washlink SYSTEMS

Tire Protectant

Chemical Controller

Service & Installation Manual

v1.0.3

WASHLINK SYSTEMS TIRE PROTECTANT CHEMICAL CONTROLLER SERVICE & INSTALLATION MANUAL

This document provides comprehensive operational procedures for the Washlink Systems Tire Protectant Chemical Controller (TPCC).
In this manual, we will discuss the Installation, Setup and Operation of the TPCC.

If further assistance is needed, please contact the Distributor from which the product was purchased.

When calling for assistance, you must have the following information available:

UL Number: _____

Distributor Name: _____

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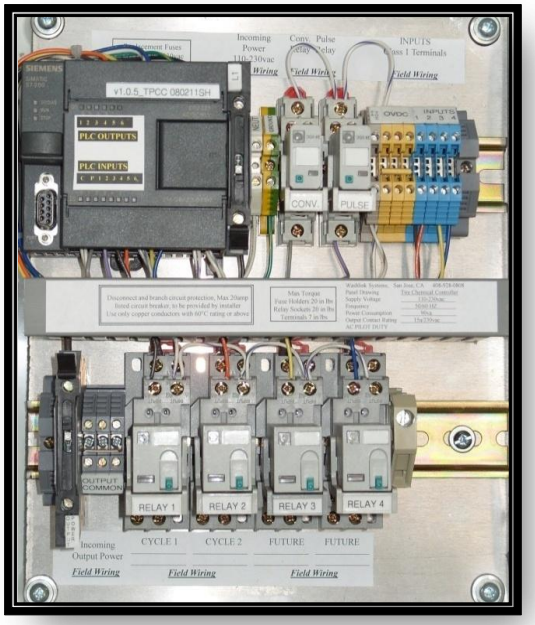
Chapter 1

1 Overview

The Washlink Systems Tire Protectant Chemical Controller (TPCC) is a simple and effective way to save money and chemical on your online tire protectant applicator.
By providing up to forty ranges per side of adjustable durations, the operator has precise control over how much chemical is applied, allowing less chemical per application based on usage.
Proven industrial PLC technology provides the car wash operator with unmatched reliability and ease of use.

1.1 Features

Separate cycles for both drivers and passenger side
Each cycle has 40 time or pulse ranges for maximum chemical savings
With or without conveyor control
Ties onto any brand car wash controller
Add to any brand of online tire protectant applicator
Control by time or pulse
Hand-Auto switches for easy testing
Double pole 15amp relays for long life
Prewired & fused with blown fuse indicator
Adjust “on the fly” (no shutting down car wash for system changes)
Built in counters for each function
Corrosion and rust proof enclosure with lockable hasps
Small footprint for easy installation
UL listed



add to any brand tire protectant applicator

Adjust “on the fly” (no shutting down car wash for system changes)

Chapter 2

2 Installation

The Washlink Systems TPCC should be mounted securely to a stable and permanent wall. Choose a location in the equipment room that is easily accessible and provides protection from the elements.

2.1 Power Requirements

The Washlink Systems TPCC requires 110vac Branch Circuit protection (provided by Customer).
An optional International Voltage kit rated at 220vac is available upon request.
This circuit should be connect to **Fuse 101 PLC**.

Warning: All electrical work should be performed by a qualified and licensed electrician.
All electrical work should meet or exceed National and Local codes and ordinances.

Warning: Risk of electrical shock.
More than one disconnect may be required to be de-energized before servicing equipment.

Warning: To reduce the risk of fire, connect only to a 110vac circuit provided with 15a maximum branch circuit protection in accordance with the NEC, ANSI/NFPA 70 and local code authorities.

Warning: Bonding between conduit connection is not automatic and must be provided as part of the installation.

2.1.1 Inputs

The TPCC Input power is supplied by the PLC.
All Inputs should be wired as a Normally Open Circuit.

Warning: All Inputs are 0vdc.
Any other voltage will damage the Controller and void warranty.

The **Conveyor Input** is NOT required when operating the TPCC.
The **Conveyor Input** is used to only allow chemical application while the conveyor is running.

Note: An interface relay may be needed if the existing **Conveyor Control** does not have an extra Normally Open contact.

The **Pulse Input** is required when operating the TPCC in **Pulse Mode**.
The **Pulse Input** is used if you prefer Pulses vs. xx.x seconds resolution.

Note: An interface relay may be needed if the existing **Pulse Switch** does not have an extra Normally Open contact.

When provided with a momentary closure, **Cycle Inputs 1-2** will enable **Cycles 1-2** respectively.
The requested **Cycle** will be applied to the vehicle based on your time and or pulse settings.

Note: If a separate **Cycle** is needed for Driver Side and Passenger Side, use one **Cycle** per side giving separate control to each side.

Note: If on a double tunnel, **Cycle 1** can be used on one tunnel and **Cycle 2** on the other.

2.2.2 Outputs

Each **Cycle** has (1) pre-wired **Output** circuit.
Fuse 1 provides protection for the Customer provided voltage on each **Cycle** Output circuit.
Cycle Outputs are turned on according to their **Configuration**.
Cycle Outputs can be manually overridden by using the Override latch on the corresponding relay.

Note:	If a separate **Cycle** is needed for Driver Side and Passenger Side, use one **Cycle** per side giving separate control to each side.
Note:	If on a double tunnel, **Cycle** 1 can be used on one tunnel and **Cycle** 2 on the other.
Note:	Reference **Chapter 6 Wiring Diagram** "RELAY DETAIL" page of Drawing TPCC.

2.2.3 Field Wiring

Convenience terminals are provided for **Inputs**.
Cycle Output wiring is done directly at the corresponding **Cycle** Output Relay.

Warning:	All electrical work should be performed by a qualified and licensed electrician. All electrical work should meet or exceed National and Local codes and ordinances.
Warning:	Risk of electrical shock. More than one disconnect my be required to be de-energized before servicing equipment.
Warning:	To reduce the risk of fire, connect only to a 110vac circuit provided with 15a maximum branch circuit protection in accordance with the NEC, ANSI/NFPA 70 and local code authorities
Warning:	Bonding between conduit connection is not automatic and must be provided as part of the installation.

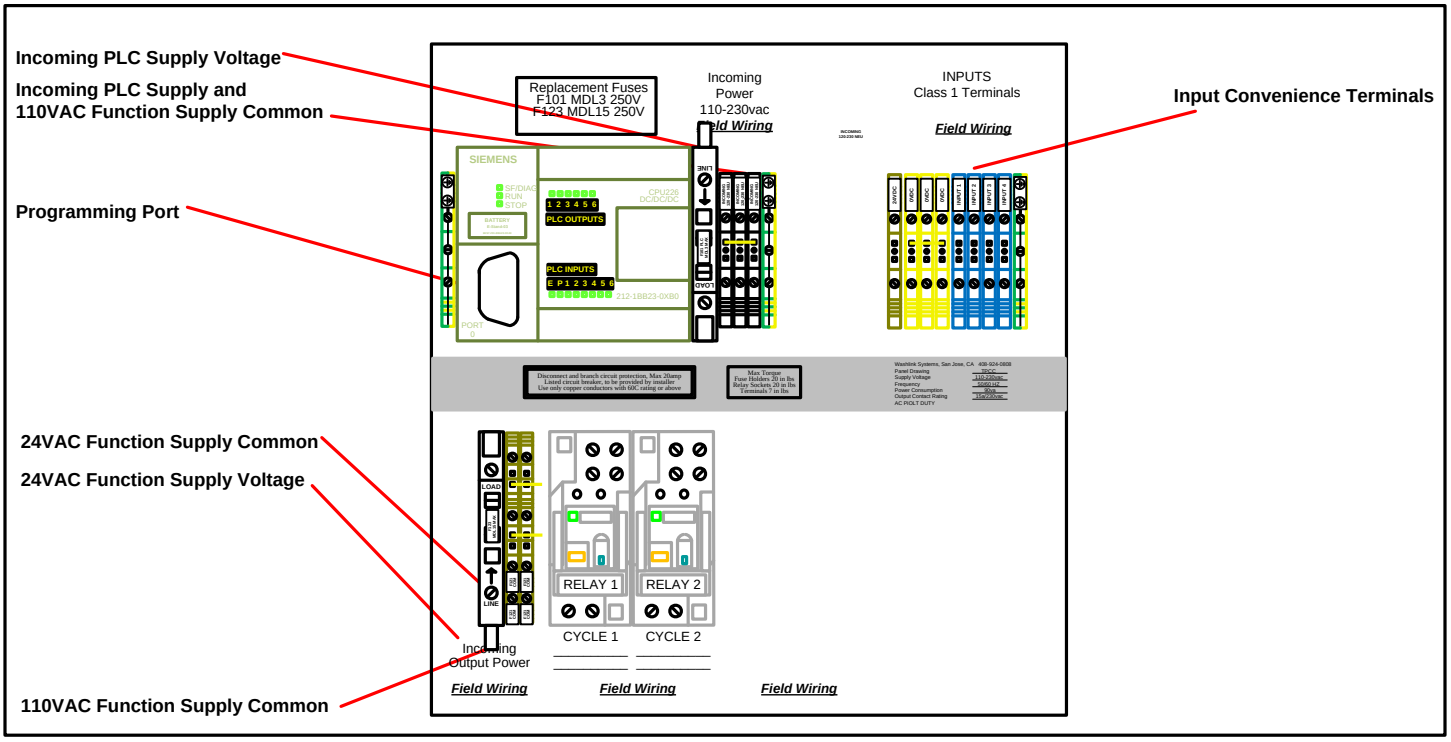


Figure 2.0 Field Wiring

Chapter 3

3 Programming

Section 3.1 – 3.6 explain the **Programming** Menus and Screens for the TPCC.

Information:	The **TPCC Programmer** is an Optionally purchased Unit. It is required in order to access the **Program Configuration** of the TPCC. Please contact your local **Washlink Systems** representative for further details.

The TPCC has the capability to interface with any brand of **Tire Chemical Applicator**.
With (2) independently configurable **Cycles** the user is able to finitely control application of chemicals on both sides of the vehicle or it may be used to control dual Tire Chemical Applicators.

Before beginning to Program the TPCC, please decide if your location will require **Cycles** to be controlled via **Time** or **Pulse** settings.

Hint:	It is recommended that the user **Configure Cycle 1** and **Cycle 2** operating parameters before proceeding to the next Section. Navigate to **Cycle Configuration** to access these Parameters. (**Sec x.x.x** and **Sec x.x.x**)

3.1 System Setup

Figure x.x illustrates the mapping from the **Home** Screen to the **System Setup** Menu.

The **System Setup** Menu is the top tier of the **Programming** Menus.
Within this Menu you will be able to access the following Sub-Menus:

- **Cycle 1 Settings** (Access **Settings** specific to **Cycle 1**) (**Sec 3.x.x**)
- **Cycle 2 Settings** (Access **Settings s**pecific to **Cycle 2**) (**Sec 3.x.x**)
- **Cycle Configuration** (Access **Configuration Settings** for **Cycle 1** and **2**) (**Sec 3.x.x**)
- **About** (Access **TPCC Programmer** and **PLC code version**) (**Sec 3.x.x**)

Further in-depth explanations of each of these Sub-Menus is provided in their respective Sections.

3.2 Cycle 1 Settings

Figure x.x illustrates the mapping from the **Home** Screen to the **Cycle 1 Settings** Menu.

The **Cycle 1 Settings** Menu allows access to **Configuration Settings** specific to **Cycle 1**.
Within this Menu you will be able to access the following Cycle 1 Parameters:

- **Define Time Ranges** (**Sec 3.x.x** and **Sec x.x.x**)
- **Define On Times** (**Sec 3.x.x** and **Sec x.x.x**)
- **Define Pulse Ranges** (**Sec 3.x.x** and **Sec x.x.x**)
- **Define On Pulses** (**Sec 3.x.x** and **Sec x.x.x**)

Hint:	The TPCC may be configured with various combinations of **Time** and/or **Pulse Ranges**. The TPCC's **Outputs** may be configured to activate based on **Time** and/or **Pulse**. Navigate to **Cycle Configuration** to access these Parameters. (**Sec x.x.x** and **Sec x.x.x**)

Further in-depth explanations of each of these Parameters is provided in their respective Sections.

3.2.1 Cycle 1 – Define Time Ranges

Figure x.x illustrates the mapping from the **Home** Screen to the **Define Time Ranges** Menu.

Although there are (40) **Cycle 1 Time Ranges** available, you may decide that your application requires less.

Note: Select the number of **Cycle 1 Time Ranges** your application will require at **Cycle Configuration**. (**0 - 40**) (**Sec x.x.x**)

Hint: The TPCC may be configured with various combinations of **Time** and/or **Pulse Ranges**. The TPCC's **Outputs** may be configured to activate based on **Time** and/or **Pulse**. Navigate to **Cycle Configuration** to access these Parameters. (**Sec x.x.x** and **Sec x.x.x**)

Time Ranges are defined as the **Range of Time** since the last **Cycle 1 Input** or application request.

Example: If using only **Time** based calculations and **Cycle 1 Time Range 1** is set from "**0**" to "**1.0**" minutes, then the TPCC will turn on **Cycle 1 Output** for the specified **Cycle 1 Range 1 On Time**; if the last application was requested within (1) minute.

The user is able to set the upper **Cycle 1 Time Range** limit as a maximum value of **3200.0** minutes. The programmed upper **Cycle 1 Time Range** limit is then automatically set as the lower **Cycle 1 Time Range** limit of the next available **Cycle 1 Time Range**.

Example: If **Cycle 1 Time Range 10** value is set to "**10**"minutes, then **Cycle 1 Time Range 11** will begin it's **Time Range** with a value of "**10**".
The user will then enter a value for **Cycle 1 Time Range 11**. Suppose a value of "**11**" is set. **Cycle 1 Time Range 11** will display as: **R 11 10.0 – 0011.0**.

3.2.2 Cycle 1 – Define On Times

Figure x.x illustrates the mapping from the **Home** Screen to the **On Time Ranges** Menu.

Note: If your application requires only (10) **Time Ranges**, then it is only necessary to configure the first (10) **On Times**.
Navigate to **Cycle Configuration** to access these Parameters (**Sec x.x.x** and **Sec x.x.x**)

Cycle 1 On Times are defined as the **Amount of Time** that **Cycle 1 Output** will stay **On** if it's corresponding **Time Range** is activated within the configured range.

Example: If using only **Time** based calculations and **Cycle 1 On Time 1** is set as "**003.0**" seconds, then the TPCC will turn on **Cycle 1 Output** for (3) seconds if a **Cycle 1 Input** is received within the span configured for **Cycle 1 Time Range 1.**

The user is able to set the upper **Cycle 1 Time Range** limit as a maximum value of **99.9** seconds.

