



Collision Avoidance Controller

Service Manual

WASHLINK COLLISION AVOIDANCE CONTROLLER SERVICE MANUAL

This document provides comprehensive operational procedures for the Washlink Collision Avoidance Controller. In this manual, we will discuss the Setup and Operation of the Collision Avoidance Controller.

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: _____

Installation Date: _____

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1 Features

Features of Washlink Systems Collision Avoidance Controller;
 The ability to use input device of choice, eyes, loop, wands etc.
 Industry proven components from Siemens Worldwide
 Built in car counter for added security
 External reset button
 Warning isolation relay for any external device, horn, light etc.
 Equipment auto re-start on isolation relay for use with any voltage
 Equipment auto stop on isolation relay for use with any voltage
 Go/Exit light control
 Cycle counter for maintenance purposes
 Corrosion proof non-metallic enclosure
 Works on ALL brands of car wash equipment
 Works on ALL brands of car wash equipment controllers
 UL Listed and CE compliant



2 Installation

The Washlink Collision Avoidance Controller 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 Collision Avoidance Controller requires 110-230vac Branch Circuit protection (provided by Customer).

This circuit should be connected 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: Bonding between conduit connection is not automatic and must be provided as part of the installation.

2.1.1 Inputs

The Collision Avoidance Controller Input power is supplied by the PLC.

All PLC Inputs are 24vdc should be wired as a Normally Open Circuit.



Warning: All Inputs are 24vdc.
Any other voltage will damage the Controller and void warranty.

The **Conveyor Input** is required for the Collision Avoidance Controller to work.

This allows the Collision Avoidance Controller to only operate while the conveyor is on.



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

The **Sensor #1 Input** is required for the Collision Avoidance Controller to work.

The **Sensor #2 Input** is required for the Collision Avoidance Controller to work.

For the system to fire the **STOP** relay the following must occur in this order:

- 1) **Conveyor Input** must be high
- 2) **Sensor #2 Input** goes from low to high
- 3) **Sensor #1 Input** goes from low to high (while **Sensor #2 Input** remains high)
- 4) **STOP** relay will activate and the **HORN** relay will flash.



Note: If **Sensor #2 Input** goes high while **Sensor Input #1** is high, then the **STOP** relay will not turn on. However, the **GO LIGHT** relay will turn on prompting the car to exit.

2.2.2 Outputs

All **Outputs** have an isolation relay.
The **Stop** isolation relay is wired Normally Closed.
The **Start** isolation relay is wired Normally Open.
The **Horn** isolation relay is wired Normally Open.
The **Light** isolation relay is wired Normally Open.

Relays can be manually overridden by using the Override latch on the corresponding relay.

Note: If you don't want the system to auto start, do not wire anything to the Start Relay.
If you don't want the horn to turn on, don't wire the system horn to the Horn Relay.

Note: The Light Output is controlled by the Sensor #2 input, and the internal timers that are user configurable.

2.2.3 Field Wiring

Convenience terminals are provided for **Sensor #1 Input** and **Conveyor Enable**.
Sensor #2 Input is wired directly to the Loop Detector Relay Socket Base.
Convenience terminals are provided for the **STOP, START, HORN, and LIGHT** outputs.

