

Installation Instructions

Insight Track[®] 2.0 Drive Thru Timing System

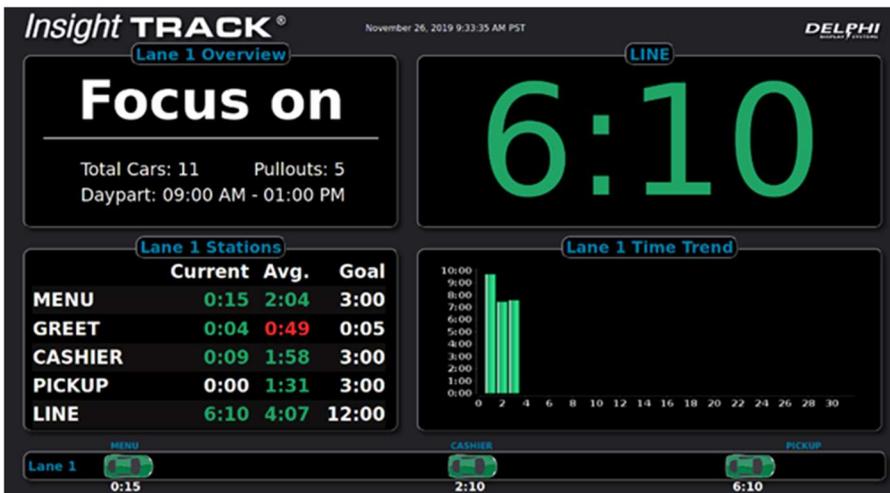


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1 Introduction

This document provides the installation instructions for the Insight Track® 2.0 Timer System. This manual is specific to physical installation of the hardware. Please refer to the appropriate User Guide for detail on how to configure the system software following installation.

1.1 Warnings

Warning: This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.



- ✓ **All installation, service and maintenance must be performed by qualified personnel.**
- ✓ **Turn off Power before installation or servicing the equipment referenced in this document.**
- ✓ **All installation, service, and maintenance should be performed in compliance with applicable local codes.**
- ✓ **Not intended for use by children.**
- ✓ **Always follow OSHA and local safety codes.**

1.2 Supplied Equipment

Every shipment should contain the following equipment:

QTY	Description	Part Number	Item Number	Image
1	Timer Interface Unit (TIU) w/ Power Adapter	2500-TIU-2000	1	
	Power Supply	DPSAD-12125		
1	ISA-3300 Controller (model may vary)	2502-ISA3300	2	
	Wall Mounting Bracket for ISA 3300 Controller (included with ISA-3300)		5	
1	22" LCD Dashboard Monitor (model may vary)	9401-0005-0022	3	
1	Monitor Mounting Bracket, Wall Mount, Full Motion, 13-27" (model may vary)	9401-0055-0003	4	
1	HDMI to HDMI Cable - 6 ft.	5608-0023-3006	6	

1	Cat5e Cable w/ RJ45 connectors – 10 ft.	5608-0025-3010		
1	Cat5e cable w/ RJ45 connectors (white) – 100 ft. <i>(An additional cable will be needed if optional 5-port switch is not used – see #14)</i>	3232-100-CAT5DS		
1	Cable, Red Stripe, Window Loop, 66'	5602-0125-3066		
1	Cable, Interface, Green Stripe, 66'	523		
1	Cable, Yellow Stripe 18 Gauge, 66', Window Loop (ONLY if 2 window store)	5602-0126-3066		
1	Installation Kit, ISA3300 <ul style="list-style-type: none"> • #6 x 1.25" Screws (4) • Drywall Anchors (4) 	9104-0010-0003	N/A	

Note: Additional parts may be included depending on the specific system package purchased by the customer.

1.3 Supplied Optional Items

The following items are also supplied if required:

1	9', 3 Outlet Extension Cord	9401-0044-0002	N/A	
1	Timer Interface Unit (TIU) w/ Power Adapter *(If store is dual lane, 2 window configurations, 2 TIUs will be supplied) Power Supply	2500-TIU-2000 DPSAD-12125	1	
1	Cable, Interface, Orange Stripe, 66' (ONLY if 2 Lane Store)	290	13	
1	22" LCD Dashboard Monitor (model may vary) – For Dual Screen Configurations	9401-0005-0022	3	
1	VGA Cable – 10 ft. – For Dual Screen Configurations	5608-0021-3010	15	
1	Monitor Mounting Bracket, Wall Mount, Full Motion, 13-27" (model may vary) – For Dual Screen Configurations	9401-0055-0003	4	
1	5 Port Network Switch (Required if: 1) running two CAT5 runs to the main network switch is not practical; or 2) only one port is available on the main network switch.)	9401-0012-0001	14	

1.4 Technical Specifications

1.4.1 TIU-2000

Feature	Specification
Power	+12VDC, 0.5A
Operating Temperature	0°C - 40°C Ambient
IP Rating	IPX0 Not intended for wet locations Pollution Degree: 2
Relative Humidity (non-condensing)	0 to 95%
Maximum Operating Altitude	2500 Meters (8,200 feet)
Dimensions	4.0" x 7.88" x 3.25" (excluding mounting brackets) 4.0" x 7.88" x 3.75" (including mounting brackets)
Weight	2.3 lbs.
Mounting Requirements	Wall mount ≤ 2 Meters (79") Height

1.4.2 ISA-3300

Feature	Specification
Power	+19VDC, 2.1A
Operating Temperature	0°C - 40°C Ambient
IP Rating	IPX0 Not intended for wet locations Pollution Degree: 2
Relative Humidity (non-condensing)	0 to 90%
Maximum Operating Altitude	2500 Meters (8,200 feet)
Dimensions	5.0" x 5.0" x 2.2"
Weight	2.2 lbs.
Mounting Requirements	Wall mount ≤ 2 Meters (79") Height

2 Overview

All components of the system (Reference Figure 1) are intended to be installed in the drive thru service area, with two Cat5e cables running from the ISA-3300 and TIU-2000 to the customer’s network router / switch typically located in the office; or a single Cat5e cable running from the optional 5 port switch to the customer’s network router / switch.

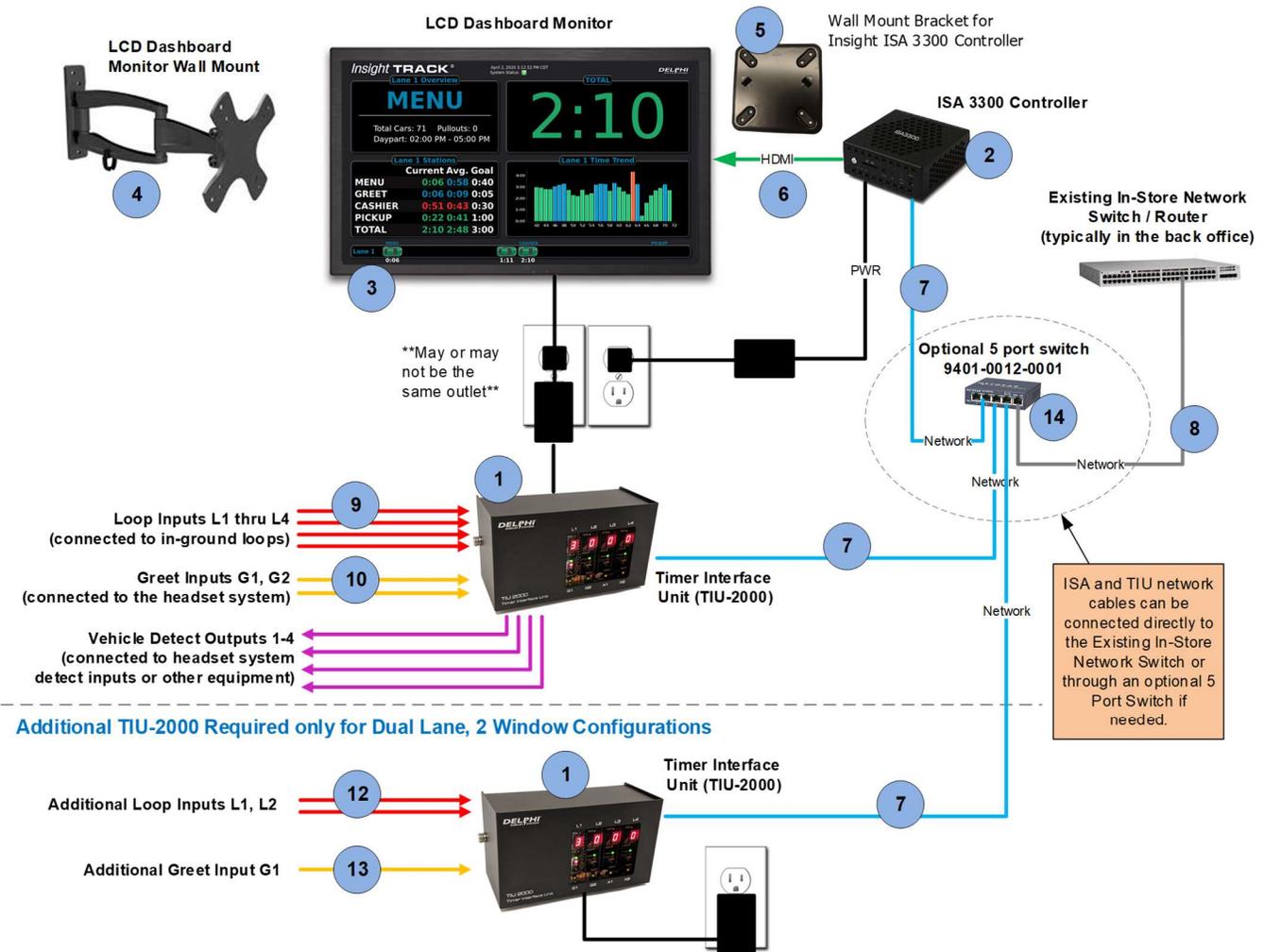


Figure 1- System Connection Diagram

2.1 Dual Screen Configuration

For dual screen configurations, please reference the following connection diagram. For this configuration, the **VGA** output is used for the **primary** (timing dashboard) monitor. The **HDMI** is used for the **secondary** (Score) monitor.