3.2.3 Cycle 1 – Define Pulse Ranges

Figure x.x illustrates the mapping from the **Home** Screen to the **Define Pulse Ranges** Menu.

Although there are (40) **Cycle 1 Pulse Ranges** available, you may decide that your application requires less.

Note: Select the number of **Cycle 1 Time Ranges** your application will require at **Cycle Configuration**. (**0 - 40**) (**Sec x.x.x**)

Hint: The TPCC may be configured with various combinations of **Time** and/or **Pulse Ranges**. The TPCC's **Outputs** may be configured to activate based on **Time** and/or **Pulse**. Navigate to **Cycle Configuration** to access these Parameters. (**Sec x.x.x** and **Sec x.x.x**)

Pulse Ranges are defined as the **Range of Pulses** since the last **Cycle 1 Input** or application request.

Example: If using only **Pulse** based calculations and **Cycle 1 Pulse Range 1** is set from "**0**" to "**10**" pulses, then the TPCC will turn on **Cycle 1 Output** for the specified **Cycle 1 Range 1 On Pulses**; if the last application was requested within (1) minute.

The user is able to set the upper **Cycle 1 Pulse Range** limit as a maximum value of **9999** pulses. The programmed upper **Cycle 1 Pulse Range** limit is then automatically set as the lower **Cycle 1 Pulse Range** limit of the next available **Cycle 1 Pulse Range**.

Example: If **Cycle 1 Pulse Range 10** value is set to "**10**" pulse, then **Cycle 1 Time Range 11** will begin it's **Pulse Range** with a value of "**10**". The user will then enter a value for **Cycle 1 Pulse Range 11**. Suppose a value of "**11**" is set. **Cycle 1 Pulse Range 11** will display as: **R 11 10 – 0011**.

3.2.4 Cycle 1 – Define On Pulses

Figure x.x illustrates the mapping from the **Home** Screen to the **Define On Pulse** Menu.

Note: If your application requires only (10) **Pulse Ranges**, then it is only necessary to configure the first (10) **On Pulses**. Navigate to **Cycle Configuration** to access these Parameters (**Sec x.x.x** and **Sec x.x.x**)

Cycle 1 Pulse Times are defined as the **Amount of Pulses** that **Cycle 1 Output** will stay **On** if it's corresponding **Pulse Range** is activated within the configured range.

Example: If using only **Pulse** based calculations and **Cycle 1 On Pulse 1** is set as "**10**" pulses, then the TPCC will turn on **Cycle 1 Output** for (10) pulses if a **Cycle 1 Input** is received within the span configured for **Cycle 1 On Pulse Range 1.**

The user is able to set the upper **Cycle 1 On Pulse** limit as a maximum value of **999** pulses.

3.3 Cycle 2 Settings

Figure x.x illustrates the mapping from the **Home** Screen to the **Cycle 2 Settings** Menu.

The **Cycle 2 Settings** Menu allows access to **Configuration Settings** specific to **Cycle 2**. Within this Menu you will be able to access the following **Cycle 2** Parameters:

Define Time Ranges (**Sec 3.x.x** and **Sec x.x.x**)
Define On Times (**Sec 3.x.x** and **Sec x.x.x**)
Define Pulse Ranges (**Sec 3.x.x** and **Sec x.x.x**)
Define On Pulses (**Sec 3.x.x** and **Sec x.x.x**)

Hint: The TPCC may be configured with various combinations of **Time** and/or **Pulse Ranges**. The TPCC's **Outputs** may be configured to activate based on **Time** and/or **Pulse**. Navigate to **Cycle Configuration** to access these Parameters. (**Sec x.x.x** and **Sec x.x.x**)

Further in-depth explanations of each of these Parameters is provided in their respective Sections.

3.3.1 Cycle 2 – Define Time Ranges

Figure x.x illustrates the mapping from the **Home** Screen to the **Define Time Ranges** Menu.

Although there are (40) **Cycle 2 Time Ranges** available, you may decide that your application requires less.

Note: Select the number of **Cycle 2 Time Ranges** your application will require at **Cycle Configuration**. (**0 - 40**) (**Sec x.x.x**)

Hint: The TPCC may be configured with various combinations of **Time** and/or **Pulse Ranges**. The TPCC's **Outputs** may be configured to activate based on **Time** and/or **Pulse**. Navigate to **Cycle Configuration** to access these Parameters. (**Sec x.x.x** and **Sec x.x.x**)

Time Ranges are defined as the **Range of Time** since the last **Cycle 2 Input** or application request.

Example: If using only **Time** based calculations and **Cycle 2 Time Range 2** is set from "**0**" to "**1.0**" minutes, then the TPCC will turn on **Cycle 2 Output** for the specified **Cycle 2 Range 2 On Time**; if the last application was requested within (1) minute.

The user is able to set the upper **Cycle 2 Time Range** limit as a maximum value of **3200.0** minutes. The programmed upper **Cycle 2 Time Range** limit is then automatically set as the lower **Cycle 2 Time Range** limit of the next available **Cycle 2 Time Range**.

Example: If **Cycle 2 Time Range 10** value is set to "**10**"minutes, then **Cycle 2 Time Range 11** will begin it's **Time Range** with a value of "**10**".
The user will then enter a value for **Cycle 2 Time Range 11**. Suppose a value of "**11**" is set. **Cycle 2 Time Range 11** will display as: **R 11 10.0 – 0011.0**.

3.3.2 Cycle 2 – Define On Times

Figure x.x illustrates the mapping from the **Home** Screen to the **On Time Ranges** Menu.

Note: If your application requires only (10) **Time Ranges**, then it is only necessary to configure the first (10) **On Times**.
Navigate to **Cycle Configuration** to access these Parameters (**Sec x.x.x** and **Sec x.x.x**)

Cycle 2 On Times are defined as the **Amount of Time** that **Cycle 2 Output** will stay **On** if it's corresponding **Time Range** is activated within the configured range.

Example: If using only **Time** based calculations and **Cycle 2 On Time 1** is set as "**003.0**" seconds, then the TPCC will turn on **Cycle 2 Output** for (3) seconds if a **Cycle 2 Input** is received within the span configured for **Cycle 2 Time Range 1.**

The user is able to set the upper **Cycle 2 Time Range** limit as a maximum value of **99.9** seconds.

3.3.3 Cycle 2 – Define Pulse Ranges

Figure x.x illustrates the mapping from the **Home** Screen to the **Define Pulse Ranges** Menu.

Although there are (40) **Cycle 2 Pulse Ranges** available, you may decide that your application requires less.

Note:	Select the number of **Cycle 2 Time Ranges** your application will require at **Cycle Configuration**. (**0 - 40**) (**Sec x.x.x**)

Hint:	The TPCC may be configured with various combinations of **Time** and/or **Pulse Ranges**. The TPCC's **Outputs** may be configured to activate based on **Time** and/or **Pulse**. Navigate to **Cycle Configuration** to access these Parameters. (**Sec x.x.x** and **Sec x.x.x**)

Pulse Ranges are defined as the **Range of Pulses** since the last **Cycle 2 Input** or application request.

Example:	If using only **Pulse** based calculations and **Cycle 2 Pulse Range 1** is set from "**0**" to "**10**" pulses, then the TPCC will turn on **Cycle 2 Output** for the specified **Cycle 2 Range 1 On Pulses**; if the last application was requested within (1) minute.

The user is able to set the upper **Cycle 2 Pulse Range** limit as a maximum value of **9999** pulses. The programmed upper **Cycle 2 Pulse Range** limit is then automatically set as the lower **Cycle 2 Pulse Range** limit of the next available **Cycle 2 Pulse Range**.

Example:	If **Cycle 2 Pulse Range 10** value is set to "**10**" pulse, then **Cycle 2 Time Range 11** will begin it's **Pulse Range** with a value of "**10**". The user will then enter a value for **Cycle 2 Pulse Range 11**. Suppose a value of "**11**" is set. **Cycle 2 Pulse Range 11** will display as: **R 11 10 – 0011**.

3.3.4 Cycle 2 – Define On Pulses

Figure x.x illustrates the mapping from the **Home** Screen to the **Define On Pulse** Menu.

Note:	If your application requires only (10) **Pulse Ranges**, then it is only necessary to configure the first (10) **On Pulses**. Navigate to **Cycle Configuration** to access these Parameters (**Sec x.x.x** and **Sec x.x.x**)

Cycle 1 Pulse Times are defined as the **Amount of Pulses** that **Cycle 2 Output** will stay **On** if it's corresponding **Pulse Range** is activated within the configured range.

Example:	If using only **Pulse** based calculations and **Cycle 2 On Pulse 1** is set as "**10**" pulses, then the TPCC will turn on **Cycle 2 Output** for (10) pulses if a **Cycle 2 Input** is received within the span configured for **Cycle 2 On Pulse Range 1.**

The user is able to set the upper **Cycle 2 On Pulse** limit as a maximum value of **999** pulses.

3.4 Cycle Configuration

Figure x.x illustrates the mapping from the **Home** Screen to the **Cycle Configuration** Menu.

The **Cycle Configuration** Menu allows access to **Operational** Parameters for both **Cycle 1** and **2**. Within this Menu you will be able to access the following Sub-Menus:

Cycle 1 Configuration (Access **Settings** specific to **Cycle 1**) (**Sec 3.4.1**)
Cycle 2 Configuration (Access **Settings s**pecific to **Cycle 2**) (**Sec 3.4.2**)
Conv Configuration (Access **Configuration Settings** for **Conveyor Options**) (**Sec 3.4.3**)

Further in-depth explanations of each of these Sub-Menus is provided in their respective Sections. The programming done within these Menus is typically only done at initial setup.

3.4.1 Cycle 1 Configuration

Figure x.x illustrates the mapping from the **Home** Screen to the **Cycle 1 Configuration** Menu.

The **Cycle 1 Configuration** Menu allows access to **Operational** Parameters for **Cycle 1**. Within this Menu you will be able to access the following Parameter Setting Screens:

Cycle 1 Defined Ranges (Choose how many **Time** or **Pulse** based Ranges)
Cycle 1 Range Units (Choose **Time** or **Pulse** based)
Cycle 1 On Time Units (Choose **Time** or **Pulse** based)
Cycle 1 Misc Conveyor (Choose if **Cycle 1** Operates under **Conveyor Control**)

There are (40) configurable **Ranges** available for **Cycle 1**.
At the **Cycle 1 Defined Ranges** screen the user will select the number of **Ranges** that will be required to accomplish the most effective results for their particular location and/or needs.

Note: Select the type of **Range Unit** that **Cycle 1** will be based on at the **Cycle 1 Range Units** screen.

Example: If the user only **Defines** (5) **Ranges**, then only **Cycle 1 Range 1** thru **Cycle 1 Range 5** will be activated. The remaining (35) **Ranges** will have no affect on **Cycle 1 Output**.

Press the **F1** F1 button to define the number of **Time** based **Cycle 1 Ranges**.
Press the **F2** F2 button to define the number of **Pulse** based **Cycle 1 Ranges**.

Note: A **Pulse Input** is required in order to use **Pulse Range Units** for **Cycle 1**.

Note: An interface relay may be needed if the existing **Pulse Switch** does not have an auxiliary Normally Open contact.

Use the **Up** or **Down** arrow button to **Edit** the **Current** value.
Press the **Enter** Enter button to set the **New** value.
If no change needs to be applied press the **Esc** Esc button to return to the previous screen.

Hint: Use the **Left** or **Right** arrow Left Right button to move the cursor to the next digit. This will allow for faster Editing of higher values.

At the **Cycle 1 Range Units** screen the user will select the type of **Range Units** that will be required to accomplish the most effective results for their particular location and/or needs.

The user must select one **Unit** type from the following choices:

Not Used – Enter a value of "**0**". **Cycle 1 Ranges** will now be **deactivated**.
Minutes – Enter a value of "**1**". **Cycle 1 Ranges** will now be based on **Time**.
Pulse – Enter a value of "**2**". **Cycle 1 Ranges** will now be based on **Pulses**.

Note: A **Pulse Input** is required in order to use **Pulse Range Units** for **Cycle 1**.

Note: An interface relay may be needed if the existing **Pulse Switch** does not have an auxiliary Normally Open contact.

Hint: The TPCC is very versatile.
The user can define **Cycle Ranges** and **Cycle On Times** with any combination of **Time** and/or **Pulse** Modes.

Press the **F1** button to select the type of **Range Units** that **Cycle 1 Ranges** will be based on.

Use the **Up** or **Down** arrow button to **Edit** the **Current** value.
Press the **Enter** button to set the **New** value.
If no change needs to be applied press the **Esc** button to return to the previous screen.

Hint: Use the **Left** or **Right** arrow button to move the cursor to the next digit.
This will allow for faster Editing of higher values.

At the **Cycle 1 On Time Units** screen the user will select the type of **On Time Units** that will be required to accomplish the most effective results for their particular location and/or needs.

The user must select one **Unit** type from the following choices:

Seconds – Enter a value of "**1**". **Cycle 1 On Times** will now be based on **Time**.
Pulse – Enter a value of "**2**". **Cycle 1 On Times** will now be based on **Pulses**.

Note: A **Pulse Input** is required in order to use **On Time Units** for **Cycle 1**.

Note: An interface relay may be needed if the existing **Pulse Switch** does not have an auxiliary Normally Open contact.

Hint: The TPCC is very versatile.
The user can define **Cycle Ranges** and **Cycle On Times** with any combination of **Time** and/or **Pulse** Modes.

Press the **F1** button to select the type of **Units** that **Cycle 1 On Times** will be based on.

Use the **Up** or **Down** arrow button to **Edit** the **Current** value.
Press the **Enter** button to set the **New** value.
If no change needs to be applied press the **Esc** button to return to the previous screen.

Hint: Use the **Left** or **Right** arrow button to move the cursor to the next digit.
This will allow for faster Editing of higher values.

At the **Cycle 1 Misc Conveyor** screen the user will select how the **Cycle 1 Output** will operate in conjunction with the **Conveyor Input**. The user should select the **Mode** that will be required to accomplish the most effective results for their particular location and/or needs.

The user must select one **Mode** type from the following choices:

Count down ONLY if Conveyor ON

Press the **F1** button to select the **Mode** for **Conveyor ON**.
Enter a value of "**0**" for "**NO**".
Cycle 1 Output will now operate **independent** of the **Conveyor Input**.
Enter a value of "**1**" for "**YES**".
Cycle 1 Output will now operate **ONLY** if the **Conveyor Input** is **ON**.

Press the **F2** button to select the **Mode** for **Conveyor OFF**.

If ON, stay ON if Conveyor OFF

Enter a value of "**0**" for "**NO**".
Cycle 1 Output will turn **OFF** with a loss of the **Conveyor Input**.
Enter a value of "**1**" for "**YES**".
Cycle 1 Output will stay **ON** with a loss of the **Conveyor Input**.