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

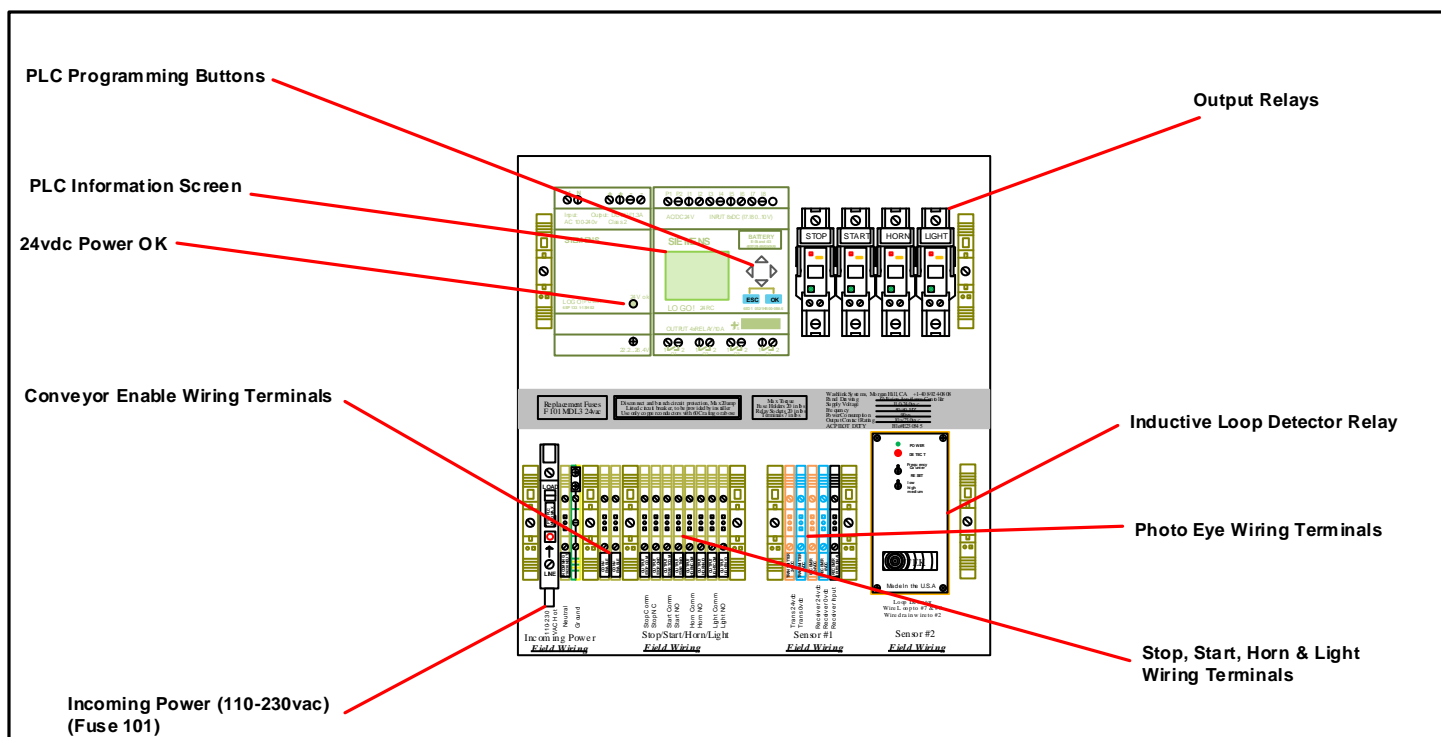


Figure 2.0 Field Wiring

3 Programming

To get into programming mode, press the ▼ button until the time and date screen appears. fig1

When the Time and Date screen appears, press the **ESC** button and the following screen will appear. fig2



fig1

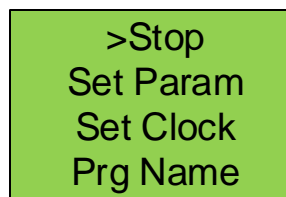



fig2

3.1 Setting Time & Date

Use the ▼ button and scroll to Set Clock and then press the **OK** button. fig2

Use the  buttons to scroll between fields and adjust the values, then press **OK**. fig3

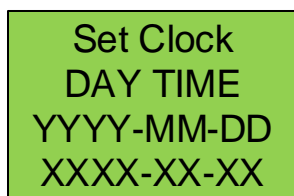


fig3

3.2 Programming Go/Exit Light

The Go/Exit light function operates once each time the sensor #2 goes high


There are two settings;

On Delay, amount of time before turning on after sensor #2 goes high

Off Delay, amount of time to stay on after the On Delay has expired.

