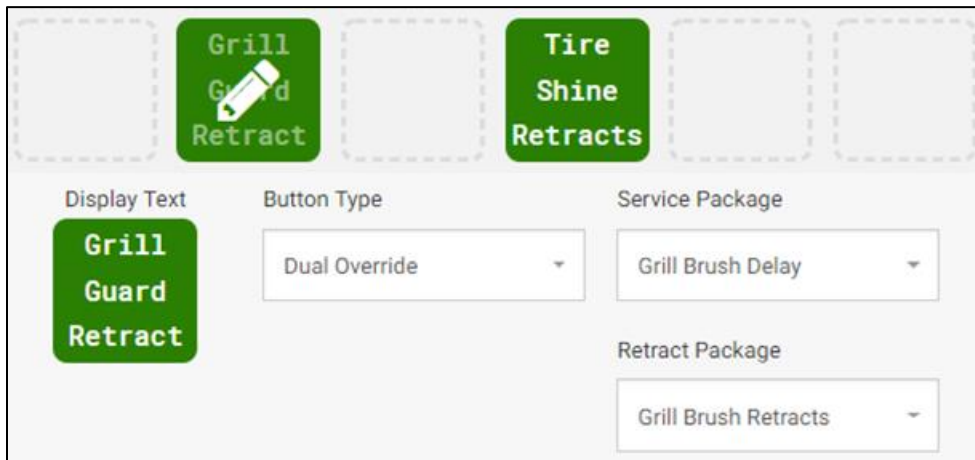Location Sign Functions ON

None

Purchase Sign Functions ON

None

1. Log into BackOffice and scroll down to "Config".
2. Select "Tunnel Administration" and select the target icon ✛ at the top right.
3. Click on the "Packages" menu.
4. Click the "Services" option.
5. Click the "Create Package".
6. The price for this "Service Package" will be $0, as it is not intended to be for sale.
7. Click the "Programmable Functions On" box and select the functions that will be called and have the brushes come on late, such as "DS Grill Brush Air Delayed" and "PS Grill Brush Air Delayed".

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> **NOTE:** In order to be able to select such functions, these functions must be setup for the outputs being addressed **FIRST** and must be setup as Programmable functions.

8. Once completed, click "Save".

Dual Override Button

To recap from the previous two sections. The "retract" will keep the default behavior of a specific output off, and the "service" will modify the behavior of the output as configured to turn the output back on. Once the Service and Retract packages have been configured you will be ready to setup a PBS button that will be used to accomplish the desired behavior. To configure this dual override retract button, follow the steps below:

1. Log into BackOffice and scroll down to "Config".
2. Select "Tunnel Administration" and select the target icon ✥ at the top right.
3. Click on the "HMI Buttons" menu.
4. Click the "Edit Buttons" button.
5. Click on an unassigned (empty) button.
6. Select the "Dual Override" option from the "Button Type" drop down.
7. Select the corresponding service from the "Service Package" drop down that will call the programmable functions to turn the equipment on/off or earlier/later than the default functions do. For example, the "Grill Brush On Late" service.
8. Select the corresponding retract from the "Retract Package" drop down, that will call the default functions that keep equipment off for the corresponding pieces of equipment during the wash. For example, the "Grill Brush Delay" retract.
9. Enter the name to be displayed on the button for the corresponding "Dual Override" function. For example, "Grill Guard Retract".
10. Once completed, click "Save".

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