Note: A **Conveyor Input** is required in order to use **Conveyor Mode** for **Cycle 1**.

Note: An interface relay may be needed if the existing **Conveyor Switch** does not have an auxiliary Normally Open contact.

Press the **F1** button to select the type of **Units** that **Cycle 1 On Times** will be based on.

Use the **Up** or **Down** arrow button to **Edit** the **Current** value.
Press the **Enter** button to set the **New** value.
If no change needs to be applied press the **Esc** button to return to the previous screen.

Hint: Use the **Left** or **Right** arrow 

button to move the cursor to the next digit.
This will allow for faster Editing of higher values.

At the **Cycle 1 Input Debounce** screen the user will select how quickly the **Cycle 1 Input** will react The user should select a **Debounce** value that will accomplish the most effective results for their particular location and/or needs.

Figure x.x illustrates examples of the **Timing** sequences of various **Cycle 1 Input Debounce** and

The user must select a **Time (in seconds with 1/10 resolution)** for the following:

Press the **F1** button to select the **On Delay Time**.

On Delay - The minimum time that **Cycle 1 Input** must be active before the TPCC will acknowledge the activation of **Cycle 1 Input**.

Press the **F2** button to select the **Off Delay Time**.

Off Delay - The minimum time that **Cycle 1 Input** must be inactive before the TPCC will acknowledge the next activation of **Cycle 1 Input**.

Note: **Zero** is a valid **On Delay** and/or **Off Delay** value.
Cycle 1 Input will react instantly with a programmed value of "**000.0**".

Note: The **Cycle 1 Start Type** setting has a direct affect on the reaction of **Cycle 1 Input.**
The user may select **Cycle 1 Input** to be recognized on a **Positive** or **Negative** transition.
See **Section 3.x.x** for further explanation.

Use the **Up** or **Down** arrow button to **Edit** the **Current** value.
Press the **Enter** button to set the **New** value.
If no change needs to be applied press the **Esc** button to return to the previous screen.

Hint: Use the **Left** or **Right** arrow button to move the cursor to the next digit.
This will allow for faster Editing of higher values.

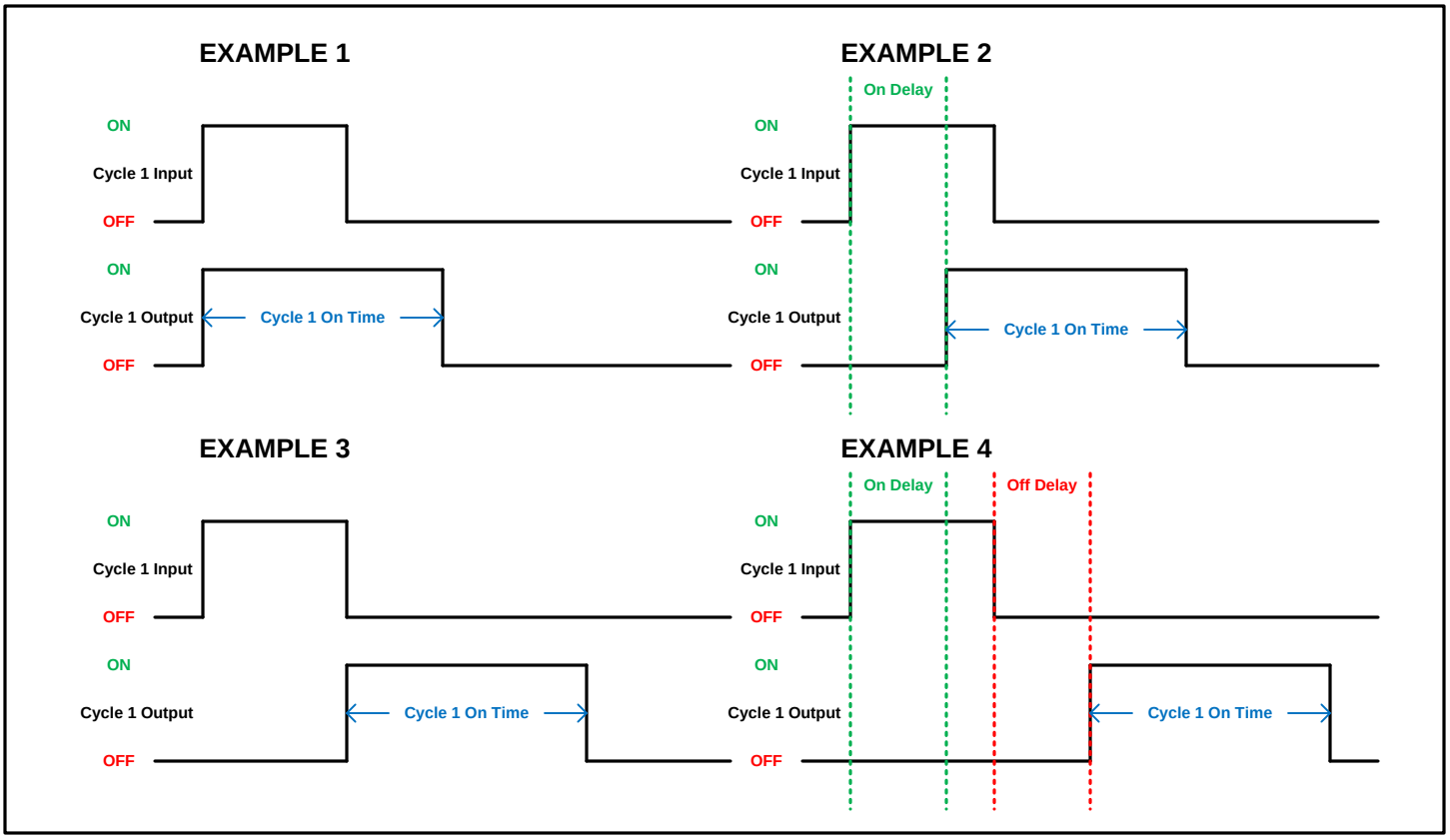


Figure 3.x Cycle 1 Iput On Delay/Off Delay

Chapter 4

4 Navigation

Section 4.1.1 – 4.x.x illustrate the **Mapping** of all the **Programming** Menus and Screens.

4.1 System Setup

Figure 3.1 illustrates the mapping from the **Home** Screen to the **System Setup** Screen.
At the Home Screen press the **F1** button to enter the **System Setup**.
To Edit **Cycle 1 Settings** press the **Shift** button and then the **F1** button.
To Edit **Cycle 2 Settings** press the **Shift** button and then the **F2** button.
To **Configure** the **Operating Parameters** of **Cycle 1** and **Cycle 2** press the **Shift** button and then the **F3** button.
To view the version of code for both the Programmer and the TPCC press the **Shift** button and then the **F4** button.

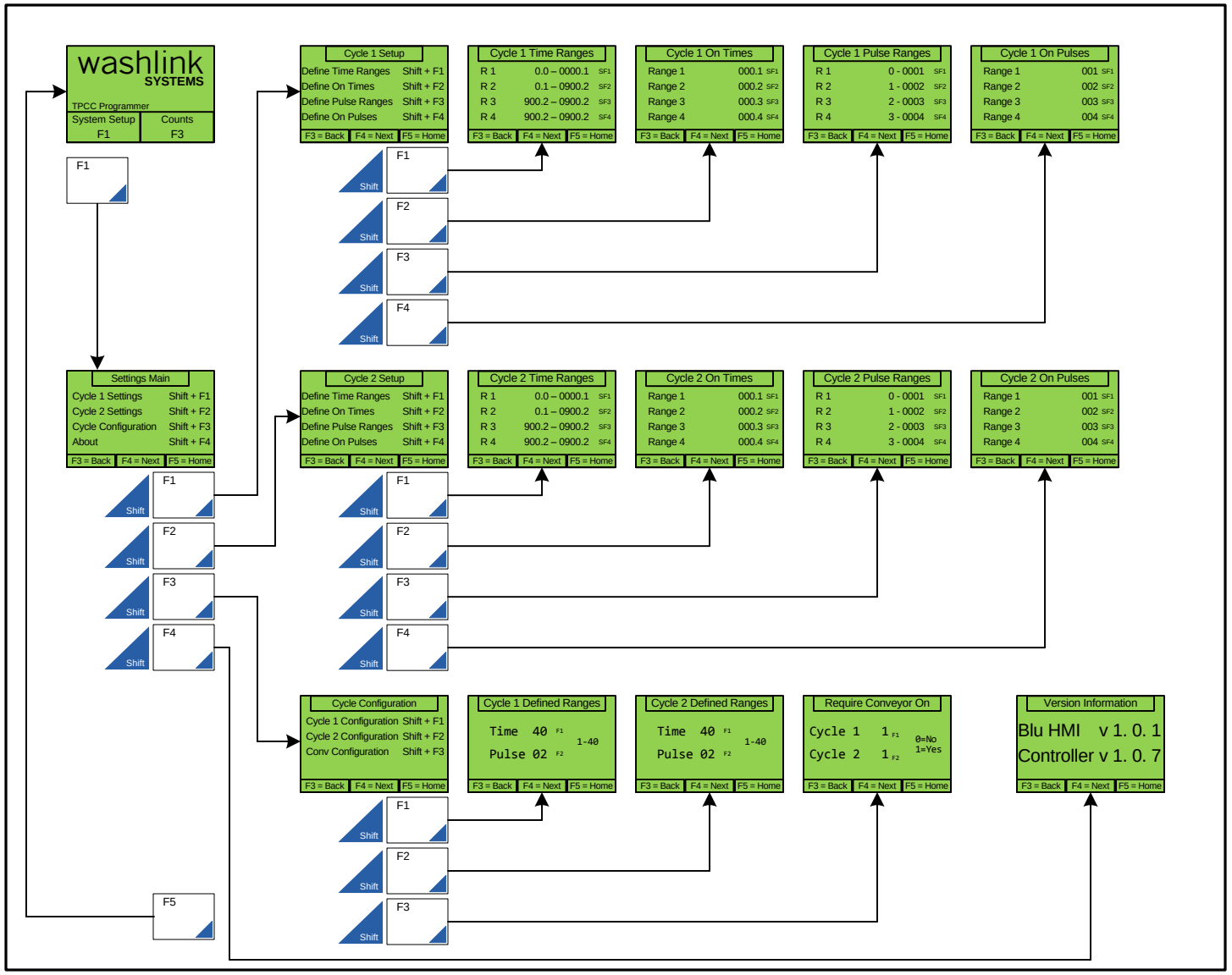


Figure 3.1 Function Location Screen

4.2 Cycle 1 Settings

Figure 3.2 illustrates the mapping from the **Home** Screen to the **Cycle 1 Setup** Screens.

At the **Home Screen** press the **F1** button to enter the **System Setup**.
At the **System Setup** Screen press the **Shift** button and then the **F1** button to enter the **Cycle 1 Setup** Screen.

> **Note:** The TPCC has **40** configurable **Time Ranges per** Cycle.
> Select the amount of **Defined Ranges** your application will require at **Cycle 1 Configuration**.

> **Note:** Select the type of **Range Units** your application will require at **Cycle 1 Configuration**.
> (**Not Used**, **Time**, or **Pulses**)

> **Note:** Select the type of **On Time Units** your application will require at **Cycle 1 Configuration**.
> (**Time** or **Pulses**)

4.2.1 Define Cycle 1 Time Ranges

From the **Cycle 1 Setup** screen press the **Shift** button and then the **F1** button to **Define Cycle 1 Time Ranges**.
From the **Cycle 1 Time Range** screen(s) press the **F3** or **F4** button to scroll to the appropriate **Time Range**.
Select the desired **Time Range** by pressing the **Shift** button and then the appropriate **"F"** button.
Use the **Up** or **Down** arrow button to **Edit** the **Current** value.
Press the **Enter** button to set the **New** value.
If no change needs to be applied press the **Esc** button to return to the previous screen.

> **Example:** **Cycle 1 Time Range 20** is accessed from the **Cycle 1 Time Ranges** screen by pressing the **F4** (4) times in succession.
> When **"R 20"** is displayed at the bottom of the list press the **Shift** button and then the **F4** button to **Edit** the **Upper Limit** value of **Cycle 1 Time Range 20**.

4.2.2 Define Cycle 1 On Times

From the **Cycle 1 Setup** screen press the **Shift** button and then the **F2** button to **Define Cycle 1 Range On Time(s)**.
From the **Cycle 1 On Time** screen(s) press the **F3** or **F4** button to scroll to the appropriate **Time Range**.
Select the desired **On Time** by pressing the **Shift** button and then the appropriate **"F"** button.
Use the **Up** or **Down** arrow button to **Edit** the **Current** value.
Press the **Enter** button to set the **New** value.
If no change needs to be applied press the **Esc** button to return to the previous screen.

> **Example:** **Cycle 1 On Time Range 20** is accessed from the **Cycle 1 On Time** screen by pressing the **F4** (4) times in succession.
> When **"Range 20"** is displayed at the bottom of the list press the **Shift** button and then the **F4** button to **Edit** the **On Time** value of **Cycle 1 On Time Range 20**.

4.2.3 Define Cycle 1 Pulse Ranges

From the **Cycle 1 Setup** screen press the **Shift** button and then the **F3** button to **Define Cycle 1 Pulse Ranges**.
From the **Cycle 1 Pulse Ranges** screen(s) press the **F3** or **F4** button to scroll to the appropriate **Pulse Range**.
Select the desired **Pulse Range** by pressing the **Shift** button and then the appropriate **"F"** button.
Use the **Up** or **Down** arrow button to **Edit** the **Current** value.
Press the **Enter** button to set the **New** value.
If no change needs to be applied press the **Esc** button to return to the previous screen.

> **Example:** **Cycle 1 Pulse Range 20** is accessed from the **Cycle 1 Pulse Ranges** screen by pressing the **F4** (4) times in succession.
> When **"R 20"** is displayed at the bottom of the list press the **Shift** button and then the **F4** button to **Edit** the **Upper Limit** value of **Cycle 1 Pulse Range 20**.

4.2.4 Define Cycle 1 On Pulses

From the **Cycle 1 Setup** screen press the **Shift** button and then the **F4** button to **Define Cycle 1 Range On Pulses**.

From the **Cycle 1 On Pulses** screen(s) press the **F3** or **F4** button to scroll to the appropriate **Pulse Range**.

Select the desired **On Pulse** by pressing the **Shift** button and then the appropriate **"F"** button.

Use the **Up** or **Down** arrow button to **Edit** the **Current** value.

Press the **Enter** button to set the **New** value.

If no change needs to be applied press the **Esc** to return to the previous screen.

Example: **Cycle 1 On Pulse Range 20** is accessed from the **Cycle 1 On Pulse** screen by pressing the **F4** (4) times in succession.
When **"Range 20"** is displayed at the bottom of the list press the **Shift** button and then the **F4** button to **Edit** the **On Pulse** value of **Cycle 1 Pulse Range 20**.