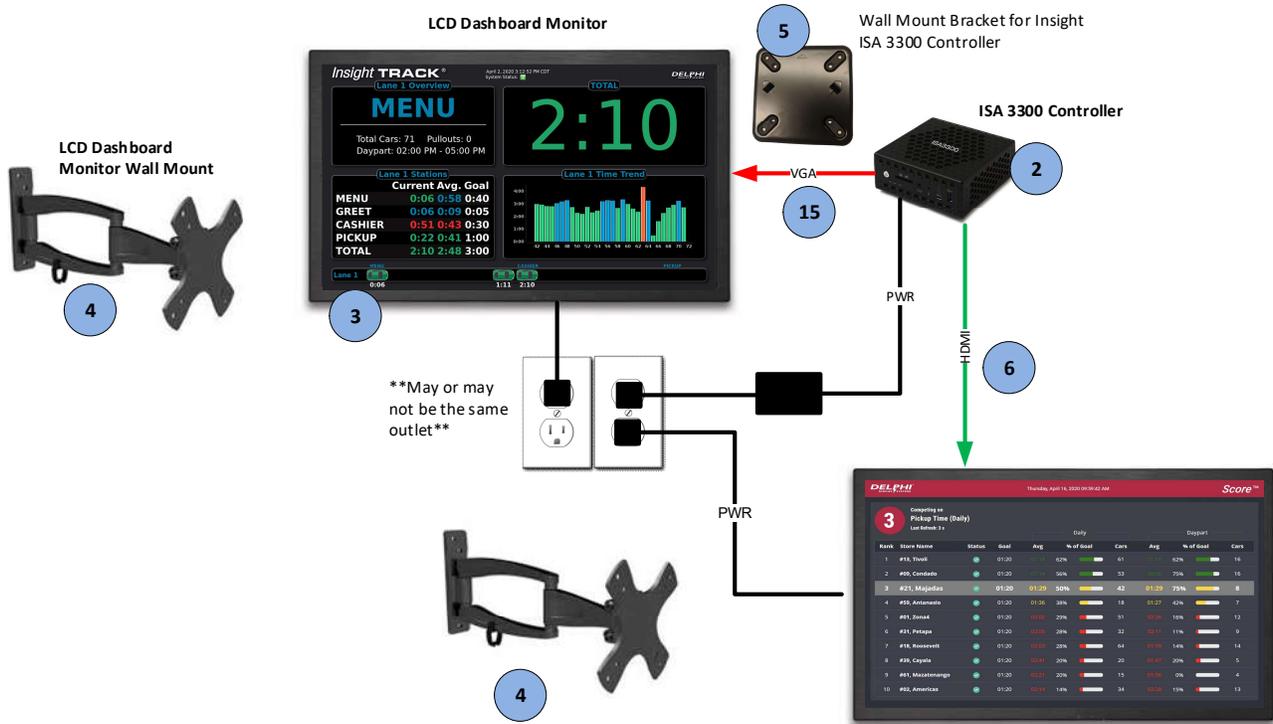


Figure 2- Dual Screen System Connection Diagram

3 Lane Configurations Supported

Insight Track® 2.0 can support most common drive thru lane configurations as shown below. Additional configurations can be supported but are not explicitly addressed in this document.

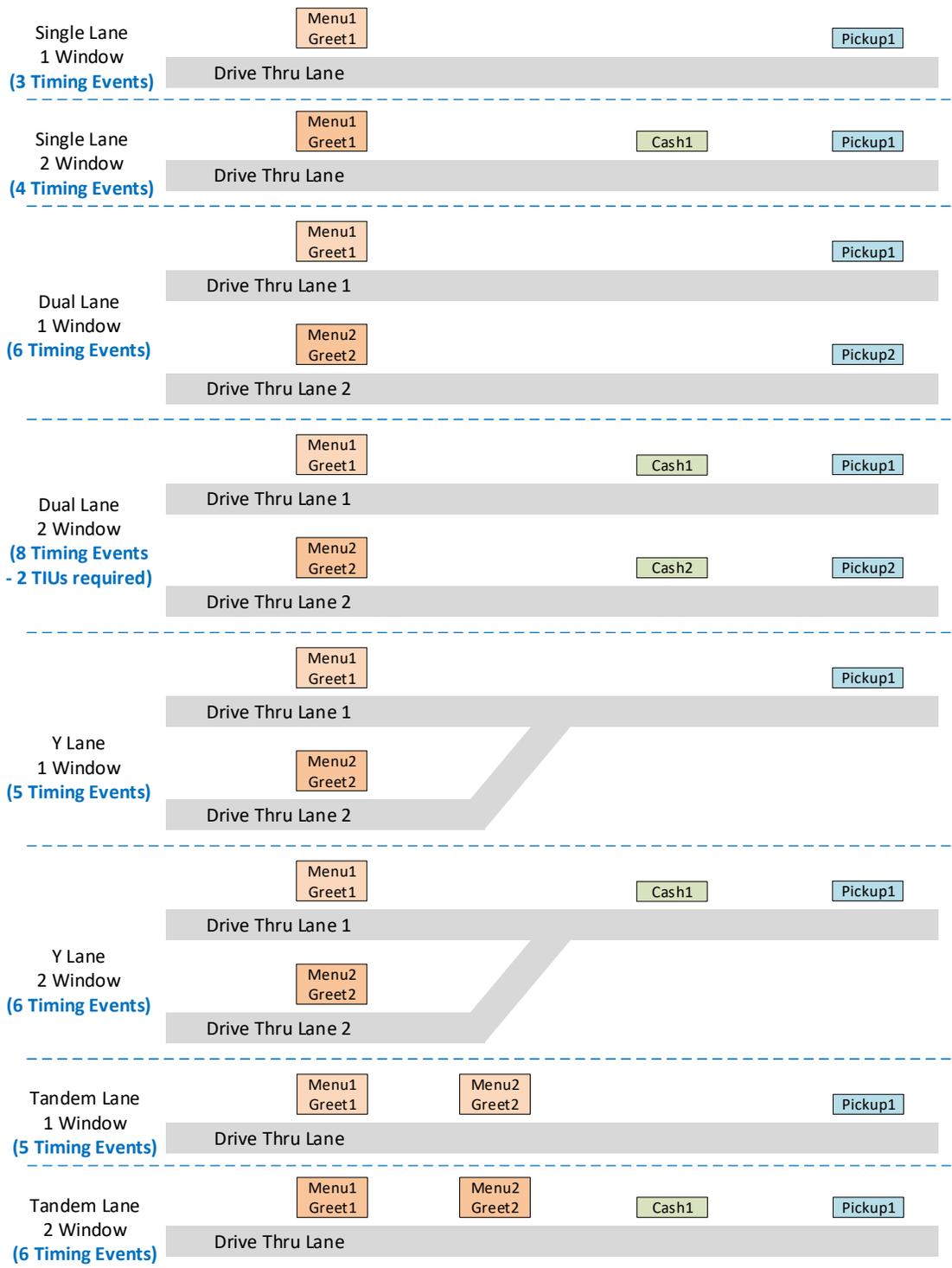


Figure 3 - Lane Configurations Supported

3.1 TIU-2000 Connections for Various Lane Configurations

The following table shows the recommended TIU input connections (L1 – L4, G1, G2) for different lane configurations. Two (2) TIU-2000 units are required to support Dual Lane, Two Window store configurations.

		Single Lane		Dual Lane		Y Lane		Tandem Lane	
		1 Window	2 Windows	1 Window	2 Windows	1 Window	2 Windows	1 Window	2 Windows
TIU-2000 (1)	L1	Menu	Menu	Menu1	Menu1	Menu1	Menu1	Menu1	Menu1
	L2		Cash	Menu2	Cash1	Menu2	Menu2	Menu2	Menu2
	L3	Pickup	Pickup	Pickup1	Pickup1	Pickup1	Cash1	Pickup1	Cash1
	L4			Pickup2			Pickup1		Pickup1
	G1	Greet	Greet	Greet1	Greet1	Greet1	Greet1	Greet1	Greet1
	G2			Greet2		Greet2	Greet2	Greet2	Greet2
TIU-2000 (2)	L1				Menu2				
	L2				Cash2				
	L3				Pickup2				
	L4								
	G1				Greet2				
	G2								

Figure 4 - TIU-2000 Connection for Various Lane Configurations

3.2 Definitions

- **Menu (or Menu1/Menu2)** – Direct connection to Lane 1 (or Lane 2) Menu Loop wires or connection to headset loop detector output (jumper configurable on TIU-2000).
 - **Note:** For headset systems that contain a vehicle detector (typically HME and 3M/Par), then then Menu detect output from the headset system is connected to L1 on the TIU and the L1 slot of the TIU is populated with an XDI board rather than the Vehicle Detector board.
- **Greet (or Greet1/Greet2)** – Speaker output or normally open relay contact output from Lane 1 (or Lane 2) Headset system (jumper configurable on TIU-2000).
- **Cash (or Cash1/Cash2)** – Direct connection to Cash Window Loop – Lane 1 (or Lane 2)
- **Pickup (or Pickup1/Pickup2)** – Direct connection to Pickup Window Loop – Lane 1 (or Lane 2)

4 Required Tools

The following is a list of required tools. Some tools may not be required for all installations, while other tools may be needed but not listed.

#2 Phillips Screwdriver	Wire Strippers	RJ45 Crimpers
Cat5 Cable Tester	Cordless Driver	Drill Bit Set
Stud Finder	Level	#1 Phillips Screwdriver
Flashlight	Zip Ties	Hole Saw set for drill
Socket Set	Soldering Iron and Solder (Needed if splicing or tinning loop wires)	

5 Plan Hardware Location

5.1 Determine Proper Location for Dashboard Monitor

The LCD Monitor that comes with the system is referred to as the “Dashboard” Monitor. It is important that this monitor be placed properly to ensure maximum exposure to the crew, while limiting the exposure to customers. Ideally, it should be placed in the drive thru booth (last booth if there is more than one), and up high in the corner so that it can be viewed by the booth crew, as well as by the crew working in the kitchen and front counter. See **Figure 2** below as an example for location of the monitor.



Figure 5 - Dashboard Positioning Example

It is important to consult with the store manager(s) while onsite before determining the final location. It is acceptable to offer recommendations to them, however it ultimately client's decision as to where the monitor should be installed, provided that the infrastructure to support it (electrical, etc.) is available. The final location must be within 6' of an available electrical outlet.

5.2 Determine Proper Location for the Timer Interface Unit (TIU) and ISA Controller

Locate the TIU and ISA Controller close to each other and close to the dashboard monitor as shown in the figure below. The TIU and ISA Controller are connected to the network switch using the provided Cat5e cables. Typically, the TIU will be mounted between 24"-36" below the monitor where it will be easily viewable and accessible by the customer.