While in Programming Mode:

Scroll using the ▼ button until you get to set Parm and then press the **OK** button. fig4

Use the  buttons to scroll between fields and adjust the values, then press **OK**. fig5

On Delay = TH

(if you want 20 second on delay TH=00:20m)

Off Delay = TL

(if you want 15 second on delay TL=00:15m)

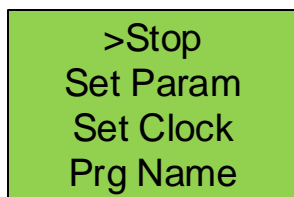


fig4

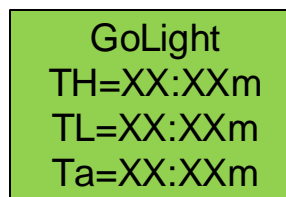






fig5



3.3 Programming On Delay for Sensors

These On Delay's will tell the system to not pay attention to the Sensor #1 and Sensor #2 input signals until this amount of time has expired

While in Programming Mode:

Scroll using the  button until you get to set Parm and then press the  button. Fig6

Scroll using the  button until you get to #1_Delay or #2_Delay and then press the  button. Fig7 & 8

Use the  buttons to scroll between fields and adjust the values, then press  . fig7
 On Delay = T
 (for 1.5 Seconds, T= 01:50s)

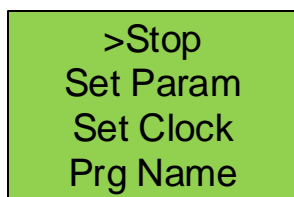


fig6

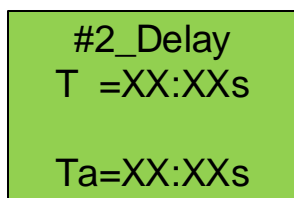


fig7

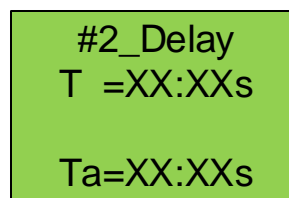


fig8

To exit the programming mode, press  until the time and date message screen appears. Fig9



fig9

4 System status information screens

During normal operation , the following information messages will appear

TOTAL CAR
COUNT XXX
Resets to 0
At 1000000

Car Count based on
sensor detections

COLLISION
SENSOR ONE
ACTIVATED

Sensor #1 input high

COLLISION
SENSOR TWO
ACTIVATED

Sensor #2 input high

COLLISION
SENSORS
ONE AND TWO
ACTIVATED

Sensor #1 input high
And
Sensor #2 input high

CONVEYOR
STOPPED FOR
COLLISION
AVOIDANCE

Stop relay activated
because of collision
avoidance condition

GO LIGHT
ACTIVATED

Light relay activated

4.1 Reset total car count to 0

To reset the car counter, momentarily apply 24vdc (P1) to input #8

5 Wiring Diagram

The following pages are dedicated to the wiring diagram for the Collision Avoidance Controller.

| PAGE | DESCRIPTION |
|------|---------------|
| 5.1 | COVER SHEET |
| 5.2 | PLC WIRING |
| 5.3 | INTERCONNECTS |
| 5.4 | PANEL LAYOUT |
| 5.5 | SENSOR LAYOUT |

| REV | BY | DATE | DESCRIPTION |
|-------|-----|--------|--------------------------------------|
| 1.0.3 | MTS | 101201 | FOR APPROVAL |
| 2.0.3 | MTS | 110418 | TYPOS, CLARIFICATIONS, INTERCONNECTS |
| 2.0.3 | MTS | 110419 | ADDED RESET BUTTON |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

NOTES:

- STANDARD SUPPLY VOLTAGE IS 120/240VAC 60/50Hz.
- TO AVOID RISK OF FIRE AND PERSONAL INJURY, REPLACE ONLY WITH MANUFACTURER'S ORIGINAL RATED FUSE.
- WASHLINK SYSTEMS SUPPLIED JUNCTION BOX.
- EQUIPMENT SUPPLIED BY OTHERS.
- WASHLINK SYSTEMS RECOMMENDS AWG 18 STRANDED COPPER WIRE FOR CIRCUITS LESS THAN 200 FEET.
- WASHLINK SYSTEMS RECOMMENDS AWG 18 STRANDED COPPER 2 CONDUCTOR SHIELDED WIRE FOR CIRCUITS LESS THAN 200 FEET.
- WASHLINK SYSTEMS RECOMMENDS SOLDERING ANY NEEDED JUNCTIONS – DO NOT USE WIRE NUTS.
-
- INPUTS ARE 24VDC ONLY. ANY OTHER VOLTAGE WILL DAMAGE CONTROLLER AND VOID MANUFACTURER'S WARRANTY.



**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 MAY BE REQUIRED TO BE DE-ENERGIZED BEFORE SERVICING THE EQUIPMENT.