Hint: Use the **Left** or **Right** arrow button to move the cursor to the next digit.
This will allow for faster Editing of higher values.

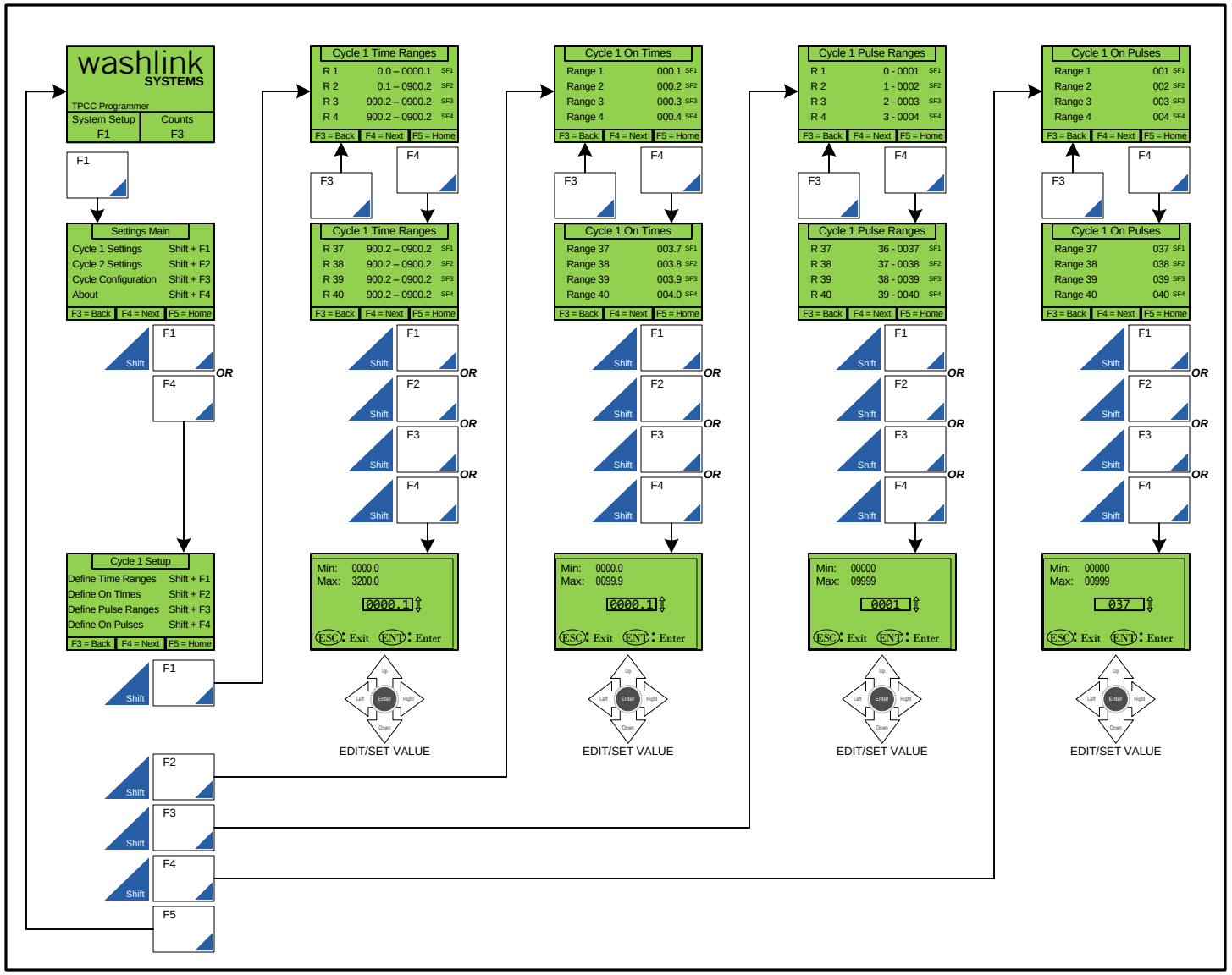


Figure 3.1 Function Location Screen

4.3 Cycle 2 Settings

Figure 3.2 illustrates the mapping from the **Home** Screen to the **Cycle 2 Setup** Screens.

At the **Home Screen** press the **F1** button to enter the **System Setup**.
At the **System Setup** Screen press the **Shift** button and then the **F2** button to enter the **Cycle 2 Setup** Screen.

> **Note:** The TPCC has **40** configurable **Time Ranges per** Cycle.
> Select the amount of **Defined Ranges** your application will require at **Cycle 1 Configuration**.

> **Note:** Select the type of **Range Units** your application will require at **Cycle 2 Configuration**.
> (**Not Used**, **Time**, or **Pulses**)

> **Note:** Select the type of **On Time Units** your application will require at **Cycle 2 Configuration**.
> (**Time** or **Pulses**)

4.3.1 Define Cycle 2 Time Ranges

From the **Cycle 2 Setup** screen press the **Shift** button and then the **F1** button to **Define Cycle 2 Time Ranges**.
From the **Cycle 2 Time Range** screen(s) press the **F3** or **F4** button to scroll to the appropriate **Time Range**.
Select the desired **Time Range** by pressing the **Shift** button and then the appropriate **"F"** button.
Use the **Up** or **Down** arrow button to **Edit** the **Current** value.
Press the **Enter** button to set the **New** value.
If no change needs to be applied press the **Esc** button to return to the previous screen.

> **Example:** **Cycle 2 Time Range 20** is accessed from the **Cycle 2 Time Ranges** screen by pressing the **F4** (4) times in succession.
> When **"R 20"** is displayed at the bottom of the list press the **Shift** button and then the **F4** button to **Edit** the **Upper Limit** value of **Cycle 2 Time Range 20**.

4.3.2 Define Cycle 2 On Times

From the **Cycle 2 Setup** screen press the **Shift** button and then the **F2** button to **Define Cycle 2 Range On Time(s)**.
From the **Cycle 2 On Time** screen(s) press the **F3** or **F4** button to scroll to the appropriate **Time Range**.
Select the desired **On Time** by pressing the **Shift** button and then the appropriate **"F"** button.
Use the **Up** or **Down** arrow button to **Edit** the **Current** value.
Press the **Enter** button to set the **New** value.
If no change needs to be applied press the **Esc** button to return to the previous screen.

> **Example:** **Cycle 2 On Time Range 20** is accessed from the **Cycle 2 On Time** screen by pressing the **F4** (4) times in succession.
> When **"Range 20"** is displayed at the bottom of the list press the **Shift** button and then the **F4** button to **Edit** the **On Time** value of **Cycle 1 On Time Range 20**.

4.3.3 Define Cycle 2 Pulse Ranges

From the **Cycle 2 Setup** screen press the **Shift** button and then the **F3** button to **Define Cycle 2 Pulse Ranges**.
From the **Cycle 2 Pulse Ranges** screen(s) press the **F3** or **F4** button to scroll to the appropriate **Pulse Range**.
Select the desired **Pulse Range** by pressing the **Shift** button and then the appropriate **"F"** button.
Use the **Up** or **Down** arrow button to **Edit** the **Current** value.
Press the **Enter** button to set the **New** value.
If no change needs to be applied press the **Esc** button to return to the previous screen.

> **Example:** **Cycle 2 Pulse Range 20** is accessed from the **Cycle 2 Pulse Ranges** screen by pressing the **F4** (4) times in succession.
> When **"R 20"** is displayed at the bottom of the list press the **Shift** button and then the **F4** button to **Edit** the **Upper Limit** value of **Cycle 1 Pulse Range 20**.

4.3.4 Define Cycle 2 On Pulses

From the **Cycle 2 Setup** screen press the **Shift** button and then the **F4** button to **Define Cycle 2 Range On Pulses**.

From the **Cycle 2 On Pulses** screen(s) press the **F3** or **F4** button to scroll to the appropriate **Pulse Range**.

Select the desired **On Pulse** by pressing the **Shift** button and then the appropriate **"F"** button.

Use the **Up** or **Down** arrow button to **Edit** the **Current** value.

Press the **Enter** button to set the **New** value.

If no change needs to be applied press the **Esc** to return to the previous screen.

Example: **Cycle 2 On Pulse Range 20** is accessed from the **Cycle 2 On Pulse** screen by pressing the **F4** (4) times in succession.
When **"Range 20"** is displayed at the bottom of the list press the **Shift** button and then the **F4** button to **Edit** the **On Pulse** value of **Cycle 2 Pulse Range 20**.

Hint: Use the **Left** or **Right** arrow button to move the cursor to the next digit.
This will allow for faster Editing of higher values.

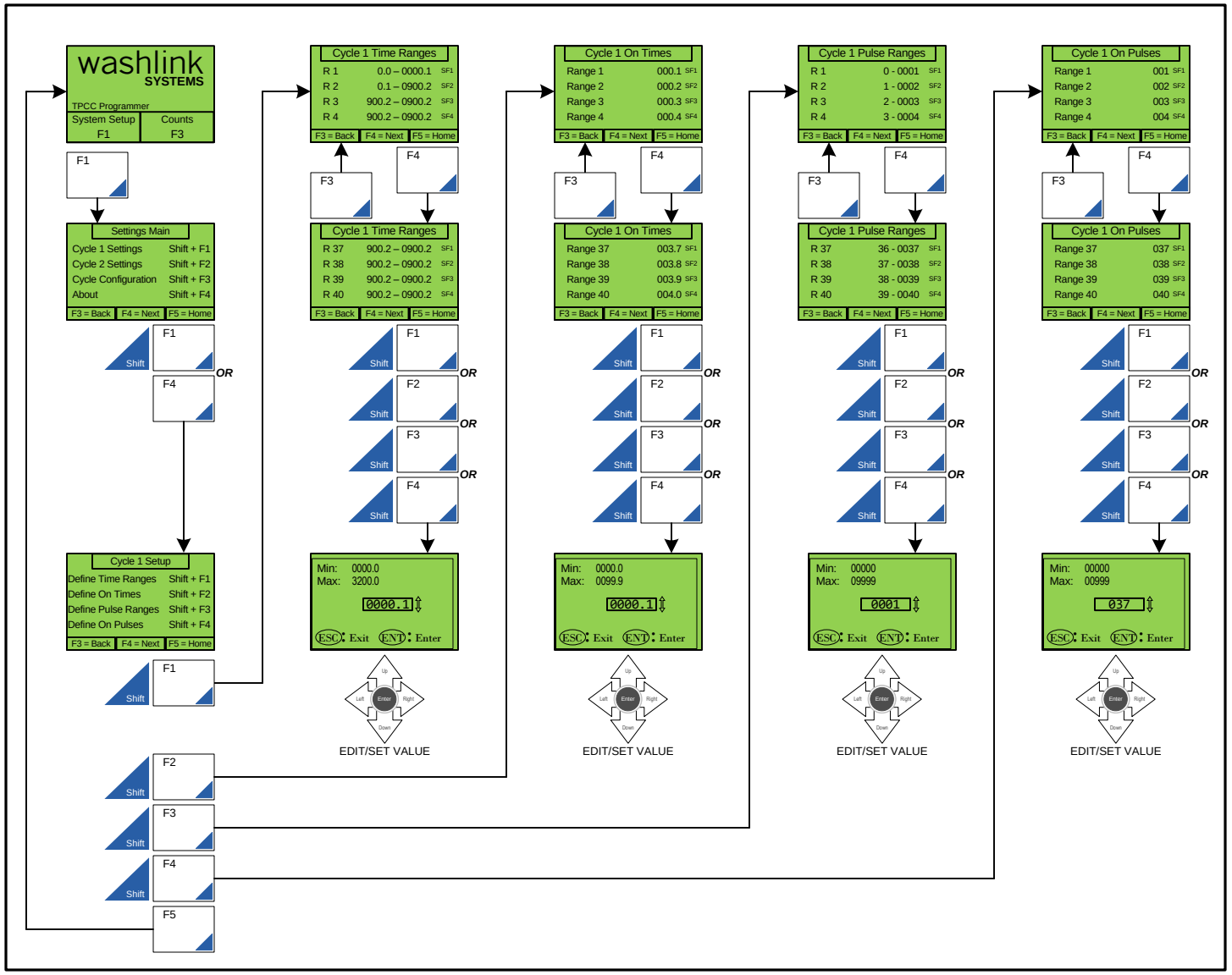


Figure 3.1 Function Location Screen

4.4 Cycle Configuration

Figure 3.4 illustrates the mapping from the **Home** Screen to the **Cycle Configuration** Menu.

At the **Home** Screen press the **F1** button to enter the **System Setup** Menu.
At the **System Setup** Menu press the **Shift** button and then the **F3** button to enter the **Cycle Configuration** Menu.

4.4.1 Cycle 1 Configuration

At the **Cycle Configuration** Menu press the **Shift** button and then the **F1** button to enter the **Cycle 1 Configuration** Menu.
Within the **Cycle 1 Configuration** Menu you will be able to access the following screens:

- **Cycle 1 Defined Ranges** (Initial screen)
- **Cycle 1 Range Units** (2nd screen)
- **Cycle 1 On Time Units** (3rd screen)
- **Cycle 1 Misc Conveyor** (4th screen)
- **Cycle 1 Input Debounce** (5th screen)

Use the **F3** button or the **F4** button to scroll to the desired **Cycle 1 Configuration** Screen.

Example: **Cycle 1 On Time Units** is accessed from the **Cycle 1 Defined Ranges** screen by pressing the **F3** button (3) times in succession or the **F4** button (2) times in succession.
At the **Cycle 1 On Time Units** Screen press the **F1** button to select **Time** or **Pulse** Units.
(A value of "**1**" = **Time**. A value of "**2**" = **Pulse**.)

4.4.2 Cycle 2 Configuration

At the **Cycle Configuration** Menu press the **Shift** button and then the **F2** button to enter the **Cycle 2 Configuration** Menu.
Within the **Cycle 2 Configuration** Menu you will be able to access the following screens:

- **Cycle 2 Defined Ranges** (Initial screen)
- **Cycle 2 Range Units** (2nd screen)
- **Cycle 2 On Time Units** (3rd screen)
- **Cycle 2 Misc Conveyor** (4th screen)
- **Cycle 2 Input Debounce** (5th screen)

Use the **F3** button or the **F4** button to scroll to the desired **Cycle 2 Configuration** Screen.

Example: **Cycle 2 On Time Units** is accessed from the **Cycle 2 Defined Ranges** screen by pressing the **F3** button (3) times in succession or the **F4** button (2) times in succession.
At the **Cycle 2 On Time Units** Screen press the **F1** button to select **Time** or **Pulse** Units.
(A value of "**1**" = **Time**. A value of "**2**" = **Pulse**.)

4.4.3 Conveyor Configuration

Figure 3.4 illustrates the mapping from the **Home** Screen to the **Cycle Configuration** Menu.