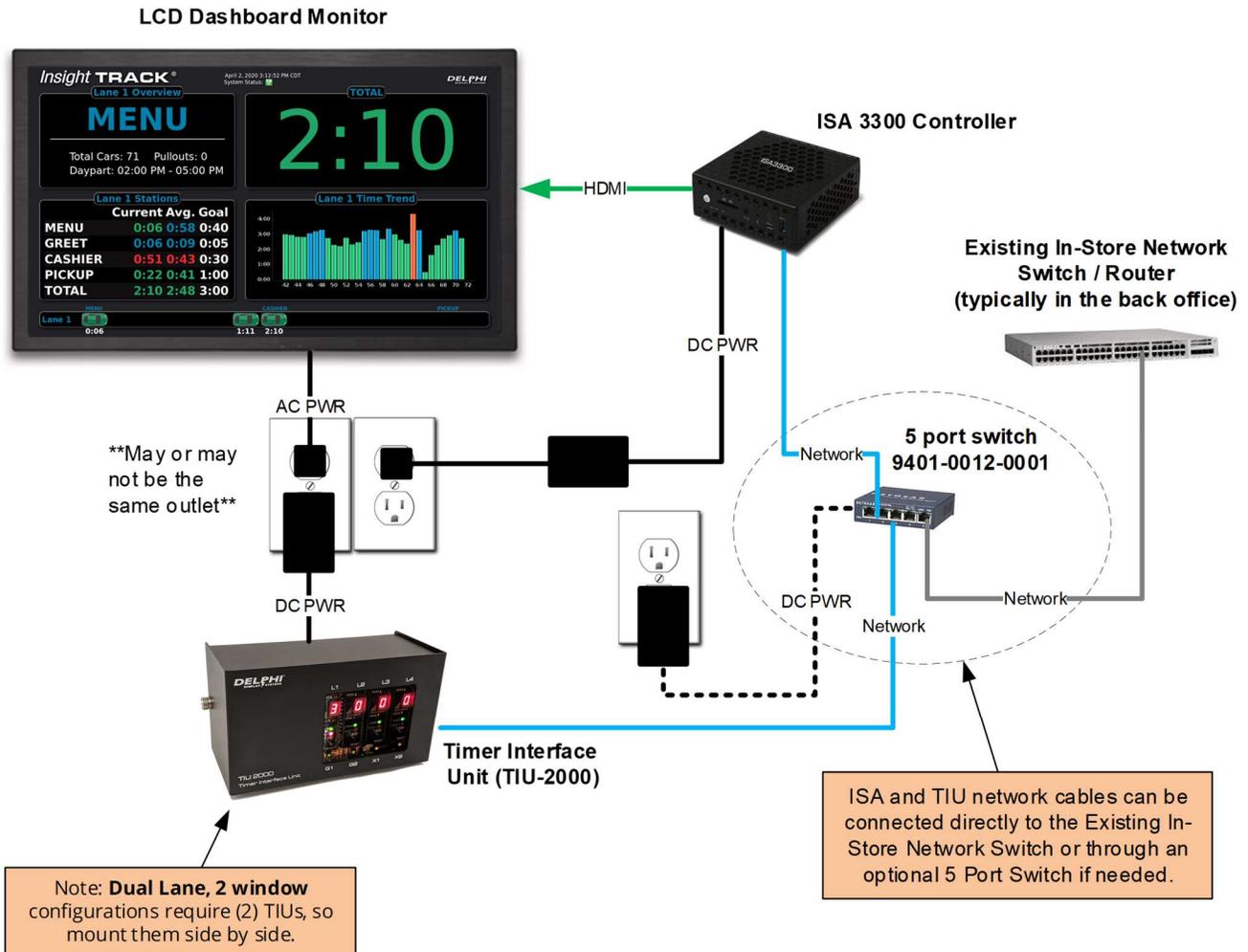


Figure 6 – Dashboard, TIU and ISA Controller Relative Location and Connections

5.3 Locate the Store’s Current Wireless Headset System Base Station

The TIU will connect to the store’s Wireless Headset Base Station via the supplied Green stripe cable. For Headset systems that contain a menu loop detector, this connection provides the menu board vehicle detection and audio greet signals to the TIU. For headset system that don’t contain a menu loop detector, this connection provides the menu board vehicle detection to the headset and audio greet signals from the headset to the TIU. The Green stripe cable is 66’ long, consequently the headset base station and TIU must be no more than 50’ apart (taking into account any accommodation for length that may be required to route the cable) in order to facilitate the additional length needed to go up and down walls during installation. If this is a dual lane, two-window configuration, the Orange stripe cable will be used to connect the 2nd TIU to the 2nd headset base station.

5.4 Locate the Window Loop Penetration Point

For a drive thru timer to be used, a ground loop must be installed at the window. Typically, the penetration for the loop cable into the restaurant is located in a junction box on the wall of the drive thru booth. Commonly this junction box is located only a couple of feet off of the floor of the restaurant, and may be under the counter area adjacent to or on the exterior wall where the pickup window is located. As part of the timer installation, the Red stripe cable must be run to this junction point in order to tie into the existing window loop.

6 Installation Procedures

Follow these steps in order to perform the installation:

*****WARNING: DO NOT APPLY POWER TO ANY OF THE EQUIPMENT UNTIL STEP 7*****

1. Prepare holes in the wall for routing of all required wiring.
2. Route wires as required to accommodate all required connections.
3. Install the LCD dashboard monitor.
4. Install the ISA Controller.
5. Install the TIU(s).
6. Terminate all final connections between applicable devices

*****WARNING: DO NOT APPLY POWER TO ANY OF THE EQUIPMENT UNTIL STEP 7*****

6.1 Prepare Holes for Wiring

After locating and marking the optimal location, drill a hole in the wall behind where the dashboard monitor will be installed to accommodate wiring that will be run to other locations (i.e. network cable, TIU interface cable). Then, drill a hole in the wall behind where the TIU will be installed to accommodate the incoming network and loop cables so that they can be routed to the connectors on the TIU.

Note: If a Dual Lane, 2-Window store, cables for both TIUs can run through this same hole, then be routed individually to each TIU.



Figure 7 - Hole for TIU Wiring

6.2 Wiring

Once the mounting locations have been determined for each piece of equipment, route all of the timer system wiring between these locations. Follow, without exception, these general requirements when routing **ALL** Delphi-supplied cables within a store environment:

- Wires running above the ceiling should always be suspended and secured. Cables should never be left lying directly on ceiling tiles or light fixtures.
- Wires should never be run within or adjacent to conduit containing high voltage wires.
- When running wires vertically, they must be routed inside of walls, conduit or wire molding and should not be left unsecured and bare on the wall.
- Power cords (110VAC) **MUST NOT** be run through ceiling tiles.

6.2.1 Green Stripe Interface Cable

The Green stripe cable is a 6 conductor, 22-gauge cable that is to be run from the TIU location to the Headset base station.

6.2.2 Orange Stripe Interface Cable (Only for Y-Lane or Tandem Menu)

The Orange stripe cable is a 6 conductor, 22-gauge cable that is utilized only for Dual Lane, 2 Window configurations and is to be run from the 2nd TIU for lane two to the 2nd Headset base station.

6.2.3 Red Stripe and Yellow Stripe Loop Cables (Yellow only if needed)

The Red and Yellow stripe cables are 2 conductor, 18 gauge shielded twisted pair cables that are used to connect the in-ground loops to their respective loop detector inputs on the TIU. The Red stripe cable is connected to the pickup window loop. The Yellow stripe cable is connected to the cash window loop (if applicable). In the case where a store has 2 windows but where they are not timing at the first (cash) window (no loop will be present), only a Red stripe cable will be included and must be routed to the loop at the second (pickup) window.

6.2.4 Cat5 Network Cables

The TIU and ISA must be connected to the same network through the existing in-store network switch or through an optional 5-port switch and 10 ft. CAT5 patch cables provided by Delphi. If the customer configuration dictates that the timer system be on their network, Delphi will include a 100' CAT5E cable. The CAT5E cable is routed from the ISA Controller. The other end of the cable will be routed to the in-store network router/switch. Once routed, terminate the ends using the 568B method using the supplied RJ45 connectors.

6.3 Install Monitor Mounting Bracket on Wall

Unbox all of the LCD wall mount components and prepare them for installation. Using a stud finder, locate a stud within the wall in the area where the Dashboard Monitor is to be displayed. If using a stud, use the long screws supplied with the mounting bracket to secure the wall plate to the wall. If the system requires two monitors, please mount them close to each other or per the direction of the customer. Note that the supplied HDMI and optional VGA cables limit the distance from each monitor to the ISA controller.

6.4 Preparing and Installing the Monitor

Unbox all of the mounting components and the monitor itself to prepare them for installation. Lay the monitor face down onto a clean, flat surface (preferably on some padding). Remove the arm attached to the bottom of the monitor by pulling off the plastic cover, then removing the four screws. It is not necessary to reattach the plastic cover thereafter (see Figure 8).



Figure 8 - Remove Stand from Monitor

Install the LCD Dashboard Monitor to the wall mount using the instructions provided in the packaging.

6.5 Install ISA Controller on the Wall

Remove the ISA Controller from the packaging and remove the mounting bracket. Locate the top of the bracket identified with the arrow and position it in the location to be mounted with the arrow pointing up.



Figure 9 - ISA Controller Mounting Bracket

6.5.1 Installing the ISA Controller on the Wall

For drywall or wood mounting locations, use the supplied using four (4) screws and wall anchors to install the mounting bracket on the wall close to the TIU. **Note: Make sure that the screw heads are flush with the mounting bracket holes to prevent interference with the rubber feet on the ISA-3300.**

6.5.2 Installing the ISA Controller on the Mounting Bracket

Once the mounting bracket is installed on the wall, install the ISA Controller on the bracket by locating the mounting ears and sliding it downward to latch into position as shown below.

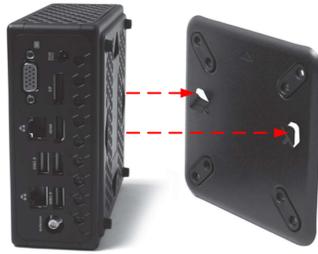


Figure 10 – Attaching ISA Controller to the Mounting Bracket

6.6 Install TIU on Wall

Using the dimensions shown in the figure below, mark the screw locations on the wall. Using a small level and the keyhole slots on the back of the TIU, position and hold the TIU on the wall covering the hole where the wires are coming through. Using the supplied screws and anchors, hang the TIU on the wall.

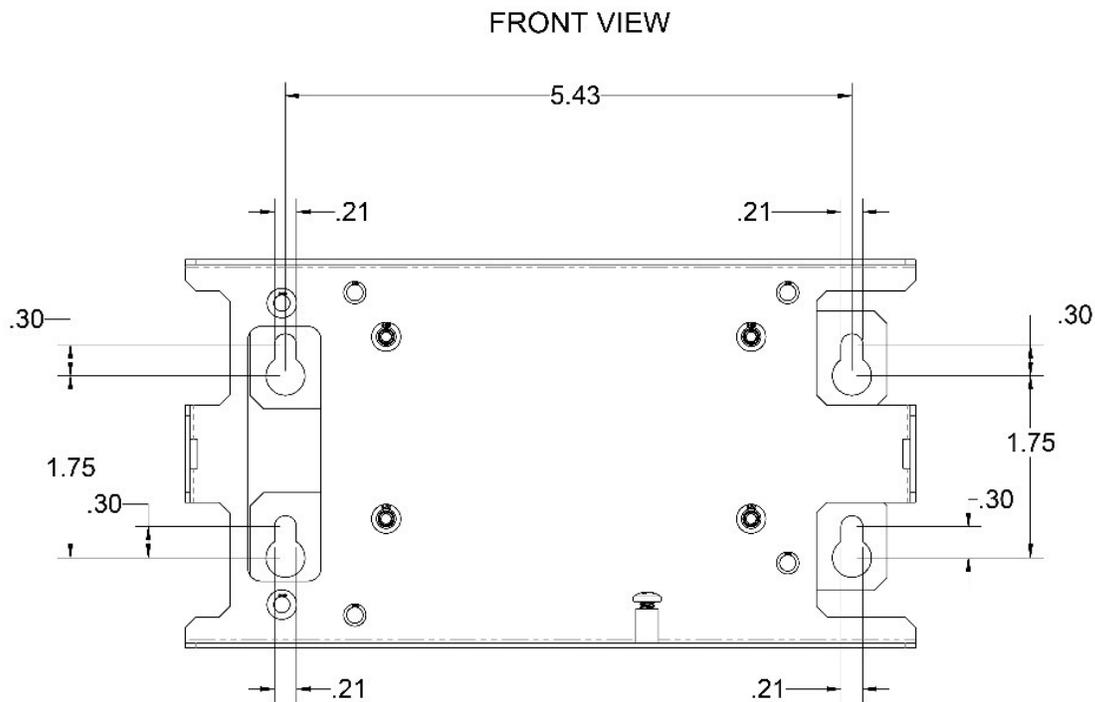


Figure 11 – TIU Wall Mounting Screw Locations

6.7 ISA Controller Connections

Make the connections between the ISA Controller as follows and refer to the figure below for additional information.