**CAUTION! TO REDUCE THE RISK OF FIRE, CONNECT ONLY TO A 110/230VAC CIRCUIT PROVIDED WITH 15A MAXIMUM BRANCH CIRCUIT PROTECTION.
IN ACCORDANCE WITH THE NEC, ANS/NFPA 70 AND LOCAL CODE AUTHORITIES.**



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

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LEGEND

| | | |
|--|--|--------------------------------|
| BK – BLACK (110/230VAC HOT) | | ENCLOSURE CONVENIENCE TERMINAL |
| BK/OE – BLACK W/ ORANGE TRACE (110/230VAC CONTROL CIRCUIT) | | FUSE HOLDER |
| BK/YW – BLACK W/ YELLOW TRACE (110/230VAC CONTROL CIRCUIT) | | MOMENTARY N/O PUSH BUTTON |
| WE – WHITE (110/230VAC NEUTRAL) | | MAINTAINED N/C PUSH BUTTON |
| RD – RED (24VAC CONTROL CIRCUIT) | | RELAY COIL |
| WE/RD – WHITE W/ RED TRACE (24VAC NEUTRAL) | | RELAY CONTACT N/O |
| BE – BLUE (24VDC POSITIVE) | | LEVEL SWITCH N/C |
| WE/BE – WHITE W/ BLUE TRACE (0VDC or 24VDC COMMON) | | PHOTO EYE N/O |
| BN – BROWN (CONTROL CIRCUIT) | | PROXIMITY SWITCH N/O |
| OE – ORANGE (CONTROL CIRCUIT) | | LIMIT SWITCH N/O |
| YW – YELLOW (CONTROL CIRCUIT) | | |
| PE – PURPLE (CONTROL CIRCUIT) | | |
| WE/BN – WHITE W/ BROWN TRACE (CONTROL CIRCUIT) | | |
| WE/OE – WHITE W/ ORANGE TRACE (CONTROL CIRCUIT) | | |
| WE/YW – WHITE W/ YELLOW TRACE (CONTROL CIRCUIT) | | |
| WE/PE – WHITE W/ PURPLE TRACE (CONTROL CIRCUIT) | | |
| FIELD WIRING | | |
| ENCLOSURE WIRING | | |