At the **Cycle Configuration** Menu press the **Shift** button and then the **F3** button to enter the **Conveyor Configuration** Menu.
Within the **Conveyor Configuration** Menu you will be able to access the following screens:

- **Require Conveyor On** (Initial screen)
- **Pulse Input Debounce** (2nd screen)

Use the **F3** button or the **F4** button to scroll to the desired **Conveyor Configuration** Screen.

Example: **Pulse Input Debounce** is accessed from the **Require Conveyor On** screen by pressing the **F3** button (1) time or the **F4** button (1) time.
At the **Pulse Input Debounce** Screen press the **F1** button to **Edit** On Delay time.
At the **Pulse Input Debounce** Screen press the **F2** button to **Edit** Off Delay time.

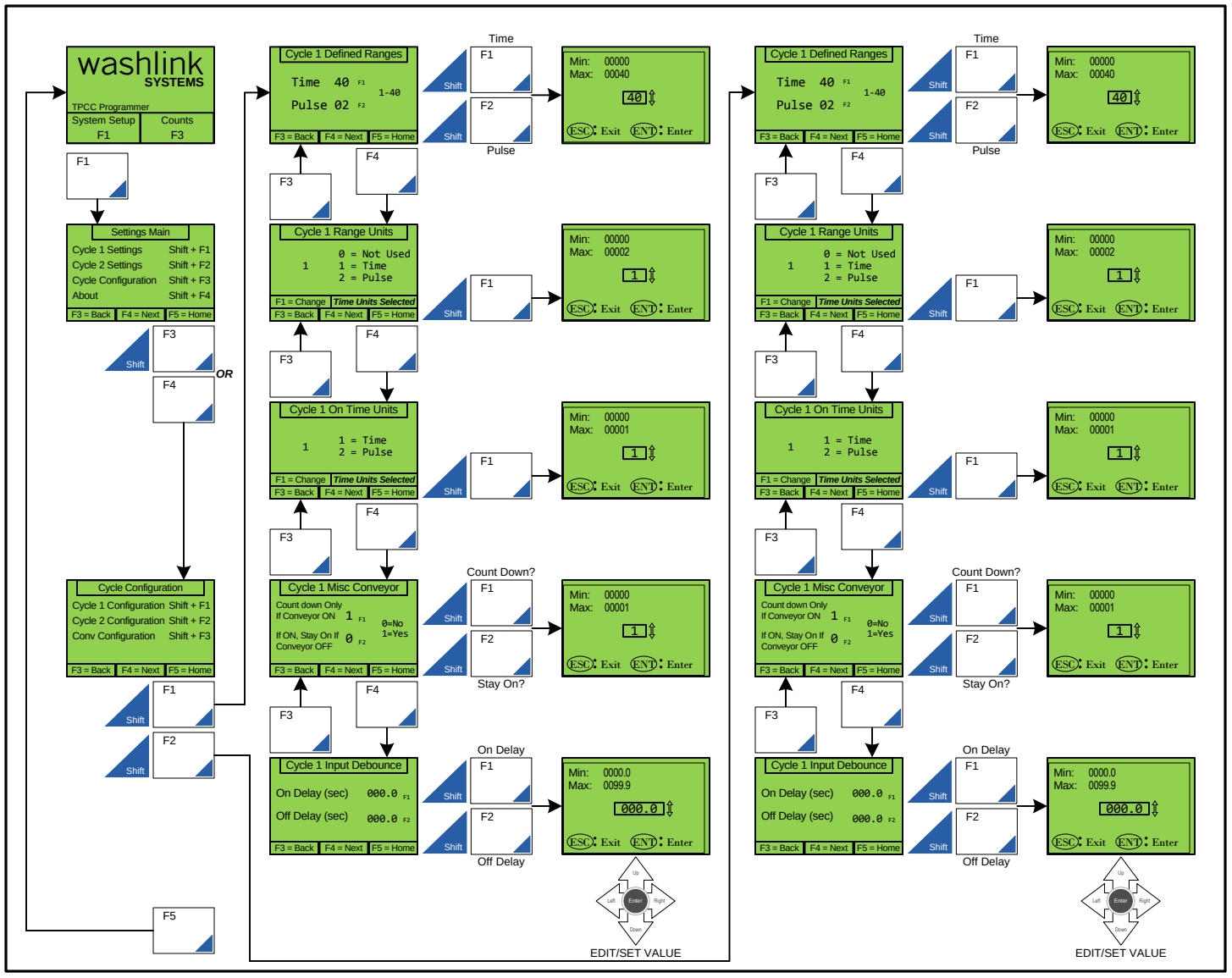


Figure 3.1 Function Location Screen

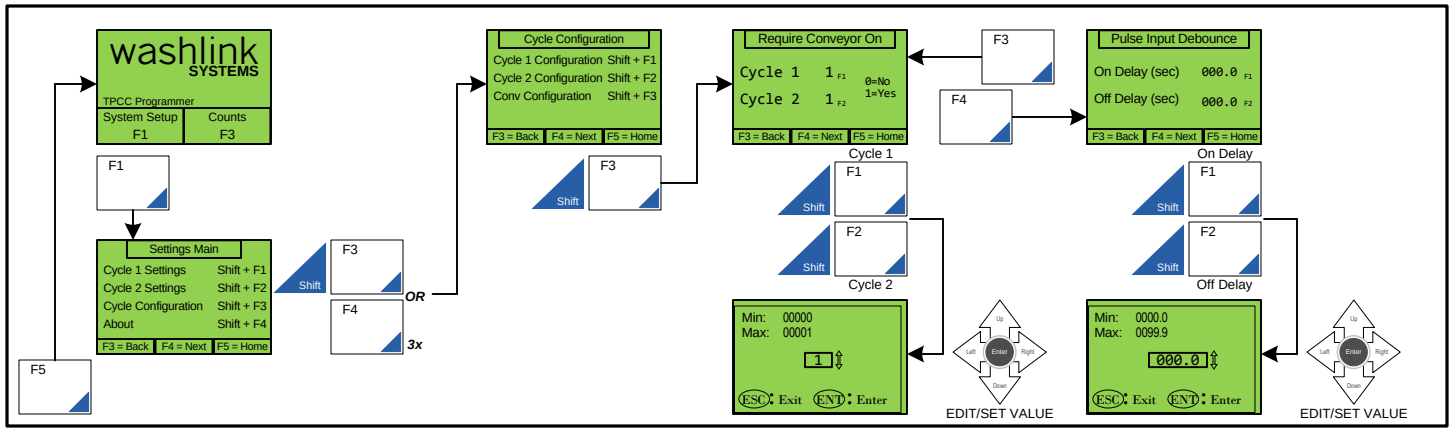


Figure 3.1 Function Location Screen

4.5 Version Information

Figure 3.x.x illustrates the mapping from the **Home** Screen to the **Version Information** Screen.

At the **Home** screen press the **F1** button to enter the **System Setup** Menu.
This will navigate to the **Settings Main** Screen.

To **View** the current **TPCC Version Information** press the **Shift** button and then the **F4** button.

Note:	The **TPCC Version Information** may be requested for **Troubleshooting Assistance**.
Note:	Washlink Systems reserves the right to release new revisions of the TPCC in any manner deemed necessary, at any time, and without prior notice.
Information:	**Washlink Systems highly recommends purchasing an Annual Support Contract.** Please contact your local **Washlink Systems** representative for further details.

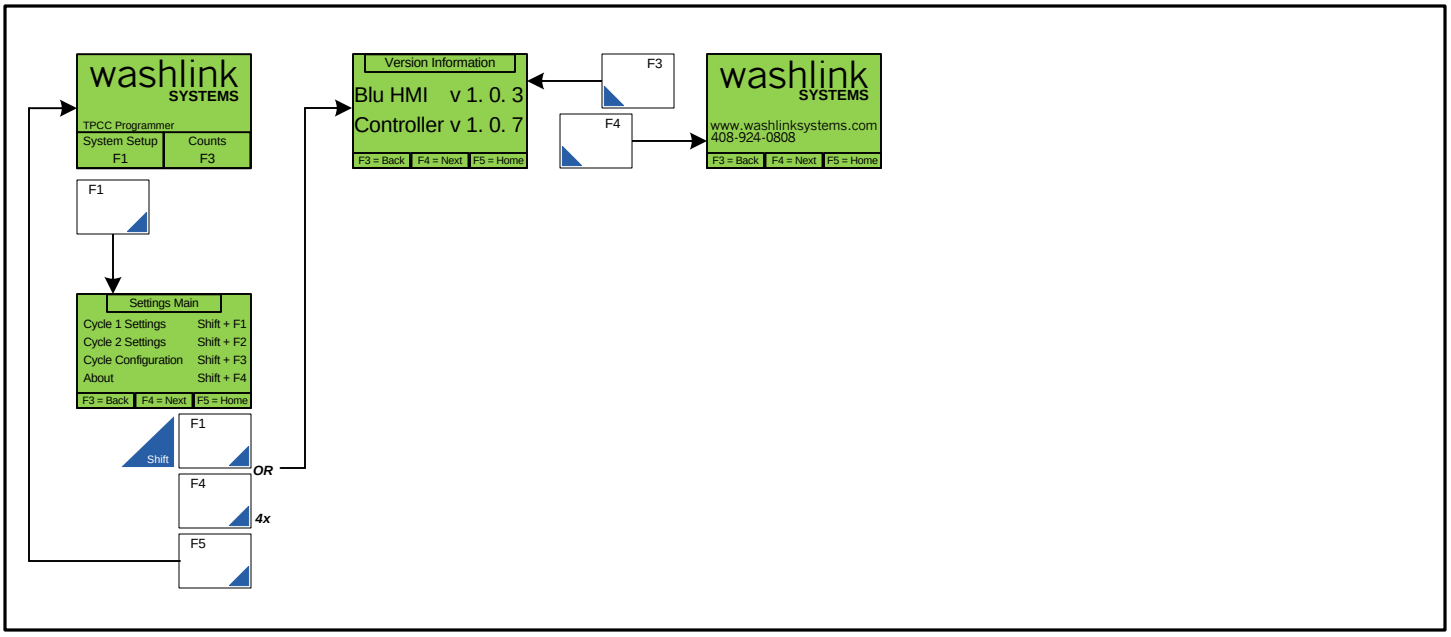


Figure 3.1 Function Location Screen

4.6 Counts

The Tire Protectant Chemical Controller has the following counters built in;

Cycle #1 Counts = number of times Cycle #1 has been activated
Cycle #1 Minutes = number of Minutes Cycle #1 has been activated
Cycle #2 Counts = number of times Cycle #2 has been activated
Cycle #2 Minutes = number of Minutes Cycle #2 has been activated

**Clear counts will clear out the values from the Resettable Counts, Lifetime will never be reset

To View the counts, from the Home Screen, press Counts.

To clear resettable counts, press clear counts and press yes to confirm.

Press Home when done.

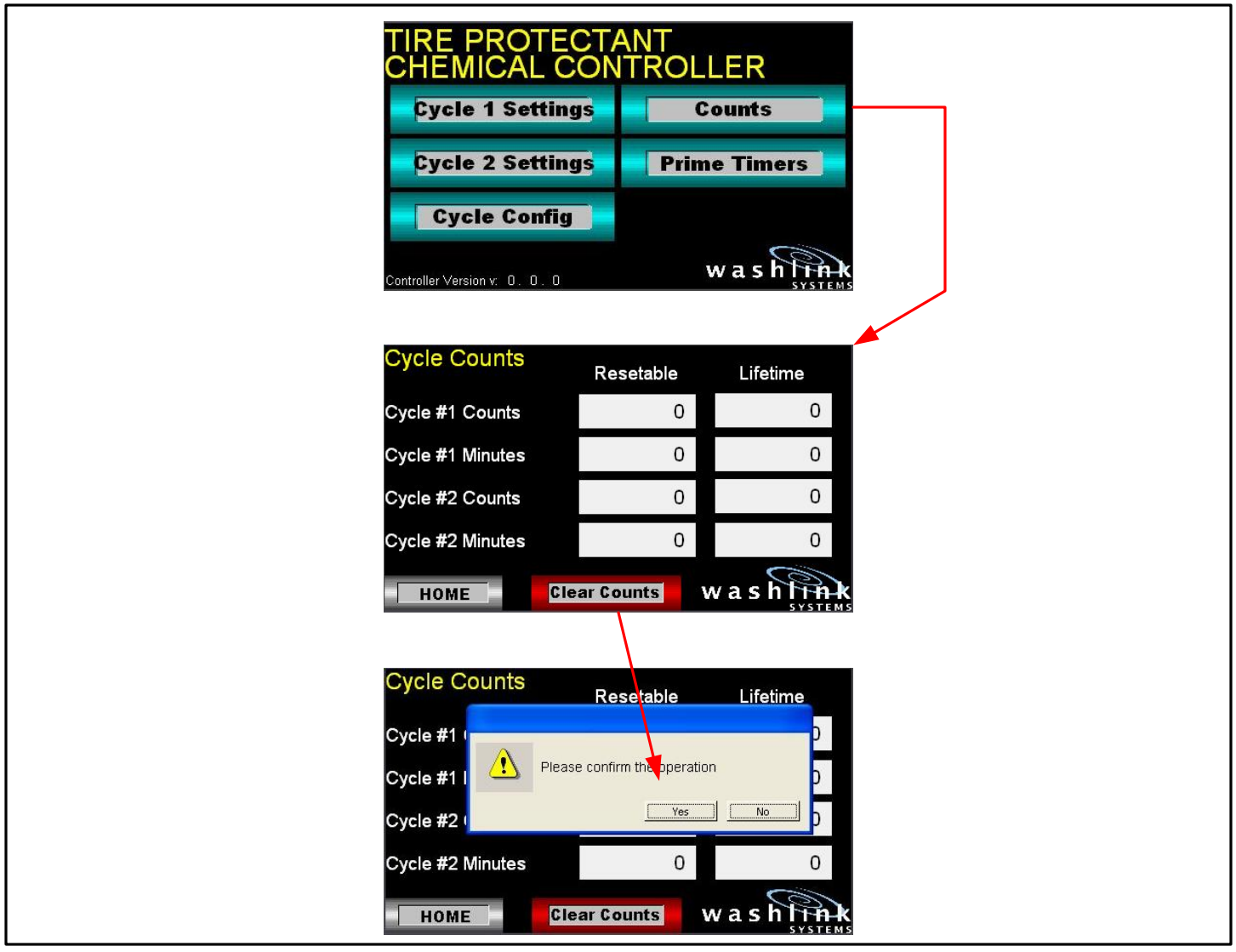


Figure 3.1 Function Location Screen

Chapter 5

5 System Configuration Notes

The following pages are dedicated to recording various **System Configuration Notes**.