1. Connect the HDMI cable to the HDMI port on the ISA Controller and to the HDMI input on the monitor. If the monitor has multiple HDMI connectors, use HDMI1.
2. Connect the power supply (included in the controller box) to the controller.
3. Connect the Cat5 cable to the center most RJ45 connector on the ISA Controller (closest to HDMI connector)
4. Connect the power cable to the monitor.

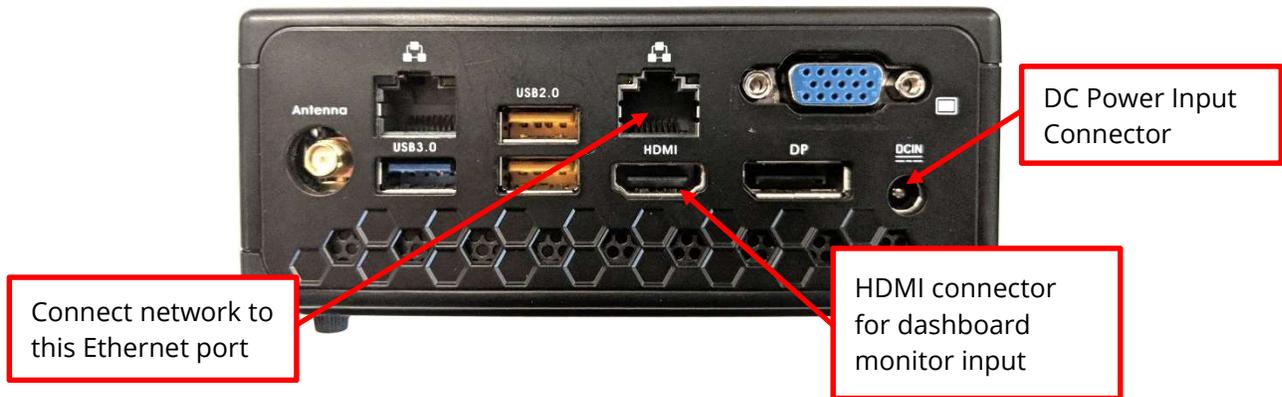


Figure 12 – ISA Controller Cable Connections

7 TIU-2000 Connections

7.1 TIU-2000 Main Board Layout and Connector Locations

The TIU has four loop inputs, two greet inputs and four detect outputs as shown in Figure 13 below.

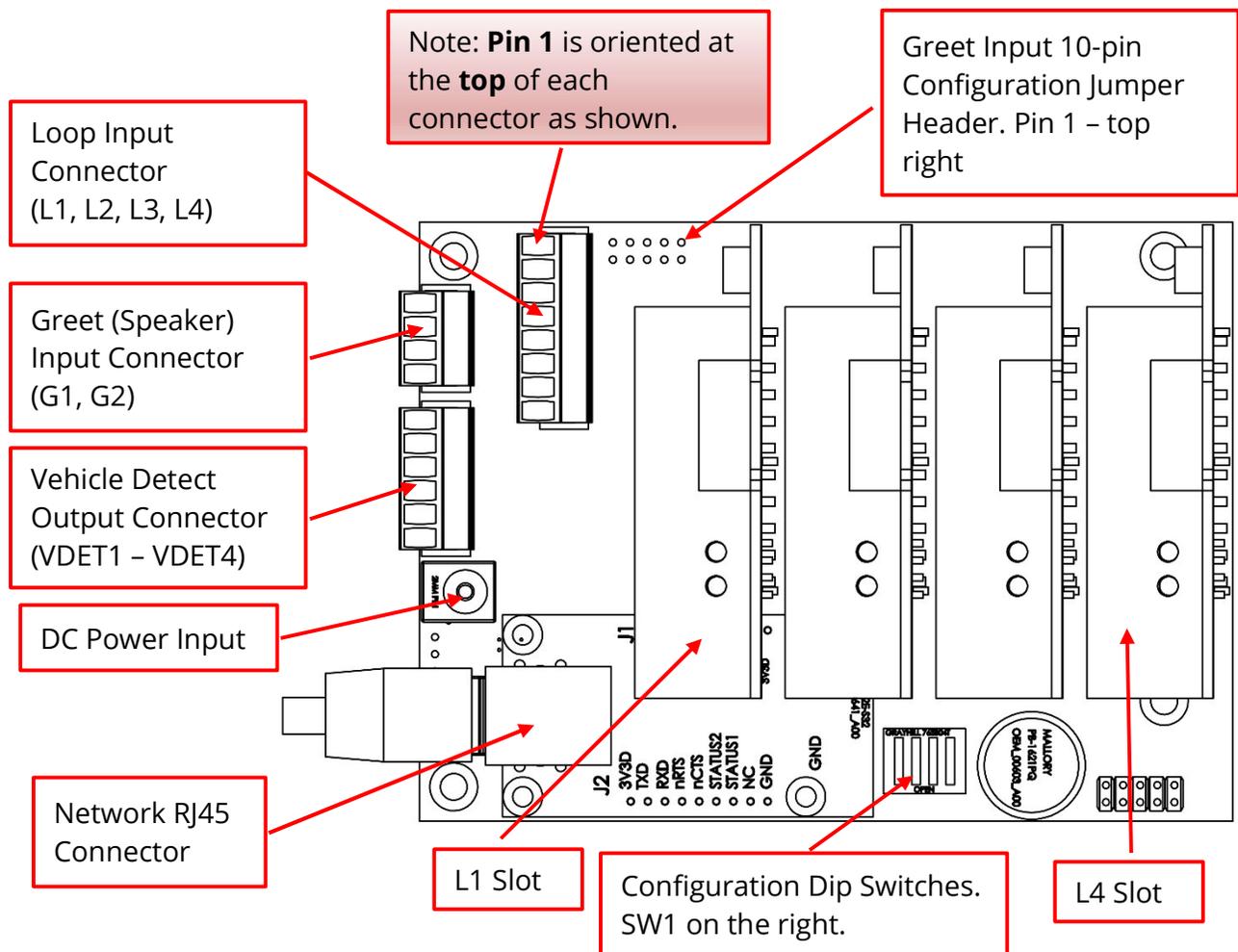


Figure 13 – TIU-2000 Main Board Layout and Connector Locations

7.1.1 Loop Inputs (L1, L2, L3, L4)

The loop inputs L1 thru L4 are connected to the L1 thru L4 card slots in the TIU. Each card slot can be populated with an LMA-1800 Vehicle Detector Board (VDB) or an External Device Interface (XDI) board. If a VDB is installed in a particular slot, then the corresponding loop input connector pins are connected directly to the in-ground loop wires. If an XDI slot is installed in a particular slot, then the corresponding loop input connector pins are connected directly to either a speaker output or a normally open relay contacts or switch, which are jumper configurable on the XDI board.

7.1.1.1 Loop Input Connector Pinout

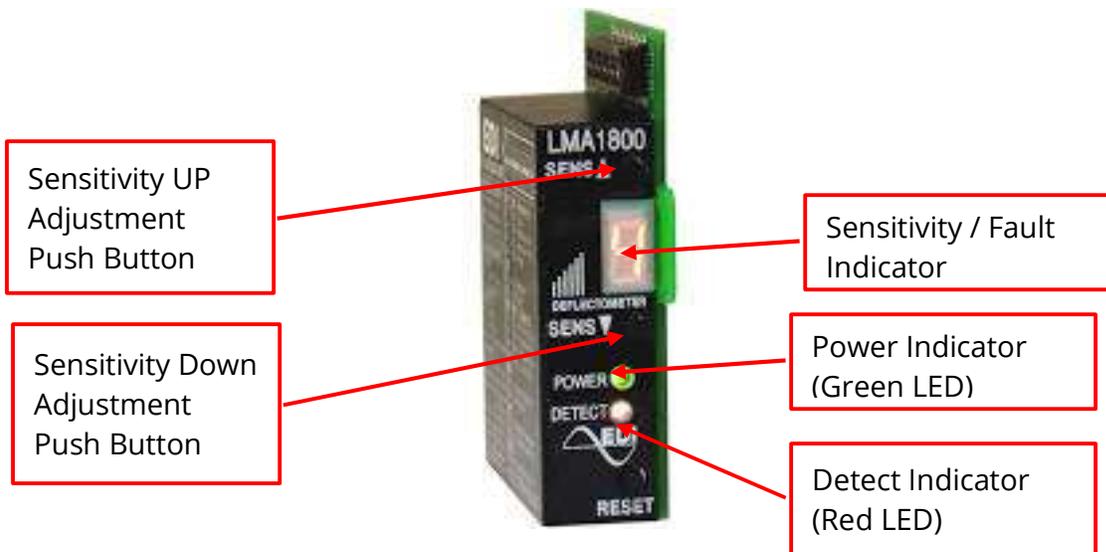
The Loop input connector is an 8 pin Phoenix type connector with the following pinout. Pin 1 is located at the top of the connector when looking at the TIU from the front.

Pin	Connection
1	Loop 4 Input A
2	Loop 4 Input B
3	Loop 3 Input A
4	Loop 3 Input B
5	Loop 2 Input A
6	Loop 2 Input B
7	Loop 1 Input A
8	Loop 1 Input B

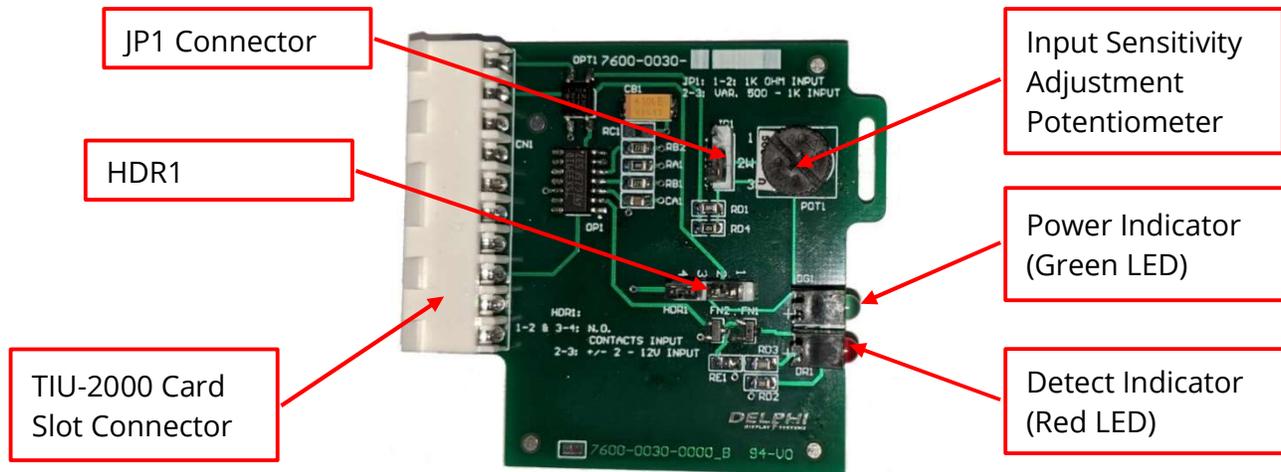
Figure 14 - Loop Input Connector Pinout

7.1.1.2 LMA-1800 Vehicle Detector Board (VDB)

The LMA-1800 is a single channel inductive loop vehicle detector. It can be plugged into any of the TIU-2000 card slots. Up to four (4) LMA-1800 VDBs can be installed to support up to 4 different inductive loop inputs.