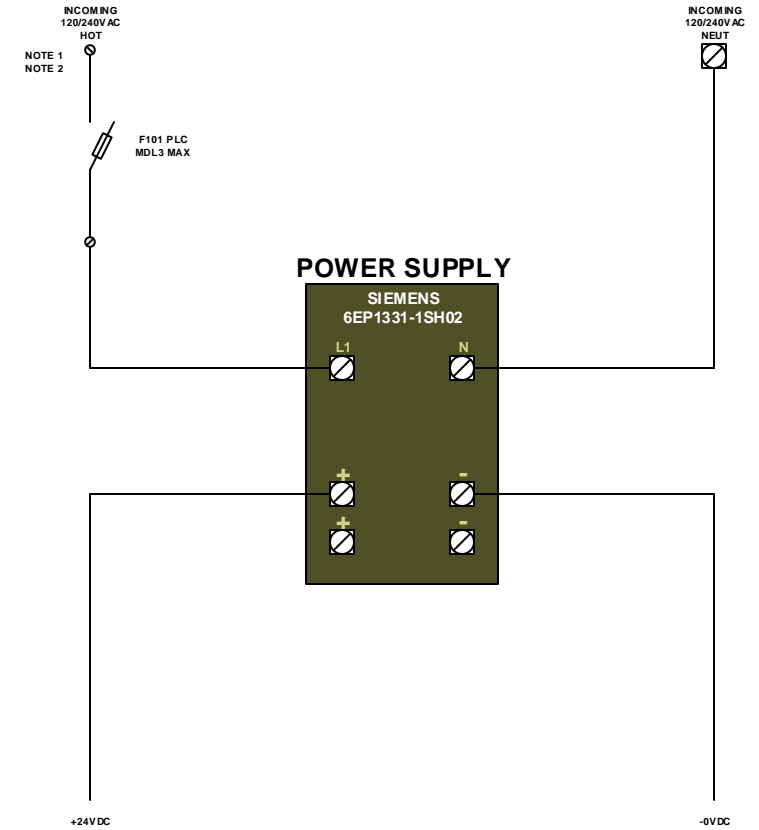
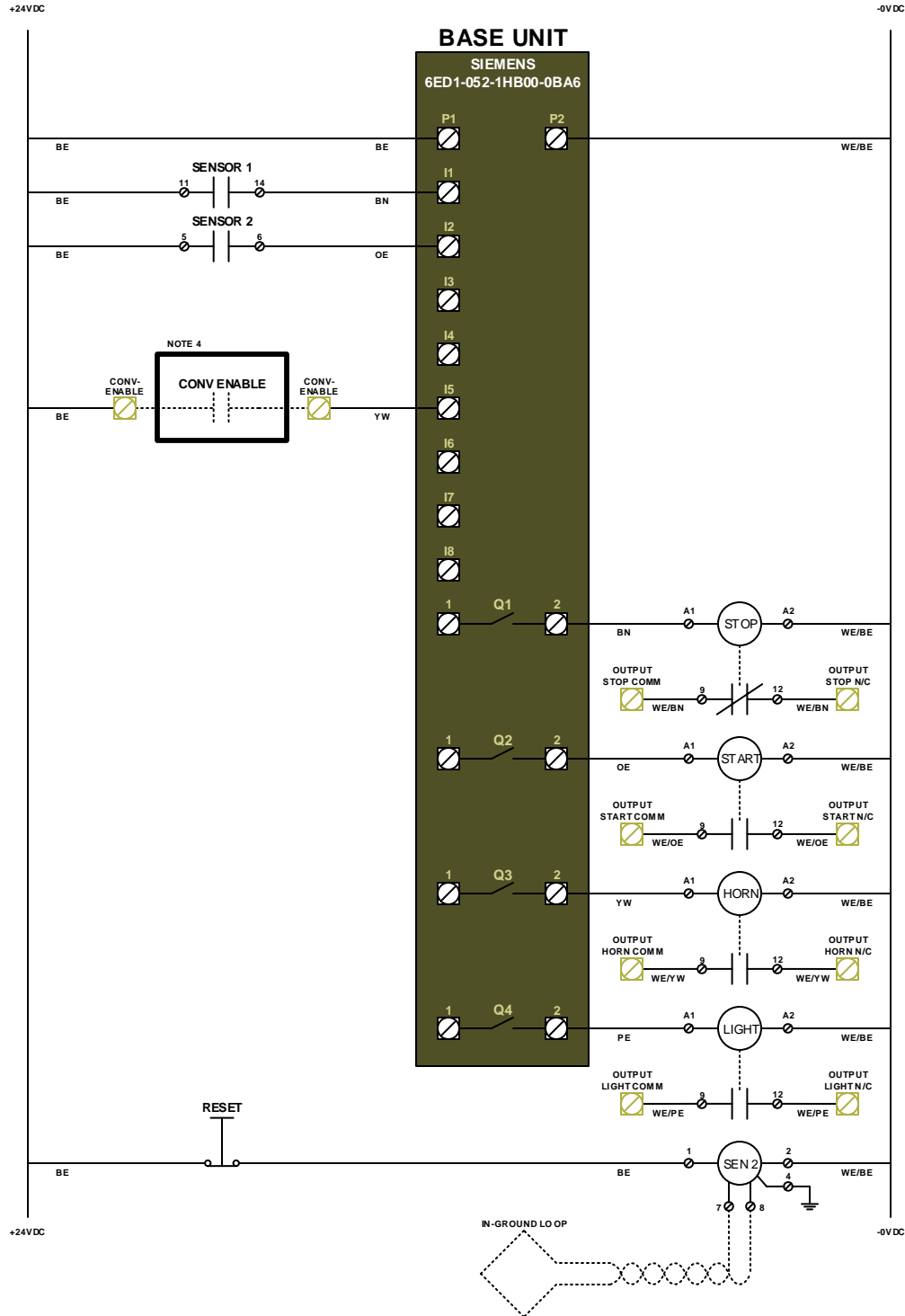
NOT TO SCALE