3.3 Configuration Setting Worksheet

Cycle 1 Time/Time Based

Range	Last Application		On Time		
1	0.0	.	Min	.	Sec
2	Same as	.	Min	.	Sec
3	Same as	.	Min	.	Sec
4	Same as	.	Min	.	Sec
5	Same as	.	Min	.	Sec
6	Same as	.	Min	.	Sec
7	Same as	.	Min	.	Sec
8	Same as	.	Min	.	Sec
9	Same as	.	Min	.	Sec
10	Same as	.	Min	.	Sec
11	Same as	.	Min	.	Sec
12	Same as	.	Min	.	Sec
13	Same as	.	Min	.	Sec
14	Same as	.	Min	.	Sec
15	Same as	.	Min	.	Sec
16	Same as	.	Min	.	Sec
17	Same as	.	Min	.	Sec
18	Same as	.	Min	.	Sec
19	Same as	.	Min	.	Sec
20	Same as	.	Min	.	Sec
21	Same as	.	Min	.	Sec
22	Same as	.	Min	.	Sec
23	Same as	.	Min	.	Sec
24	Same as	.	Min	.	Sec
25	Same as	.	Min	.	Sec
26	Same as	.	Min	.	Sec
27	Same as	.	Min	.	Sec
28	Same as	.	Min	.	Sec
29	Same as	.	Min	.	Sec
30	Same as	.	Min	.	Sec
31	Same as	.	Min	.	Sec
32	Same as	.	Min	.	Sec
33	Same as	.	Min	.	Sec
34	Same as	.	Min	.	Sec
35	Same as	.	Min	.	Sec
36	Same as	.	Min	.	Sec
37	Same as	.	Min	.	Sec
38	Same as	.	Min	.	Sec
39	Same as	.	Min	.	Sec
40	Same as	3200.0	Min	.	Sec

Cycle 2 Time/Time Based

Range	Last Application		On Time		
1	0.0	.	Min	.	Sec
2	Same as	.	Min	.	Sec
3	Same as	.	Min	.	Sec
4	Same as	.	Min	.	Sec
5	Same as	.	Min	.	Sec
6	Same as	.	Min	.	Sec
7	Same as	.	Min	.	Sec
8	Same as	.	Min	.	Sec
9	Same as	.	Min	.	Sec
10	Same as	.	Min	.	Sec
11	Same as	.	Min	.	Sec
12	Same as	.	Min	.	Sec
13	Same as	.	Min	.	Sec
14	Same as	.	Min	.	Sec
15	Same as	.	Min	.	Sec
16	Same as	.	Min	.	Sec
17	Same as	.	Min	.	Sec
18	Same as	.	Min	.	Sec
19	Same as	.	Min	.	Sec
20	Same as	.	Min	.	Sec
21	Same as	.	Min	.	Sec
22	Same as	.	Min	.	Sec
23	Same as	.	Min	.	Sec
24	Same as	.	Min	.	Sec
25	Same as	.	Min	.	Sec
26	Same as	.	Min	.	Sec
27	Same as	.	Min	.	Sec
28	Same as	.	Min	.	Sec
29	Same as	.	Min	.	Sec
30	Same as	.	Min	.	Sec
31	Same as	.	Min	.	Sec
32	Same as	.	Min	.	Sec
33	Same as	.	Min	.	Sec
34	Same as	.	Min	.	Sec
35	Same as	.	Min	.	Sec
36	Same as	.	Min	.	Sec
37	Same as	.	Min	.	Sec
38	Same as	.	Min	.	Sec
39	Same as	.	Min	.	Sec
40	Same as	3200.0	Min	.	Sec

3.3 Configuration Setting Worksheet

Cycle 1 Pulse/Time Based

Range	Last Application			On Time	
1	0		Pulse	.	Sec
2	Same as		Pulse	.	Sec
3	Same as		Pulse	.	Sec
4	Same as		Pulse	.	Sec
5	Same as		Pulse	.	Sec
6	Same as		Pulse	.	Sec
7	Same as		Pulse	.	Sec
8	Same as		Pulse	.	Sec
9	Same as		Pulse	.	Sec
10	Same as		Pulse	.	Sec
11	Same as		Pulse	.	Sec
12	Same as		Pulse	.	Sec
13	Same as		Pulse	.	Sec
14	Same as		Pulse	.	Sec
15	Same as		Pulse	.	Sec
16	Same as		Pulse	.	Sec
17	Same as		Pulse	.	Sec
18	Same as		Pulse	.	Sec
19	Same as		Pulse	.	Sec
20	Same as		Pulse	.	Sec
21	Same as		Pulse	.	Sec
22	Same as		Pulse	.	Sec
23	Same as		Pulse	.	Sec
24	Same as		Pulse	.	Sec
25	Same as		Pulse	.	Sec
26	Same as		Pulse	.	Sec
27	Same as		Pulse	.	Sec
28	Same as		Pulse	.	Sec
29	Same as		Pulse	.	Sec
30	Same as		Pulse	.	Sec
31	Same as		Pulse	.	Sec
32	Same as		Pulse	.	Sec
33	Same as		Pulse	.	Sec
34	Same as		Pulse	.	Sec
35	Same as		Pulse	.	Sec
36	Same as		Pulse	.	Sec
37	Same as		Pulse	.	Sec
38	Same as		Pulse	.	Sec
39	Same as		Pulse	.	Sec
40	Same as	9999	Pulse	.	Sec

Cycle 2 Pulse/Time Based

Range	Last Application			On Time	
1	0		Pulse	.	Sec
2	Same as		Pulse	.	Sec
3	Same as		Pulse	.	Sec
4	Same as		Pulse	.	Sec
5	Same as		Pulse	.	Sec
6	Same as		Pulse	.	Sec
7	Same as		Pulse	.	Sec
8	Same as		Pulse	.	Sec
9	Same as		Pulse	.	Sec
10	Same as		Pulse	.	Sec
11	Same as		Pulse	.	Sec
12	Same as		Pulse	.	Sec
13	Same as		Pulse	.	Sec
14	Same as		Pulse	.	Sec
15	Same as		Pulse	.	Sec
16	Same as		Pulse	.	Sec
17	Same as		Pulse	.	Sec
18	Same as		Pulse	.	Sec
19	Same as		Pulse	.	Sec
20	Same as		Pulse	.	Sec
21	Same as		Pulse	.	Sec
22	Same as		Pulse	.	Sec
23	Same as		Pulse	.	Sec
24	Same as		Pulse	.	Sec
25	Same as		Pulse	.	Sec
26	Same as		Pulse	.	Sec
27	Same as		Pulse	.	Sec
28	Same as		Pulse	.	Sec
29	Same as		Pulse	.	Sec
30	Same as		Pulse	.	Sec
31	Same as		Pulse	.	Sec
32	Same as		Pulse	.	Sec
33	Same as		Pulse	.	Sec
34	Same as		Pulse	.	Sec
35	Same as		Pulse	.	Sec
36	Same as		Pulse	.	Sec
37	Same as		Pulse	.	Sec
38	Same as		Pulse	.	Sec
39	Same as		Pulse	.	Sec
40	Same as	9999	Pulse	.	Sec

Chapter 6

6 Wiring Diagram

The following pages are dedicated to the wiring diagram for the MICRO Equipment Controller.

PAGE	DESCRIPTION
0	COVER SHEET
1	PLC WIRING
2	RELAY DETAIL
3	LAYOUT AND BILL OF MATERIALS
4	CONFIGURATION DATA
5	

REV	BY	DATE	DESCRIPTION
1.0.1	SRH	03.10.08	CHECKED AND APPROVED

NOTES:

1. STANDARD SUPPLY VOLTAGE IS 120VAC 60Hz. OPTIONAL INTERNATIONAL VOLTAGE KIT AT 220VAC 50Hz IS AVAILABLE UPON REQUEST.
2. WASHLINK SYSTEMS RECOMMENDS INDIVIDUAL HOUSE PANEL CIRCUIT. **(120VAC 15A or 220VAC 10A MAXIMUM.)**
3. ILLUMINATED LED INDICATES BLOWN FUSE.
4. WASHLINK SYSTEMS RECOMMENDS AWG 18 STRANDED COPPER WIRE FOR CIRCUITS LESS THAN 200 FEET.
5. **TO AVOID RISK OF FIRE AND PERSONAL INJURY, REPLACE ONLY WITH MANUFACTURER'S ORIGINAL RATED FUSE.**
6. **FUSE HOLDER AND INDICATING LED ARE RATED AT 60 – 150V.**
7. **FUSE HOLDER AND INDICATING LED ARE RATED AT 10 – 36V.**
8. **INPUTS ARE 0VDC ONLY. ANY OTHER VOLTAGE WILL DAMAGE CONTROLLER AND VOID MANUFACTURER'S WARRANTY.**
9. INPUT 1 CAN BE CONFIGURED AS A "CLEAR INPUT". USING THIS CONFIGURATION WILL CLEAR ALL PENDING SRVICE INPUTS FOR THE NEXT CAR.
10. IF EXISTING "ENTER" AND "PULSE" DOES NOT PROVIDE A NORMALLY OPEN CIRCUIT, AN INTERMEDIARY RELAY MAY BE NEEDED FOR THE "ENTER" AND "PULSE" INPUT.
11. IF AN OUTPUT IS NEEDED FOR EVERY CAR, SIMPLY JUMPER THE CORRESPONDING INPUT TO 0VDC.

ALL ELECTRICAL WORK SHOULD BE PERFORMED BY A QUALIFIED AND LICENSED ELECTRICIAN.
ALL ELECTRICAL WORK SHOULD MEET OR EXCEED NATIONAL AND LOCAL CODES AND ORDINANCES.

CAUTION! RISK OF ELECTRICAL SHOCK. MORE THAN ONE DISCONNECT MY BE REQUIRED TO BE DE-ENERGIZED BEFORE SERVICING THE EQUIPMENT.

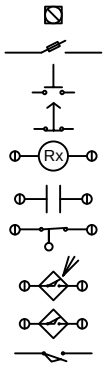
CAUTION! TO REDUCE THE RISK OF FIRE, CONNECT ONLY TO A 110VAC CIRCUIT PROVIDED WITH 15A MAXIMUM BRANCH CIRCUIT PROTECTION IN ACCORDANCE WITH THE NEC, ANSI/NFPA 70 AND LOCAL CODE AUTHORITIES.

CAUTION! BONDING BETWEEN CONDUIT CONNECTION IS NOT AUTOMATIC AND MUST BE PROVIDED AS PART OF THE INSTALLATION.

LEGEND

BK – BLACK (120/220VAC HOT)
BK/OE – BLACK W/ ORANGE TRACE (120/220VAC CONTROL CIRCUIT)
BK/YW – BLACK W/ YELLOW TRACE (120/220VAC CONTROL CIRCUIT)
WE – WHITE (120/220VAC NEUTRAL)
RD – RED (24VAC CONTROL CIRCUIT)
WE/RD – WHITE W/ RED TRACE (24VAC NEUTRAL)
BE – BLUE (24VDC POSITIVE)
WE/BE – WHITE W/ BLUE TRACE (0VDC or 24VDC COMMON)
BN – BROWN (CONTROL CIRCUIT)
OE – ORANGE (CONTROL CIRCUIT)
YW – YELLOW (CONTROL CIRCUIT)
PE – PURPLE (CONTROL CIRCUIT)
WE/BN – WHITE W/ BROWN TRACE (CONTROL CIRCUIT)
WE/OE – WHITE W/ ORNGE TRACE (CONTROL CIRCUIT)
WE/YW – WHITE W/ YELLOW TRACE (CONTROL CIRCUIT)
WE/PE – WHITE W/ PURPLE TRACE (CONTROL CIRCUIT)

FIELD WIRING ----------
ENCLOSURE WIRING ——————



ENCLOSURE CONVENIENCE TERMINAL
FUSE HOLDER
MOMENTARY N/O PUSH BUTTON
MAINTAINED N/C PUSH BUTTON
RELAY COIL
RELAY CONTACT N/O
LEVEL SWITCH N/C
PHOTO EYE N/O
PROXIMITY SWITCH N/O
LIMIT SWITCH N/O

NOT TO SCALE

EQUIPMENT CONTROLLER IS FABRICATED TO UL #508 SPECIFICATIONS

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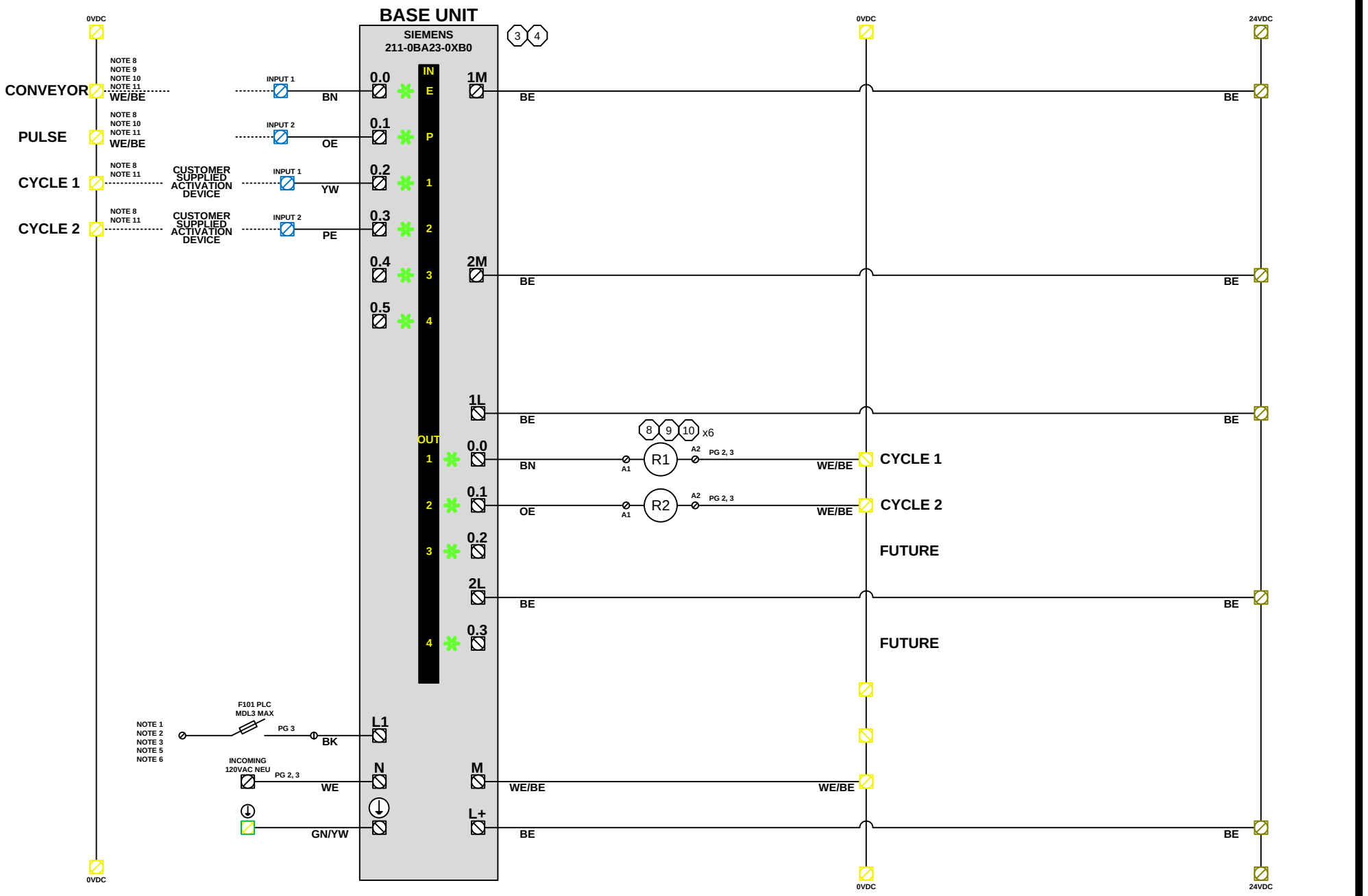
REV	DATE
4.0.1	02.01.08
DRAWN BY: SRH	
CHECKED BY:	
DRAWN DATE: 01.15.08	