7.1.1.3 External Device Interface (XDI) Board



7.1.1.4 XDI Board Configuration and Jumper Settings

The XDI input can be configured for two different detection modes depending on the HDR1 jumper setting:

- Voltage detection mode.** In this mode, the XDI board can detect the presence of a voltage in the range of 2 – 12V (DC or AC) on its respective loop input pins (depending on the TIU slot that it is plugged into). This can be used for detecting the presence of a speaker level signal or any other voltage within the range of ~2 to 12V. To enable this mode, install a jumper between pins 2 to 3 on the HDR1 connector. Leave pins 1 and 4 disconnected. In this mode, the sensitivity of the input can be adjusted using the Input Sensitivity Adjustment Potentiometer.
- Normally open contact detection mode.** In this mode, the XDI board can detect the presence of a normally open relay contact or switch closure on its respective loop input pins (depending on the TIU slot that it is plugged into). This can be used for interfacing directly with headset systems that provide a normally open Detect output or any other normally open relay or switch contacts. To enable this mode, install 2 jumpers between pins 1-2 and 3-4 on the HDR1 connector. Make sure that no connection exists between pins 2-3.

7.1.2 Greet Inputs (G1, G2)

The Greet inputs G1 and G2 are designed to connect directly to the speaker output of the headset system. Upon the presence of an audio signal on the G1 or G2 input, the TIU-2000 will flash the corresponding G1 or G2 LED indicator.

7.1.2.1 Greet Input Connector Pinout

The Greet input connector is a 4 pin Phoenix type connector with the following pinout. Pin 1 is located at the top of the connector when looking at the TIU from the front.

Pin	Connection
1	Speaker 1 Input A
2	Speaker 1 Input B
3	Speaker 2 Input A
4	Speaker 2 Input B

Figure 15 – Greet Input Connector Pinout

7.1.2.2 Greet Input Configuration Jumpers

The Greet inputs (G1, G2) can be configured for two different modes of operation depending on the configuration of the four jumpers on the Greet Input Configuration Jumper Header.

- **Voltage detection mode** (Used for direct connection to speaker outputs. *This is the default configuration from the factory*)
- **Normally open contact detection mode** (Used for direct connection to normally open contacts)

Each greet input can be configured separately per the figure below.

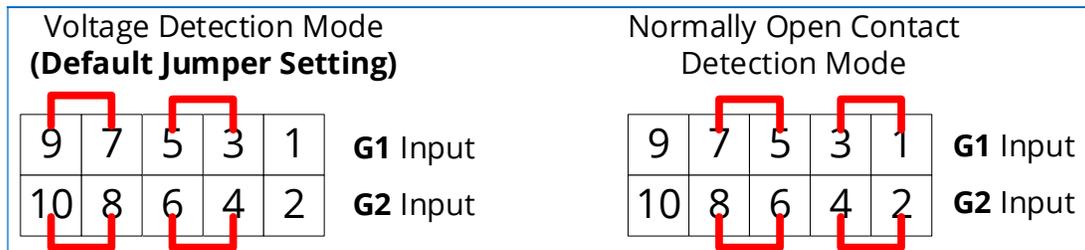


Figure 16 – Greet Input Configuration Jumper Header Settings

7.1.3 Vehicle Detect Outputs (VDET1 – VDET4)

Four Vehicle Detect Outputs are provided as active low Open Drain FETs that have less than 2 ohms resistance to ground when active. They have a voltage range of up to 24VDC @ 150ma load current. These are typically used to drive active low detect inputs on wireless headset systems.

7.1.3.1 Vehicle Detect Output Connector Pinout

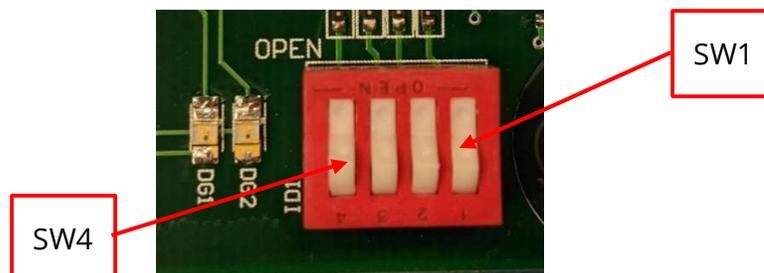
The Vehicle Detect output connector is a 6 pin Phoenix type connector with the following pinout. Pin 1 is located at the top of the connector when looking at the TIU from the front.

Pin	Connection
1	+5VDC (Pulled up by 1K resistor)
2	GND
3	VDET-1 Out (Open Drain)
4	VDET-2 Out (Open Drain)
5	VDET-3 Out (Open Drain)
6	VDET-4 Out (Open Drain)

Figure 17 – Vehicle Detect Output Connector Pinout

7.1.4 Configuration Dip Switches (SW1 – SW4)

The Configuration Dip Switch functions are defined as follows. Switch 1 (SW1) is on the right with the open position toward the top per the figure below. The default setting for normal operation is all switches open per the table below.

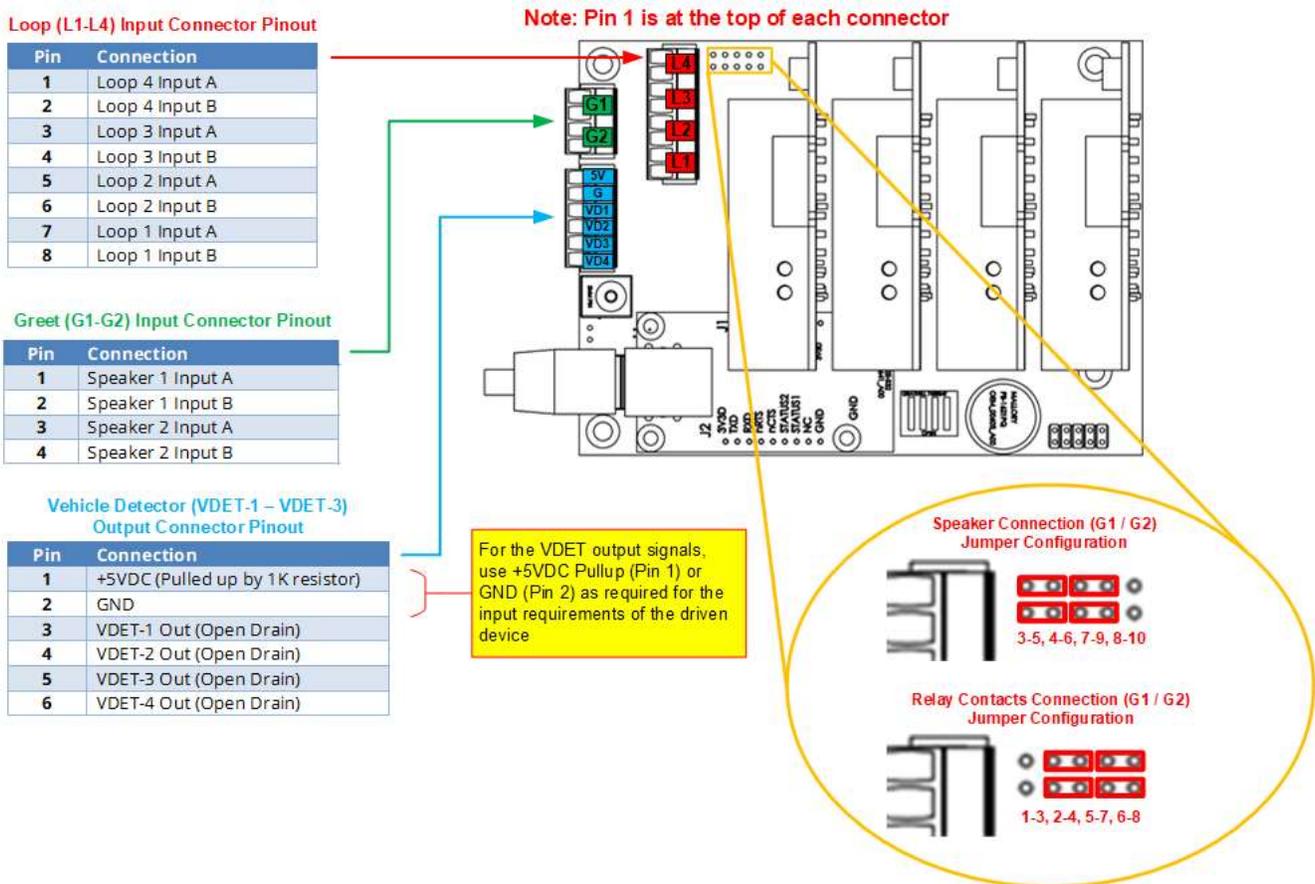


	OPEN (default)	CLOSED
SW1	TIU ID 0	TIU ID 1
SW2	Normal Operation	Reserved
SW3	Normal Operation	Standard Simulator Mode
SW4	Normal Operation	Randomized Simulator Mode

Figure 18 - Configuration Dip Switch Settings

7.2 Wiring Diagram Pinouts

Please refer to the diagram below for detailed pinout information for the block diagrams presented in this section.