COLLISION AVOIDANCE CONTROLLER IS FABRICATED TO UL #508 SPECIFICATIONS



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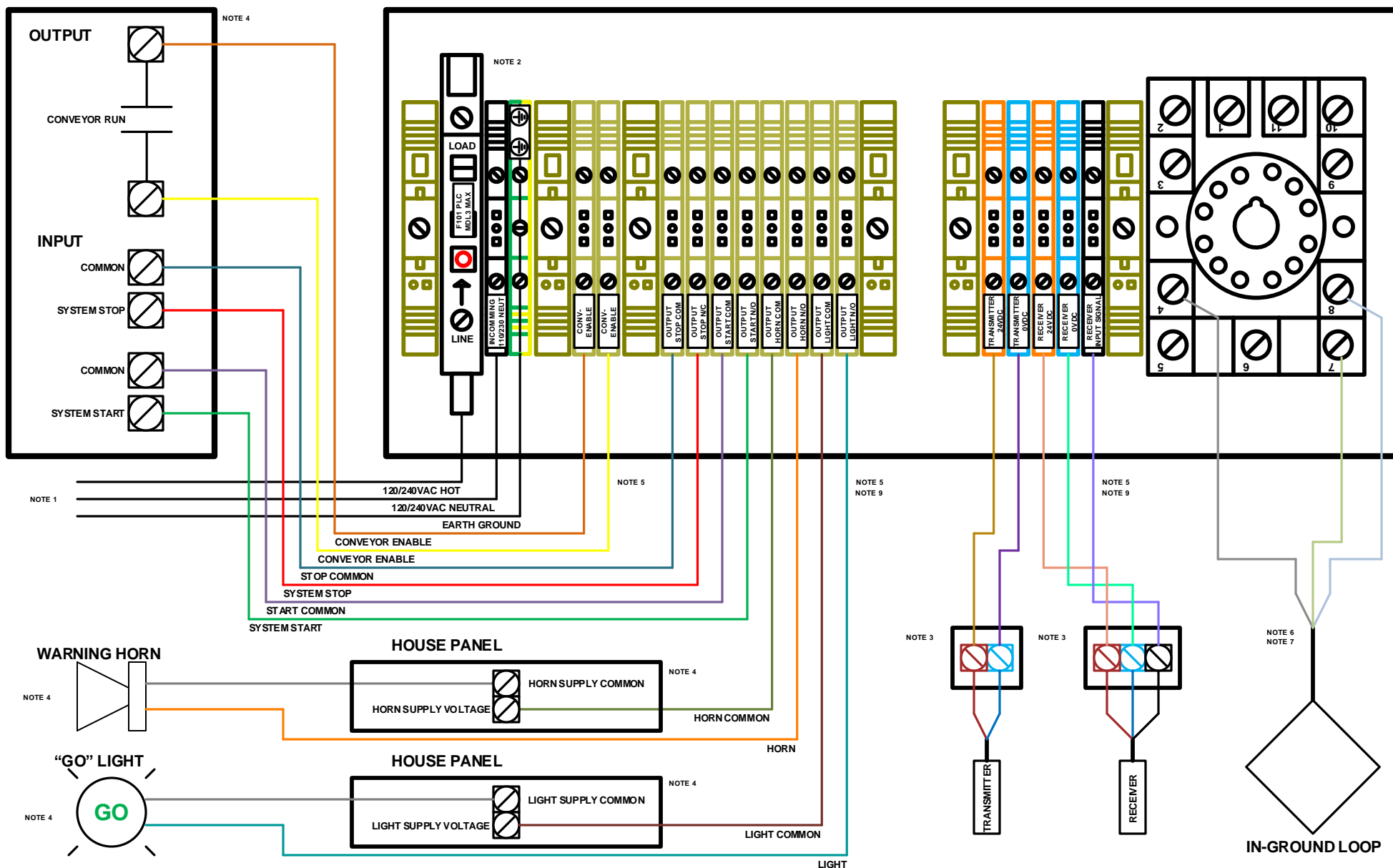