PAGE DESCRIPTION:
COVER SHEET

MICRO



NOT TO SCALE

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REV	DATE
1.0.1	3.10.08
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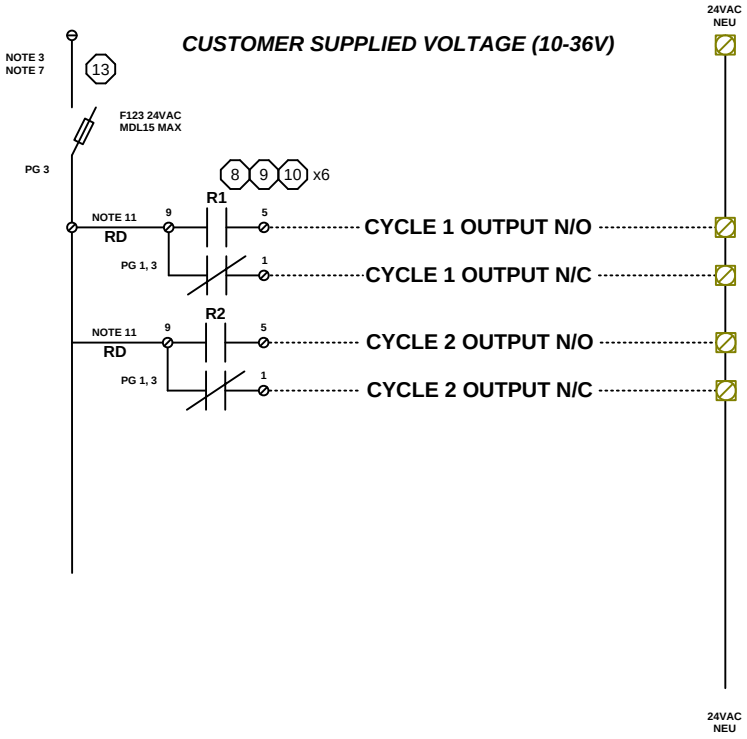
CHECKED BY:	
DRAWN DATE: 03.10.08	

PAGE DESCRIPTION:

PLC WIRING

TPCC



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REV	DATE
1.0.1	03.10.08
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PAGE DESCRIPTION:

RELAY DETAIL

TPCC

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1.0.1	03.10.08
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DRAWN DATE: 03.10.08	

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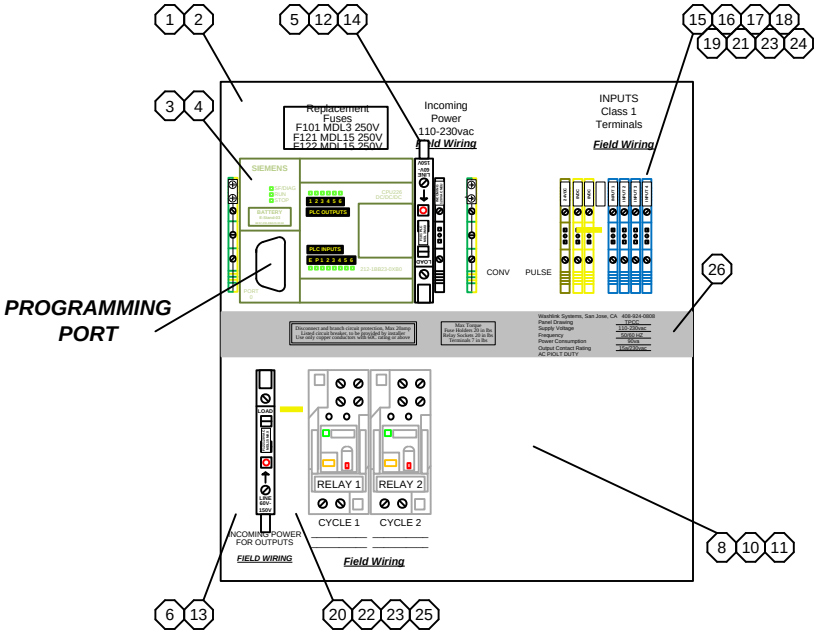

NOT TO SCALE

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REV	DATE
1.0.1	03.10.08
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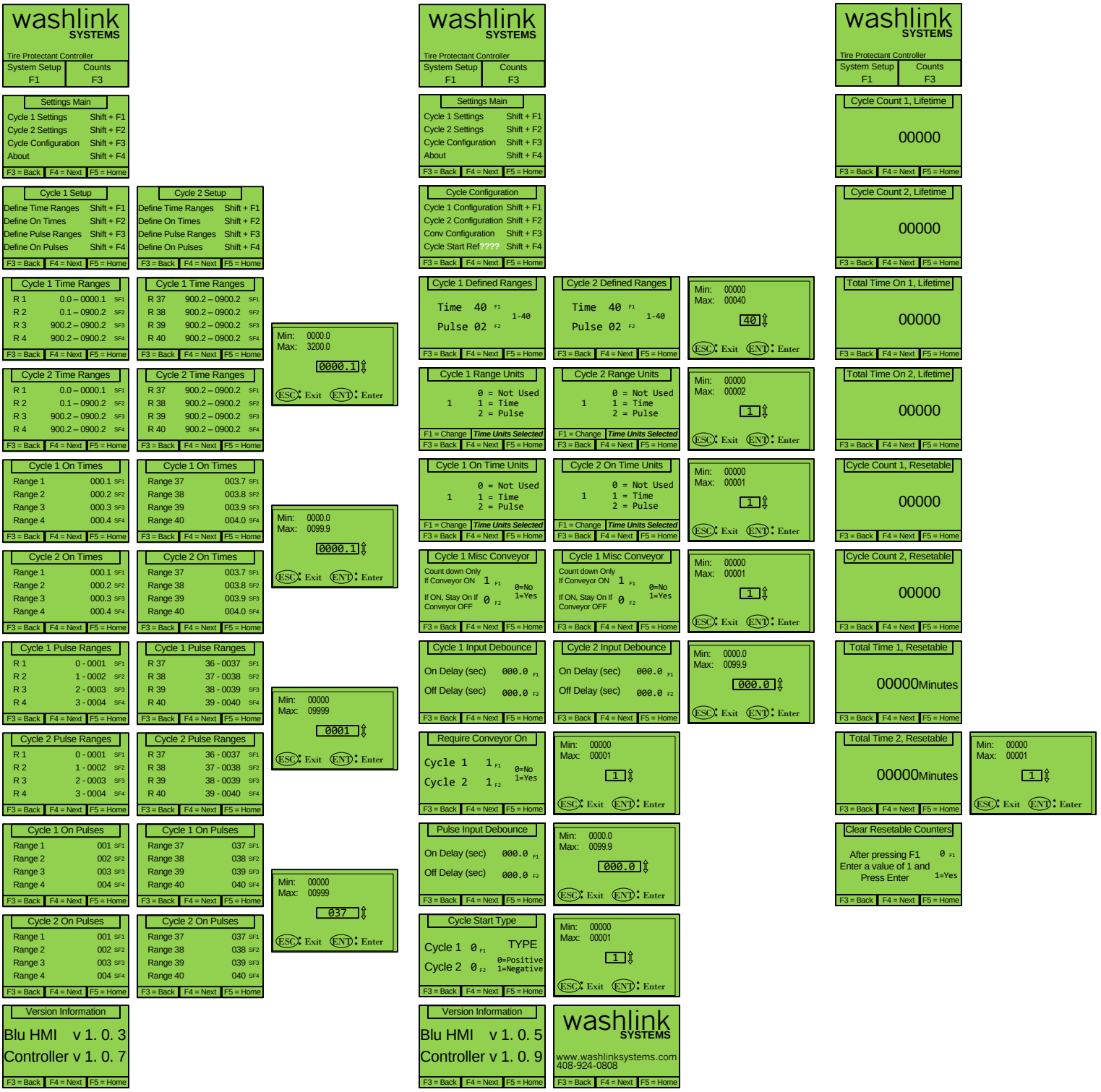
DRAWN DATE: 03.10.08	

PAGE DESCRIPTION:

LAYOUT/BOM

TPCC


washlink SYSTEMS
Tire Protectant Controller
System Setup F1
Counts F3
Settings Main
Cycle 1 Settings Shift + F1
Cycle 2 Settings Shift + F2
Cycle Configuration Shift + F3
About Shift + F4
F3 = Back F4 = Next F5 = Home
Cycle 1 Setup
Define Time Ranges Shift + F1
Define On Times Shift + F2
Define Pulse Ranges Shift + F3
Define On Pulses Shift + F4
Cycle 2 Setup
Define Time Ranges Shift + F1
Define On Times Shift + F2
Define Pulse Ranges Shift + F3
Define On Pulses Shift + F4
Cycle Configuration
Cycle 1 Configuration Shift + F1
Cycle 2 Configuration Shift + F2
Conv Configuration Shift + F3
Cycle Start Ref ??? Shift + F4
Cycle 1 Time Ranges
R 1 0.0 – 0000.1 SF1
R 2 0.1 – 0900.2 SF2
R 3 900.2 – 0900.2 SF3
R 4 900.2 – 0900.2 SF4
Cycle 1 Time Ranges
R 37 900.2 – 0900.2 SF1
R 38 900.2 – 0900.2 SF2
R 39 900.2 – 0900.2 SF3
R 40 900.2 – 0900.2 SF4
Min: 0000.0
Max: 3200.0
0000.1
ESC: Exit ENT: Enter
Cycle 2 Time Ranges
R 1 0.0 – 0000.1 SF1
R 2 0.1 – 0900.2 SF2
R 3 900.2 – 0900.2 SF3
R 4 900.2 – 0900.2 SF4
Cycle 2 Time Ranges
R 37 900.2 – 0900.2 SF1
R 38 900.2 – 0900.2 SF2
R 39 900.2 – 0900.2 SF3
R 40 900.2 – 0900.2 SF4
Cycle 1 On Times
Range 1 000.1 SF1
Range 2 000.2 SF2
Range 3 000.3 SF3
Range 4 000.4 SF4
Cycle 1 On Times
Range 37 003.7 SF1
Range 38 003.8 SF2
Range 39 003.9 SF3
Range 40 004.0 SF4
Min: 0000.0
Max: 0099.9
0000.1
ESC: Exit ENT: Enter
Cycle 2 On Times
Range 1 000.1 SF1
Range 2 000.2 SF2
Range 3 000.3 SF3
Range 4 000.4 SF4
Cycle 2 On Times
Range 37 003.7 SF1
Range 38 003.8 SF2
Range 39 003.9 SF3
Range 40 004.0 SF4
Cycle 1 Pulse Ranges
R 1 0 - 0001 SF1
R 2 1 - 0002 SF2
R 3 2 - 0003 SF3
R 4 3 - 0004 SF4
Cycle 1 Pulse Ranges
R 37 36 - 0037 SF1
R 38 37 - 0038 SF2
R 39 38 - 0039 SF3
R 40 39 - 0040 SF4
Min: 00000
Max: 09999
0001
ESC: Exit ENT: Enter
Cycle 2 Pulse Ranges
R 1 0 - 0001 SF1
R 2 1 - 0002 SF2
R 3 2 - 0003 SF3
R 4 3 - 0004 SF4
Cycle 2 Pulse Ranges
R 37 36 - 0037 SF1
R 38 37 - 0038 SF2
R 39 38 - 0039 SF3
R 40 39 - 0040 SF4
Cycle 1 On Pulses
Range 1 001 SF1
Range 2 002 SF2
Range 3 003 SF3
Range 4 004 SF4
Cycle 1 On Pulses
Range 37 037 SF1
Range 38 038 SF2
Range 39 039 SF3
Range 40 040 SF4
Min: 00000
Max: 00999
037
ESC: Exit ENT: Enter
Cycle 2 On Pulses
Range 1 001 SF1
Range 2 002 SF2
Range 3 003 SF3
Range 4 004 SF4
Cycle 2 On Pulses
Range 37 037 SF1
Range 38 038 SF2
Range 39 039 SF3
Range 40 040 SF4
Version Information
Blu HMI v 1. 0. 3
Controller v 1. 0. 7
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408-924-0808
Cycle 1 Defined Ranges
Time 40 F1
Pulse 02 F2
1-40
Cycle 2 Defined Ranges
Time 40 F1
Pulse 02 F2
1-40
Min: 00000
Max: 00040
40
ESC: Exit ENT: Enter
Cycle 1 Range Units
1 0 = Not Used 1 = Time 2 = Pulse
F1 = Change Time Units Selected
Cycle 2 Range Units
1 0 = Not Used 1 = Time 2 = Pulse
F1 = Change Time Units Selected
Min: 00000
Max: 00002
1
ESC: Exit ENT: Enter
Cycle 1 On Time Units
1 0 = Not Used 1 = Time 2 = Pulse
F1 = Change Time Units Selected
Cycle 2 On Time Units
1 0 = Not Used 1 = Time 2 = Pulse
F1 = Change Time Units Selected
Min: 00000
Max: 00001
1
ESC: Exit ENT: Enter
Cycle 1 Misc Conveyor
Count down Only If Conveyor ON 1 F1
If ON, Stay On If Conveyor OFF 0 F2
0=No 1=Yes
Cycle 1 Misc Conveyor
Count down Only If Conveyor ON 1 F1
If ON, Stay On If Conveyor OFF 0 F2
0=No 1=Yes
Min: 00000
Max: 00001
1
ESC: Exit ENT: Enter
Cycle 1 Input Debounce
On Delay (sec) 000.0 F1
Off Delay (sec) 000.0 F2
Cycle 2 Input Debounce
On Delay (sec) 000.0 F1
Off Delay (sec) 000.0 F2
Min: 0000.0
Max: 0099.9
000.0
ESC: Exit ENT: Enter
Require Conveyor On
Cycle 1 1 F1
Cycle 2 1 F2
0=No 1=Yes
Min: 00000
Max: 00001
1
ESC: Exit ENT: Enter
Pulse Input Debounce
On Delay (sec) 000.0 F1
Off Delay (sec) 000.0 F2
Min: 0000.0
Max: 0099.9
000.0
ESC: Exit ENT: Enter
Cycle Start Type
Cycle 1 0 F1
Cycle 2 0 F2
TYPE
0=Positive 1=Negative
Min: 00000
Max: 00001
1
ESC: Exit ENT: Enter
Version Information
Blu HMI v 1. 0. 5
Controller v 1. 0. 9
washlink SYSTEMS
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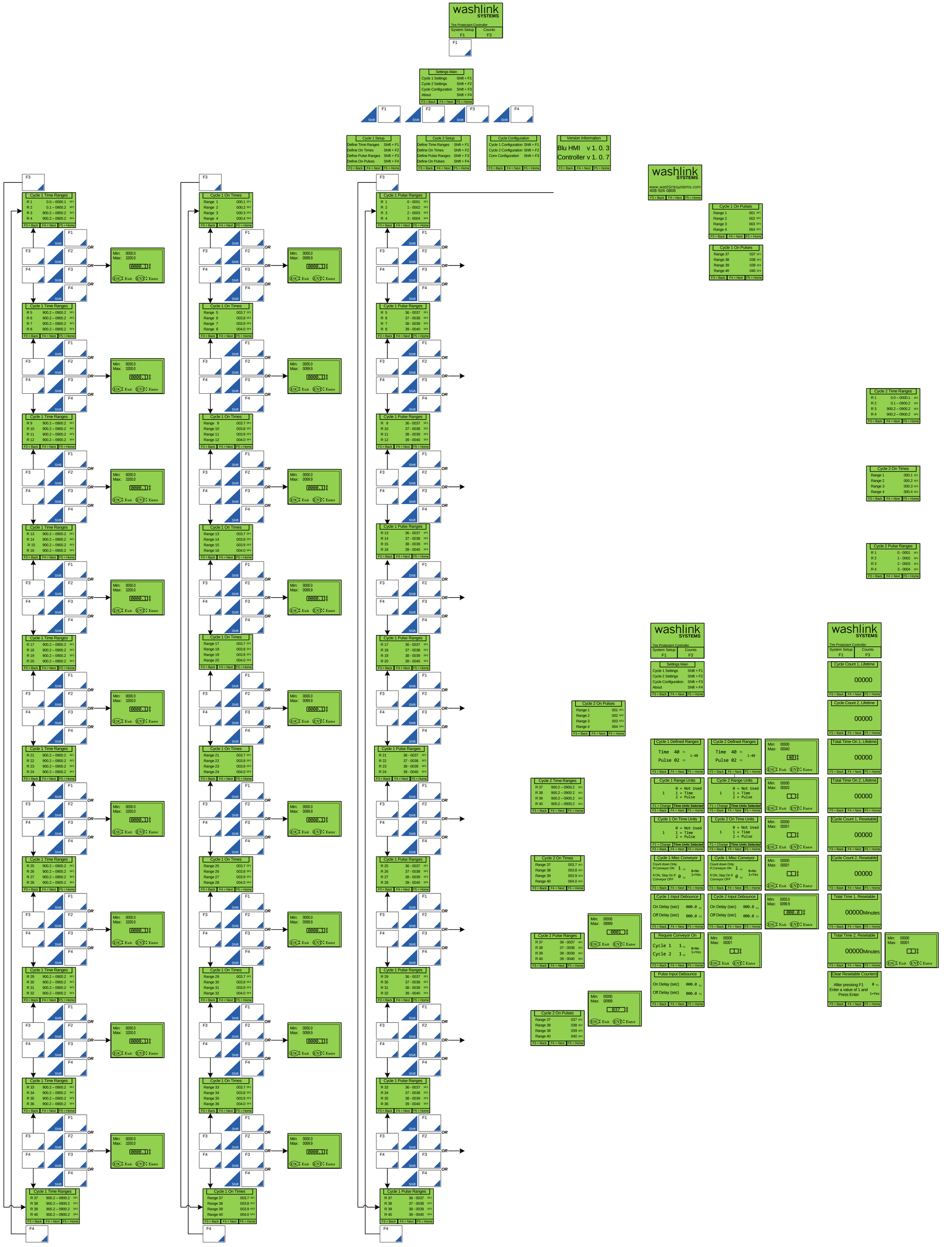
Cycle Count 1, Lifetime
00000
Cycle Count 2, Lifetime
00000
Total Time On 1, Lifetime
00000
Total Time On 2, Lifetime
00000
Cycle Count 1, Resetable
00000
Cycle Count 2, Resetable
00000
Total Time 1, Resetable
00000Minutes
Total Time 2, Resetable
00000Minutes
Clear Resetable Counters
After pressing F1 Enter a value of 1 and Press Enter 0 F1
1=Yes