7.3 Single Lane Installations

7.3.1 Headset Systems that Include a Loop Detector

For headset systems that include a loop detector, the detect output is connected to the L1 input on the TIU-2000 as shown below. For this configuration, the L1 slot in the TIU-2000 is populated with the XDI card that has been configured for **Normally open contact detection mode**. Please refer to sections 7.9 through 7.11 for detailed connection information for the specific headset system in use. **Note: If the lane utilizes one window (pickup), then the L3 slot is populated with a Vehicle Detector Board (VDB). If the lane utilizes two windows (cash and pickup), then both the L2 and L3 slot are populated with VDBs.**

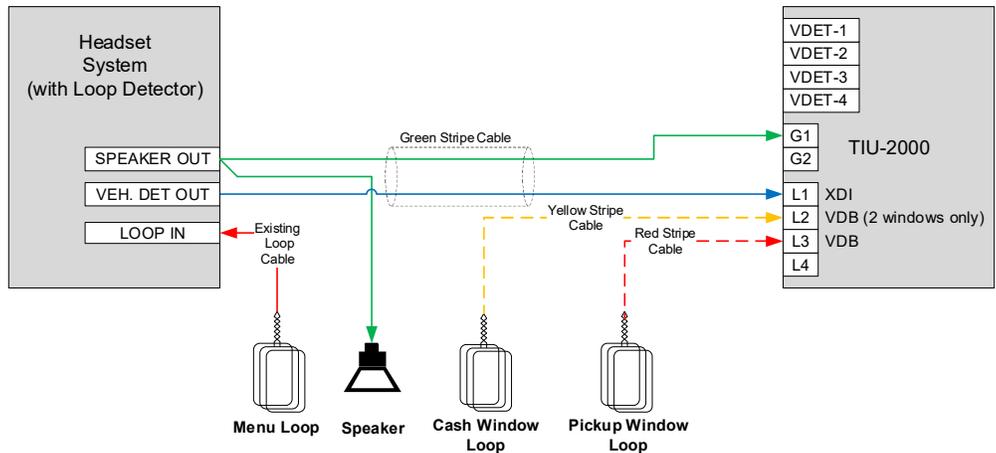


Figure 19 – Single Lane Configuration for Headsets that include a loop detector

7.3.2 Headsets that DO NOT Include a Loop Detector

For headset systems that do NOT include a loop detector, the vehicle detect output (VDET-1) on the TIU-2000 is connected to the detect input on the headset system as shown below. For this configuration, the L1 slot in the TIU-2000 is populated with a VDB. Please refer to sections 7.9 through 7.11 for detailed connection information for the specific headset system in use. **Note: If the lane utilizes one window (pickup), then the L3 slot is populated with a Vehicle Detector Board (VDB). If the lane utilizes two windows (cash and pickup), then both the L2 and L3 slot are populated with VDBs.**

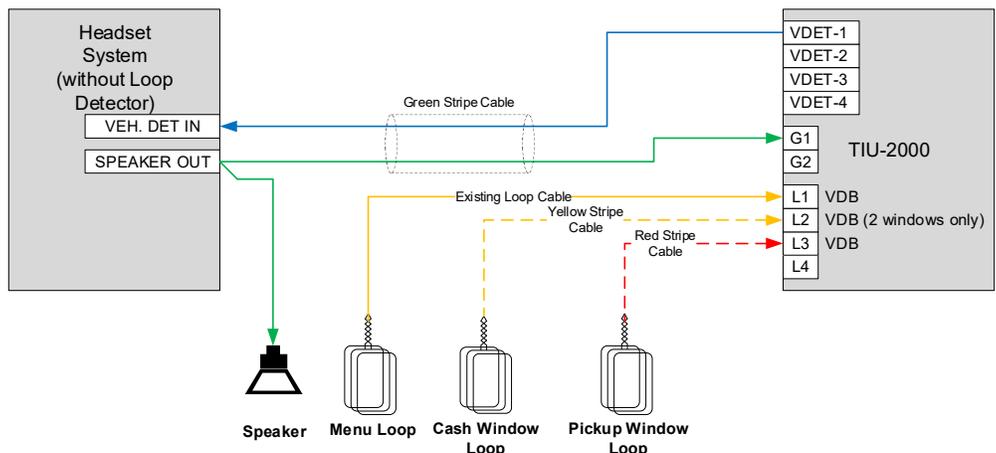


Figure 20 – Single Lane Configuration for Headsets that do not include a loop detector

7.4 Dual Lane Installations

7.4.1 Headset Systems that Include a Loop Detector - One Window

For headset systems that include a loop detector, the detect output of the lane 1 headset is connected to the L1 input on the TIU-2000 as shown below. Similarly, the detect output of the lane 2 headset is connected to the L2 input on the TIU-2000. For this configuration, the L1 and L2 slots in the TIU-2000 are populated with the XDI card that has been configured for **Normally open contact detection mode**. Please refer to sections 7.9 through 7.11 for detailed connection information for the specific headset system in use.

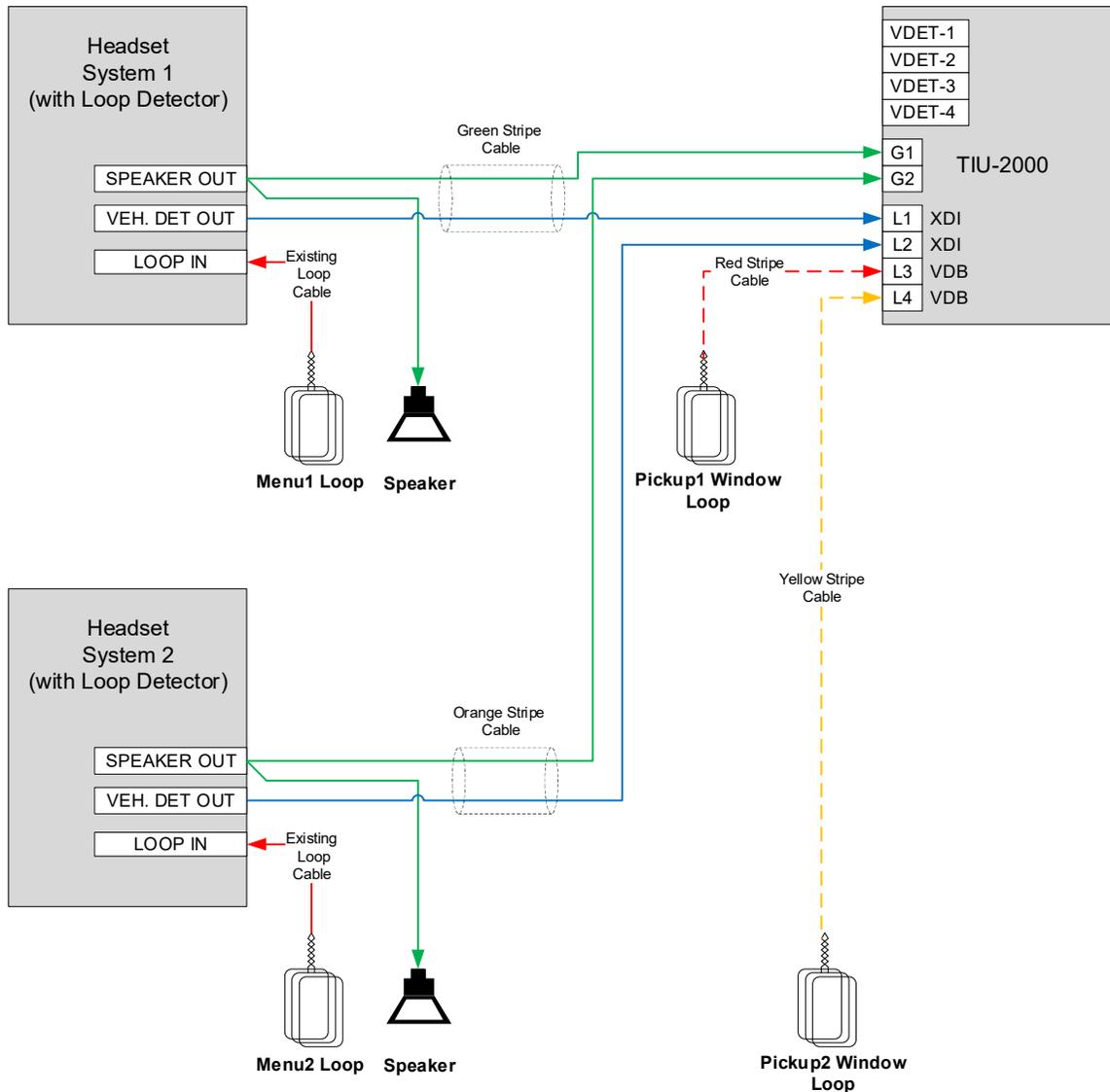


Figure 21 - Dual Lane, One Window Configuration for Headsets that include a loop detector

7.4.2 Headset Systems that Include a Loop Detector – Two Windows

For dual lane, 2 window configurations, two TIU-2000s are required with each lane being wired identically. For headset systems that include a loop detector, the detect output of the headset is connected to the L1 input on the corresponding TIU-2000 as shown below. For this configuration, the L1 slot in the TIU-2000 is populated with the XDI card that has been configured for **Normally open contact detection mode**. Please refer to sections 7.9 through 7.11 for detailed connection information for the specific headset system in use.