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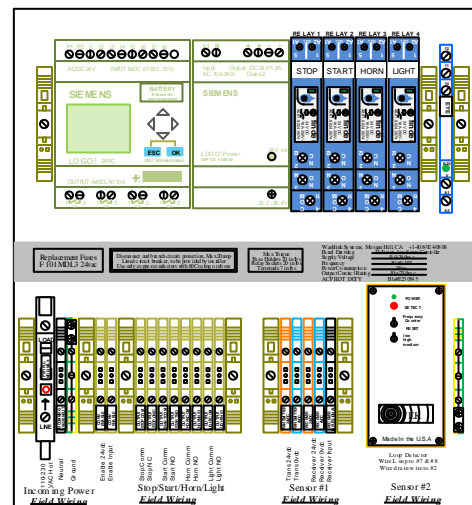
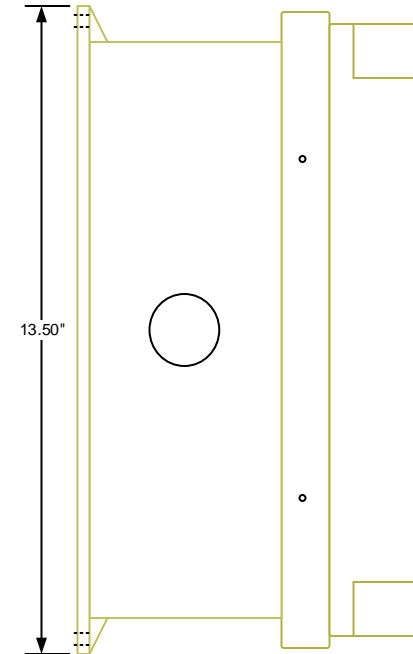
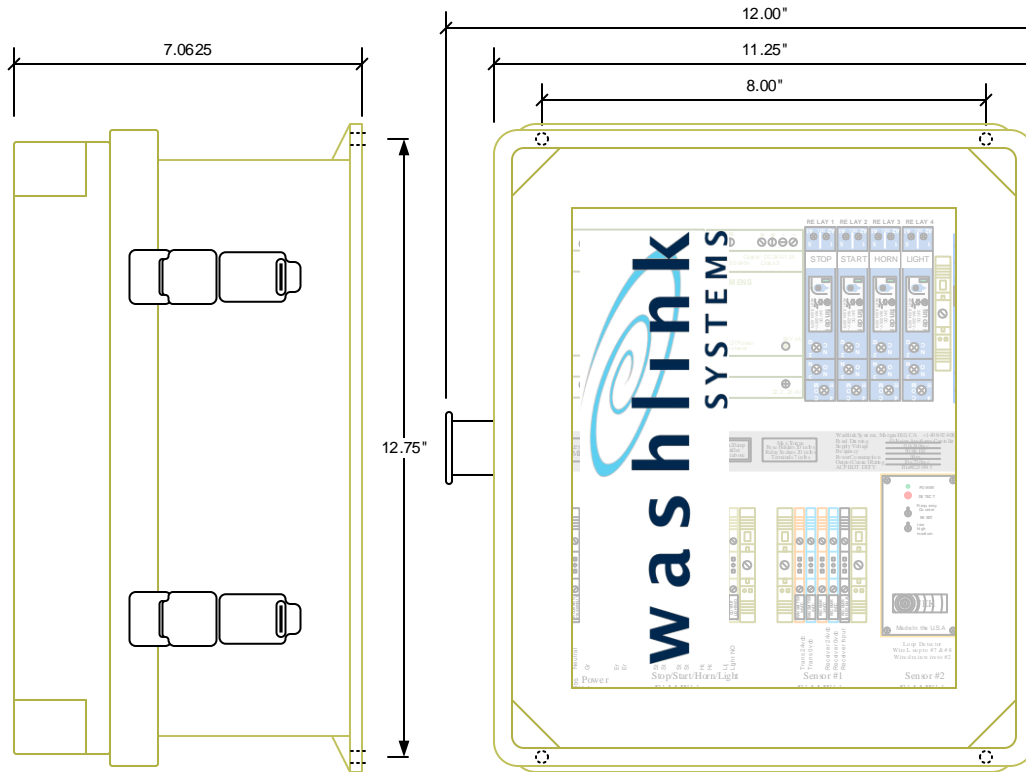