washlink
SYSTEMS
Tire Protectant Controller
System Setup F1
Counts F3
F1
Settings Main
Cycle 1 Settings Shift + F1
Cycle 2 Settings Shift + F2
Cycle Configuration Shift + F3
About Shift + F4
F3 = Back F4 = Next F5 = Home
Shift F1
Shift F2
Shift F3
Shift F4
Cycle 1 Setup
Define Time Ranges Shift + F1
Define On Times Shift + F2
Define Pulse Ranges Shift + F3
Define On Pulses Shift + F4
Cycle 2 Setup
Define Time Ranges Shift + F1
Define On Times Shift + F2
Define Pulse Ranges Shift + F3
Define On Pulses Shift + F4
Cycle Configuration
Cycle 1 Configuration Shift + F1
Cycle 2 Configuration Shift + F2
Conv Configuration Shift + F3
Version Information
Blu HMI v 1. 0. 3
Controller v 1. 0. 7
www.washlinksystems.com
408-924-0808
F3
Cycle 1 Time Ranges
R 1 0.0 – 0000.1 SF1
R 2 0.1 – 0900.2 SF2
R 3 900.2 – 0900.2 SF3
R 4 900.2 – 0900.2 SF4
R 5 900.2 – 0900.2 SF1
R 6 900.2 – 0900.2 SF2
R 7 900.2 – 0900.2 SF3
R 8 900.2 – 0900.2 SF4
R 9 900.2 – 0900.2 SF1
R 10 900.2 – 0900.2 SF2
R 11 900.2 – 0900.2 SF3
R 12 900.2 – 0900.2 SF4
R 13 900.2 – 0900.2 SF1
R 14 900.2 – 0900.2 SF2
R 15 900.2 – 0900.2 SF3
R 16 900.2 – 0900.2 SF4
R 17 900.2 – 0900.2 SF1
R 18 900.2 – 0900.2 SF2
R 19 900.2 – 0900.2 SF3
R 20 900.2 – 0900.2 SF4
R 21 900.2 – 0900.2 SF1
R 22 900.2 – 0900.2 SF2
R 23 900.2 – 0900.2 SF3
R 24 900.2 – 0900.2 SF4
R 25 900.2 – 0900.2 SF1
R 26 900.2 – 0900.2 SF2
R 27 900.2 – 0900.2 SF3
R 28 900.2 – 0900.2 SF4
R 29 900.2 – 0900.2 SF1
R 30 900.2 – 0900.2 SF2
R 31 900.2 – 0900.2 SF3
R 32 900.2 – 0900.2 SF4
R 33 900.2 – 0900.2 SF1
R 34 900.2 – 0900.2 SF2
R 35 900.2 – 0900.2 SF3
R 36 900.2 – 0900.2 SF4
R 37 900.2 – 0900.2 SF1
R 38 900.2 – 0900.2 SF2
R 39 900.2 – 0900.2 SF3
R 40 900.2 – 0900.2 SF4
F3 = Back F4 = Next F5 = Home
OR
Min: 0000.0
Max: 3200.0
0000.1
ESC: Exit ENT: Enter
Cycle 1 On Times
Range 1 000.1 SF1
Range 2 000.2 SF2
Range 3 000.3 SF3
Range 4 000.4 SF4
Range 5 003.7 SF1
Range 6 003.8 SF2
Range 7 003.9 SF3
Range 8 004.0 SF4
Range 9 003.7 SF1
Range 10 003.8 SF2
Range 11 003.9 SF3
Range 12 004.0 SF4
Range 13 003.7 SF1
Range 14 003.8 SF2
Range 15 003.9 SF3
Range 16 004.0 SF4
Range 17 003.7 SF1
Range 18 003.8 SF2
Range 19 003.9 SF3
Range 20 004.0 SF4
Range 21 003.7 SF1
Range 22 003.8 SF2
Range 23 003.9 SF3
Range 24 004.0 SF4
Range 25 003.7 SF1
Range 26 003.8 SF2
Range 27 003.9 SF3
Range 28 004.0 SF4
Range 29 003.7 SF1
Range 30 003.8 SF2
Range 31 003.9 SF3
Range 32 004.0 SF4
Range 33 003.7 SF1
Range 34 003.8 SF2
Range 35 003.9 SF3
Range 36 004.0 SF4
Range 37 003.7 SF1
Range 38 003.8 SF2
Range 39 003.9 SF3
Range 40 004.0 SF4
Min: 0000.0
Max: 0099.9
Cycle 1 Pulse Ranges
R 1 0 - 0001 SF1
R 2 1 - 0002 SF2
R 3 2 - 0003 SF3
R 4 3 - 0004 SF4
R 5 36 - 0037 SF1
R 6 37 - 0038 SF2
R 7 38 - 0039 SF3
R 8 39 - 0040 SF4
R 9 36 - 0037 SF1
R 10 37 - 0038 SF2
R 11 38 - 0039 SF3
R 12 39 - 0040 SF4
R 13 36 - 0037 SF1
R 14 37 - 0038 SF2
R 15 38 - 0039 SF3
R 16 39 - 0040 SF4
R 17 36 - 0037 SF1
R 18 37 - 0038 SF2
R 19 38 - 0039 SF3
R 20 39 - 0040 SF4
R 21 36 - 0037 SF1
R 22 37 - 0038 SF2
R 23 38 - 0039 SF3
R 24 39 - 0040 SF4
R 25 36 - 0037 SF1
R 26 37 - 0038 SF2
R 27 38 - 0039 SF3
R 28 39 - 0040 SF4
R 29 36 - 0037 SF1
R 30 37 - 0038 SF2
R 31 38 - 0039 SF3
R 32 39 - 0040 SF4
R 33 36 - 0037 SF1
R 34 37 - 0038 SF2
R 35 38 - 0039 SF3
R 36 39 - 0040 SF4
R 37 36 - 0037 SF1
R 38 37 - 0038 SF2
R 39 38 - 0039 SF3
R 40 39 - 0040 SF4
Cycle 1 On Pulses
Range 1 001 SF1
Range 2 002 SF2
Range 3 003 SF3
Range 4 004 SF4
Range 37 037 SF1
Range 38 038 SF2
Range 39 039 SF3
Range 40 040 SF4
Cycle 2 Time Ranges
R 1 0.0 – 0000.1 SF1
R 2 0.1 – 0900.2 SF2
R 3 900.2 – 0900.2 SF3
R 4 900.2 – 0900.2 SF4
Cycle 2 On Times
Range 1 000.1 SF1
Range 2 000.2 SF2
Range 3 000.3 SF3
Range 4 000.4 SF4
Cycle 2 Pulse Ranges
R 1 0 - 0001 SF1
R 2 1 - 0002 SF2
R 3 2 - 0003 SF3
R 4 3 - 0004 SF4
Cycle 2 On Pulses
Range 1 001 SF1
Range 2 002 SF2
Range 3 003 SF3
Range 4 004 SF4
Cycle 2 Time Ranges
R 37 900.2 – 0900.2 SF1
R 38 900.2 – 0900.2 SF2
R 39 900.2 – 0900.2 SF3
R 40 900.2 – 0900.2 SF4
Cycle 2 On Times
Range 37 003.7 SF1
Range 38 003.8 SF2
Range 39 003.9 SF3
Range 40 004.0 SF4
Cycle 2 Pulse Ranges
R 37 36 - 0037 SF1
R 38 37 - 0038 SF2
R 39 38 - 0039 SF3
R 40 39 - 0040 SF4
Cycle 2 On Pulses
Range 37 037 SF1
Range 38 038 SF2
Range 39 039 SF3
Range 40 040 SF4
Cycle 1 Defined Ranges
Time 40 F1 1-40
Pulse 02 F2
Cycle 2 Defined Ranges
Time 40 F1 1-40
Pulse 02 F2
Min: 00000
Max: 00040
40
Min: 00000
Max: 00002
1
Min: 00000
Max: 00001
1
Min: 00000
Max: 00001
1
Min: 0000.0
Max: 0099.9
000.0
Min: 00000
Max: 09999
0001
Min: 00000
Max: 00999
037
Min: 00000
Max: 00001
1
Cycle 1 Range Units
0 = Not Used
1 = Time
2 = Pulse
F1 = Change Time Units Selected
Cycle 2 Range Units
0 = Not Used
1 = Time
2 = Pulse
F1 = Change Time Units Selected
Cycle 1 On Time Units
0 = Not Used
1 = Time
2 = Pulse
F1 = Change Time Units Selected
Cycle 2 On Time Units
0 = Not Used
1 = Time
2 = Pulse
F1 = Change Time Units Selected
Cycle 1 Misc Conveyor
Count down Only
If Conveyor ON 1 F1 0=No 1=Yes
If ON, Stay On If Conveyor OFF 0 F2
Cycle 1 Misc Conveyor
Count down Only
If Conveyor ON 1 F1 0=No 1=Yes
If ON, Stay On If Conveyor OFF 0 F2
Cycle 1 Input Debounce
On Delay (sec) 000.0 F1
Off Delay (sec) 000.0 F2
Cycle 2 Input Debounce
On Delay (sec) 000.0 F1
Off Delay (sec) 000.0 F2
Require Conveyor On
Cycle 1 1 F1 0=No 1=Yes
Cycle 2 1 F2
Pulse Input Debounce
On Delay (sec) 000.0 F1
Off Delay (sec) 000.0 F2
Cycle Count 1, Lifetime
00000
Cycle Count 2, Lifetime
00000
Total Time On 1, Lifetime
00000
Total Time On 2, Lifetime
00000
Cycle Count 1, Resetable
00000
Cycle Count 2, Resetable
00000
Total Time 1, Resetable
00000Minutes
Total Time 2, Resetable
00000Minutes
Clear Resetable Counters
After pressing F1 0 F1
Enter a value of 1 and Press Enter 1=Yes