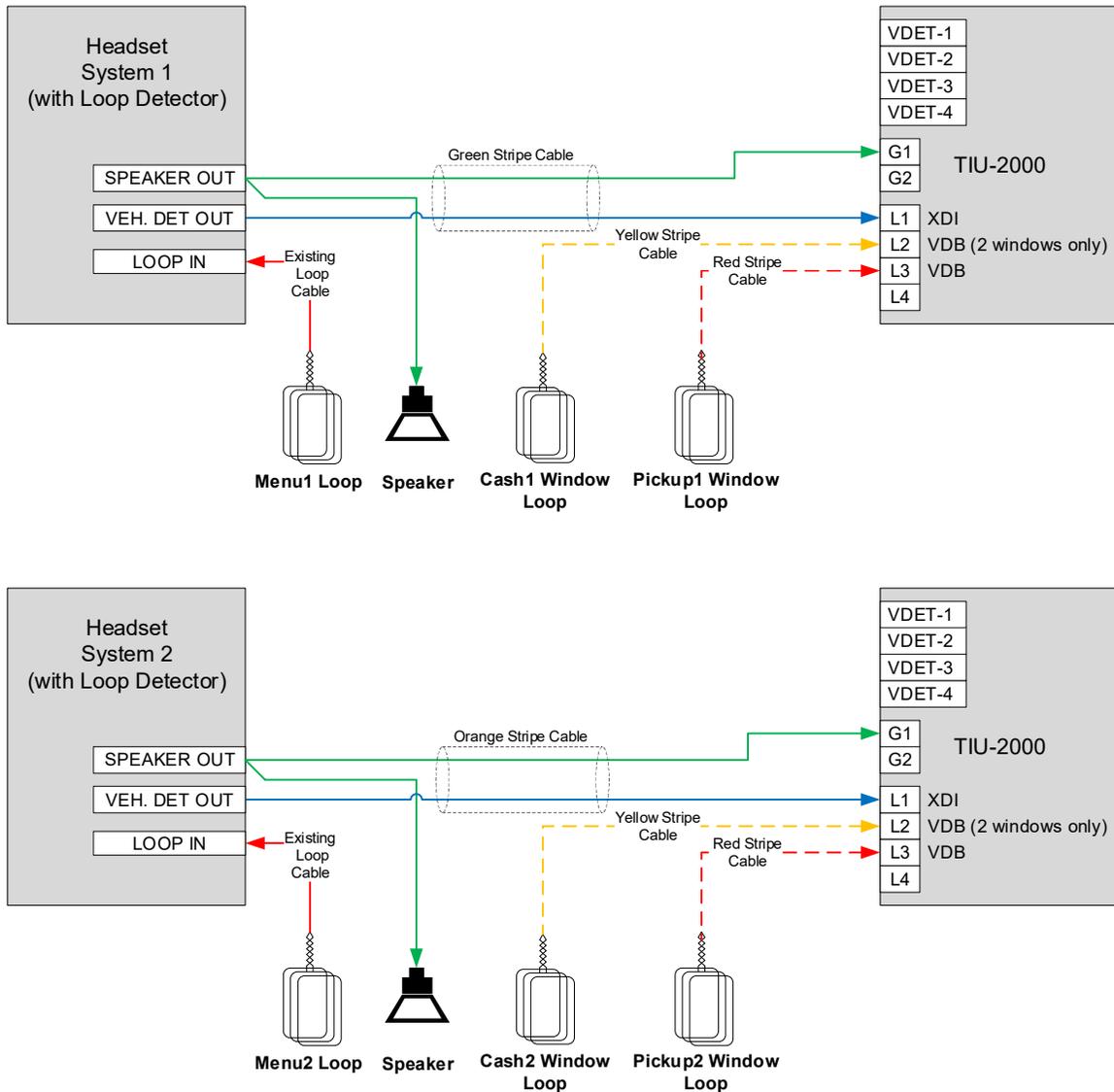
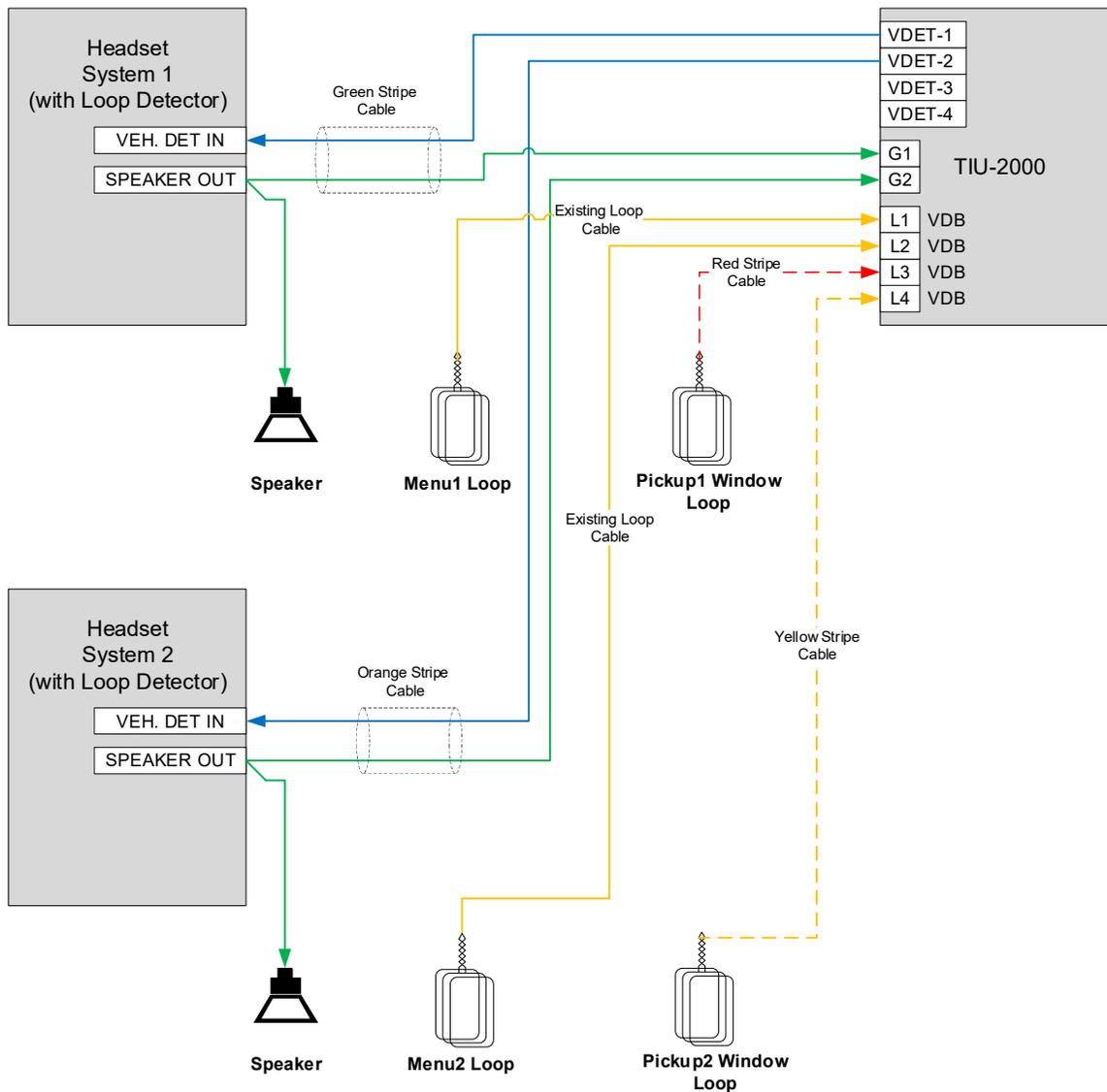


Figure 22 – Dual Lane, Two Window Configuration for Headsets that include a loop detector

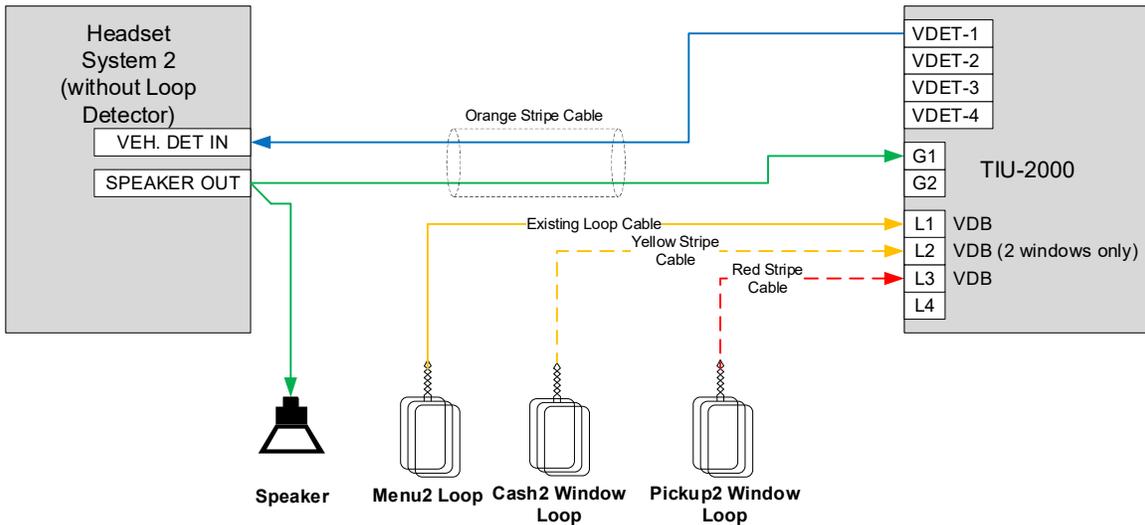
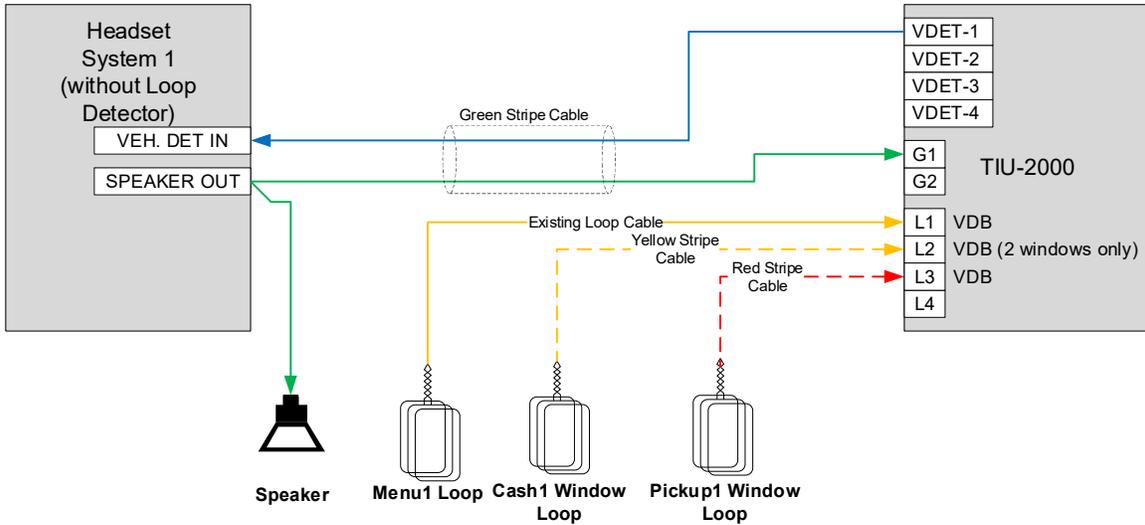
7.4.3 Headset Systems that do not Include a Loop Detector – One Window

For dual lane, 1 window configurations with headset systems that do NOT include a loop detector, the vehicle detect output (VDET-1) on the TIU-2000 is connected to the detect input of headset system 1 and VDET-2 is connected to the detect input of headset system 2 as shown below. For this configuration, all four slots in the TIU-2000 are populated with VDBs. Please refer to sections 7.9 through 7.11 for detailed connection information for the specific headset system in use.