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TUNNEL CONTROLLER

WASHLINK SYSTEMS COLLISION AVOIDANCE CONTROLLER





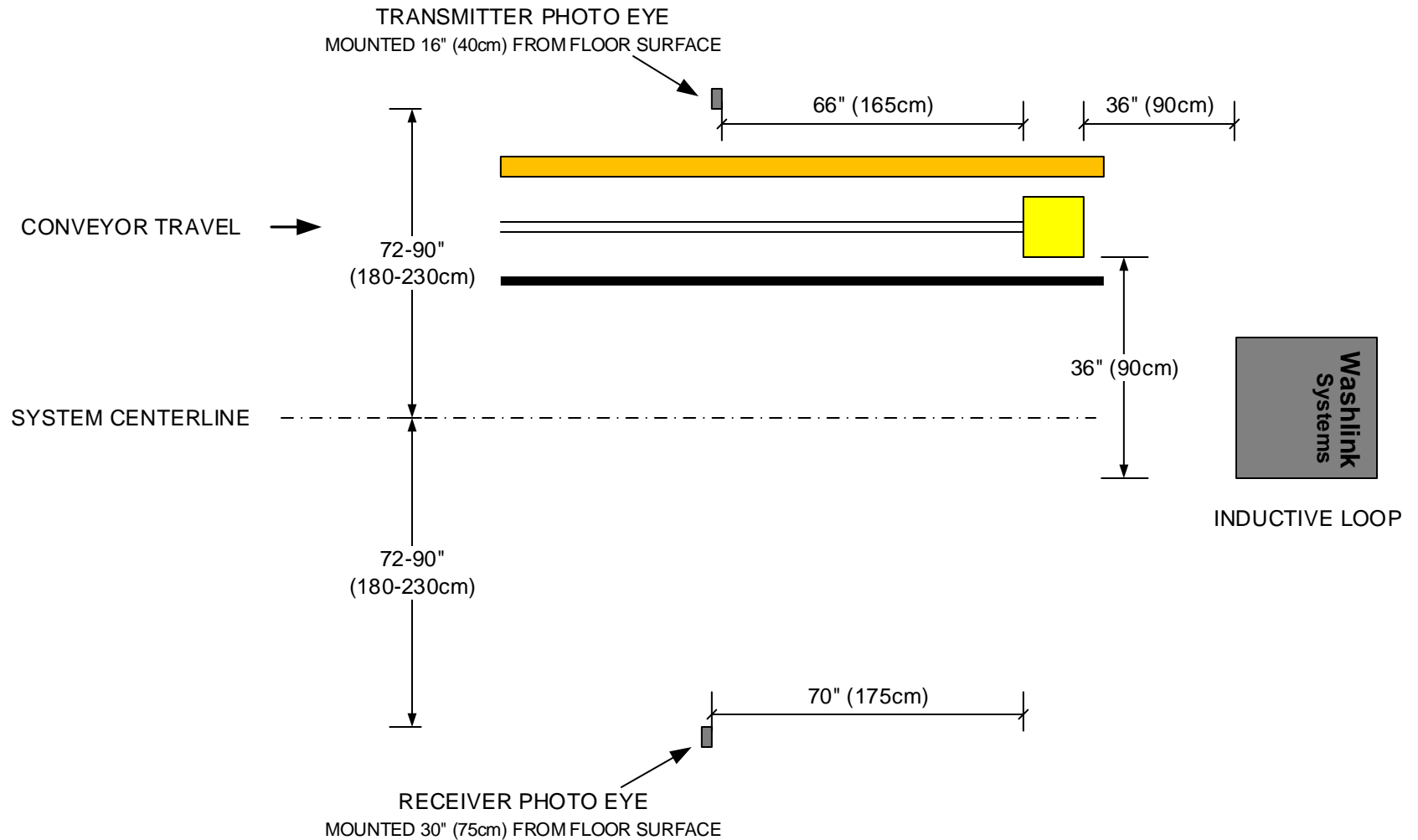


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CAUTION! DIMENSIONS ARE FOR REFERENCE PURPOSES ONLY.
 INCREASE THE DISTANCE BETWEEN CARS BEFORE STOPPAGE BY INCREASING THE DISTANCE BETWEEN THE SENSOR LOCATIONS.
 DECREASE THE DISTANCE BETWEEN CARS BEFORE STOPPAGE BY DECREASING THE DISTANCE BETWEEN THE SENSOR LOCATIONS.

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SENSOR LAYOUT

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PAGE 5.5