7.4.4 Headset Systems that do not Include a Loop Detector – Two Windows

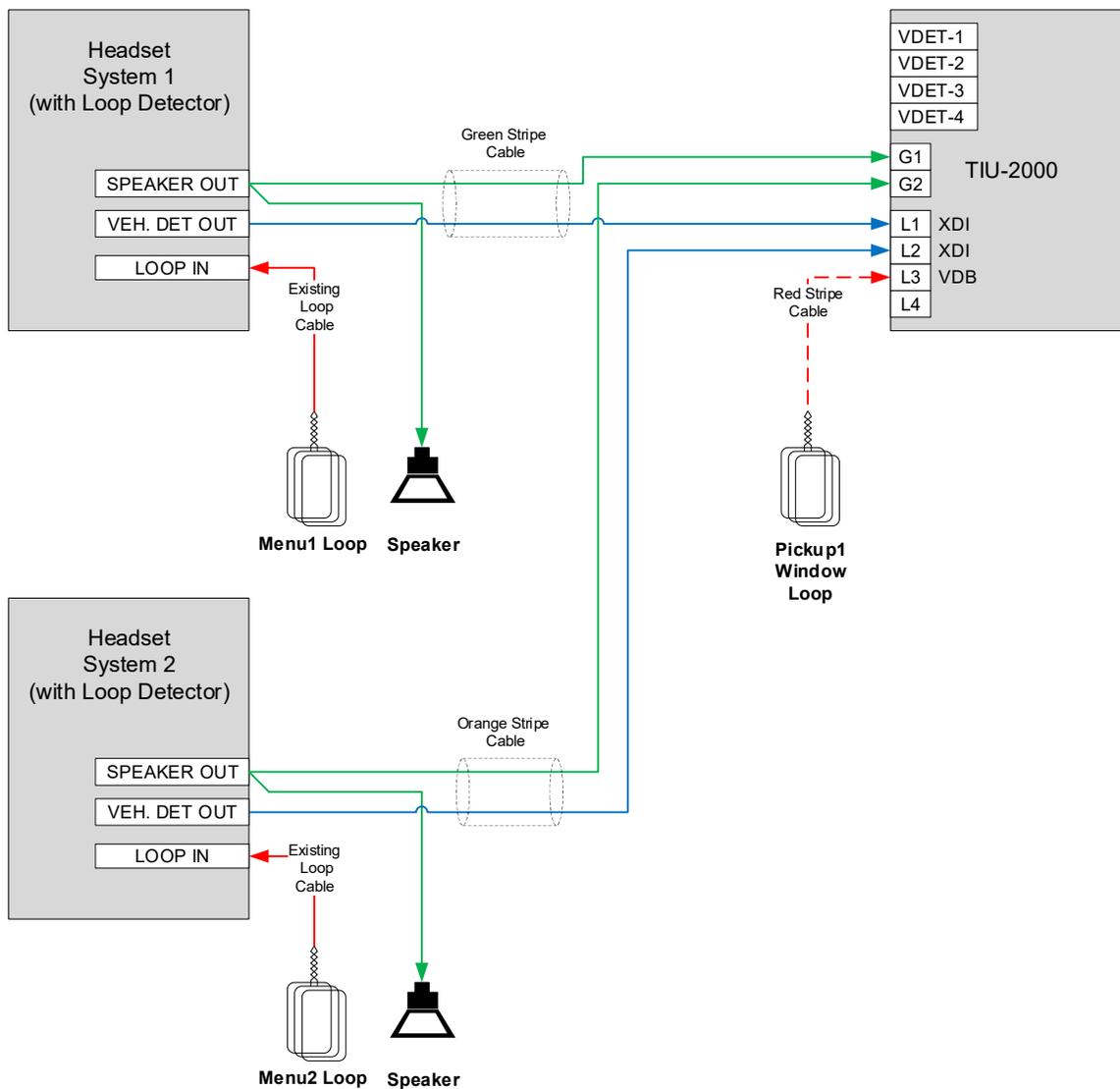
For dual lane, 2 window configurations, two TIU-2000s are required with each lane being wired identically. For headset systems that do NOT include a loop detector, the vehicle detect output (VDET-1) on each TIU-2000 is connected to the respective detect input of headset system as shown below. Please refer to sections 7.9 through 7.11 for detailed connection information for the specific headset system in use.



7.5 Y Lane Installations

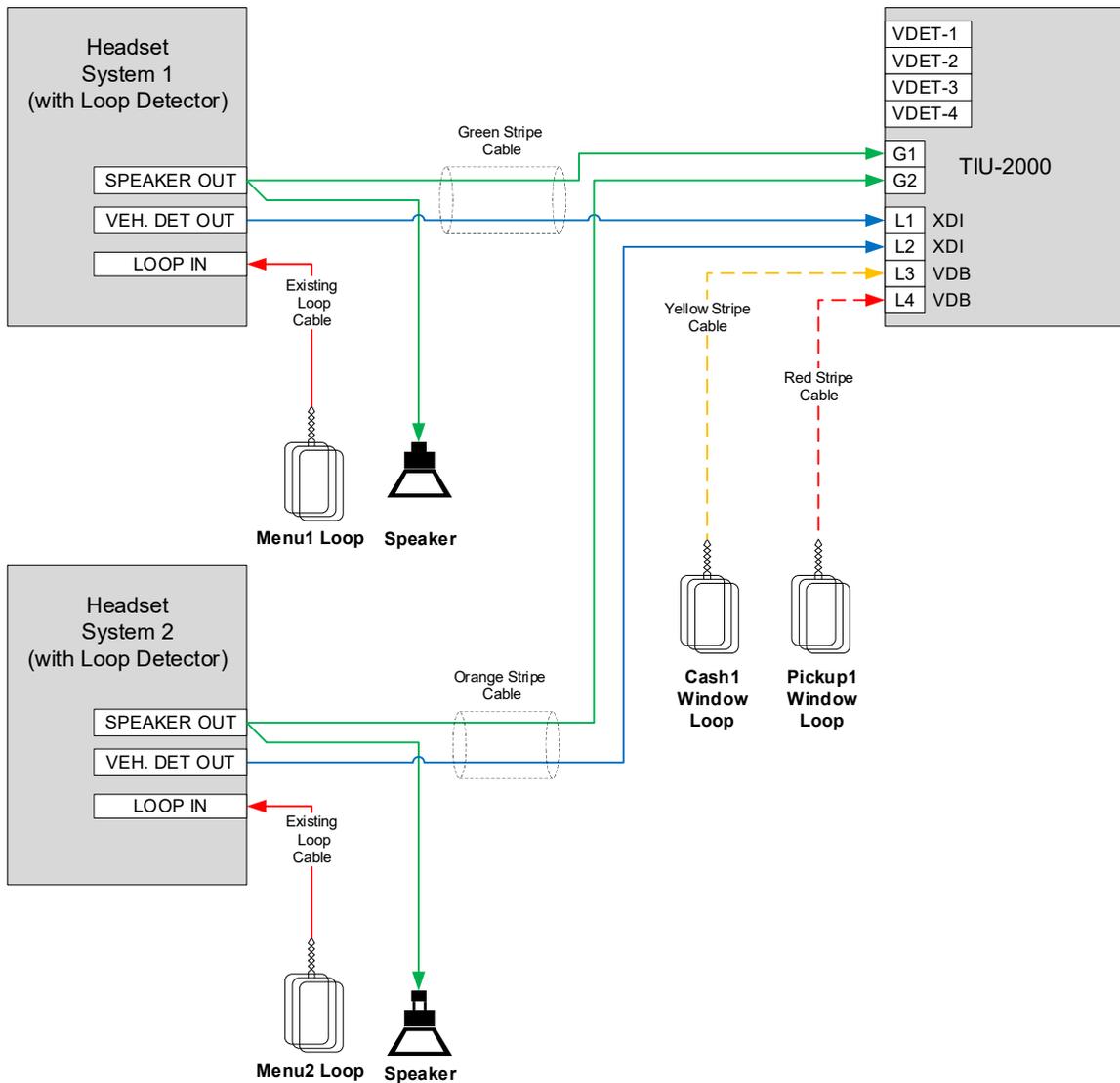
7.5.1 Headset Systems that Include a Loop Detector - One Window

For Y lane, 1 window configurations with headset systems that include a loop detector, the detect output of the lane 1 headset is connected to the L1 input on the TIU-2000 as shown below. Similarly, the detect output of the lane 2 headset is connected to the L2 input on the TIU-2000. For this configuration, the L1 and L2 slots in the TIU-2000 are populated with the XDI card that has been configured for **Normally open contact detection mode**. The Pickup window loop is connected to L3 which is populated with a VDB. Please refer to sections 7.9 through 7.11 for detailed connection information for the specific headset system in use.



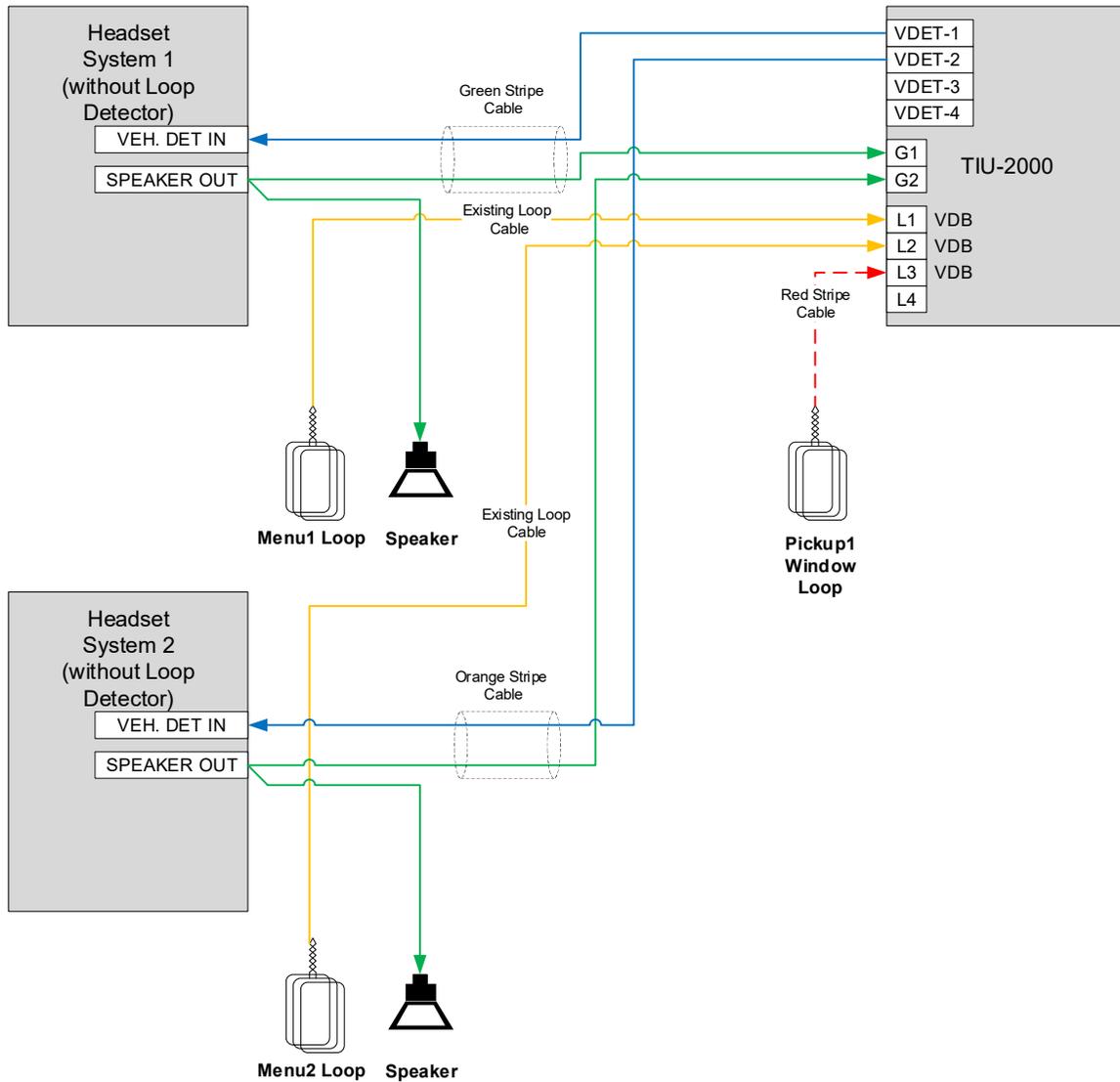
7.5.2 Headset Systems that Include a Loop Detector – Two Windows

For Y lane, 2 window configurations with headset systems that include a loop detector, the detect output of the lane 1 headset is connected to the L1 input on the TIU-2000 as shown below. Similarly, the detect output of the lane 2 headset is connected to the L2 input on the TIU-2000. For this configuration, the L1 and L2 slots in the TIU-2000 are populated with the XDI card that has been configured for **Normally open contact detection mode**. The Cash window loop is connected to L3 and the Pickup window is connected to L4, which are both populated with VDBs. Please refer to sections 7.9 through 7.11 for detailed connection information for the specific headset system in use.



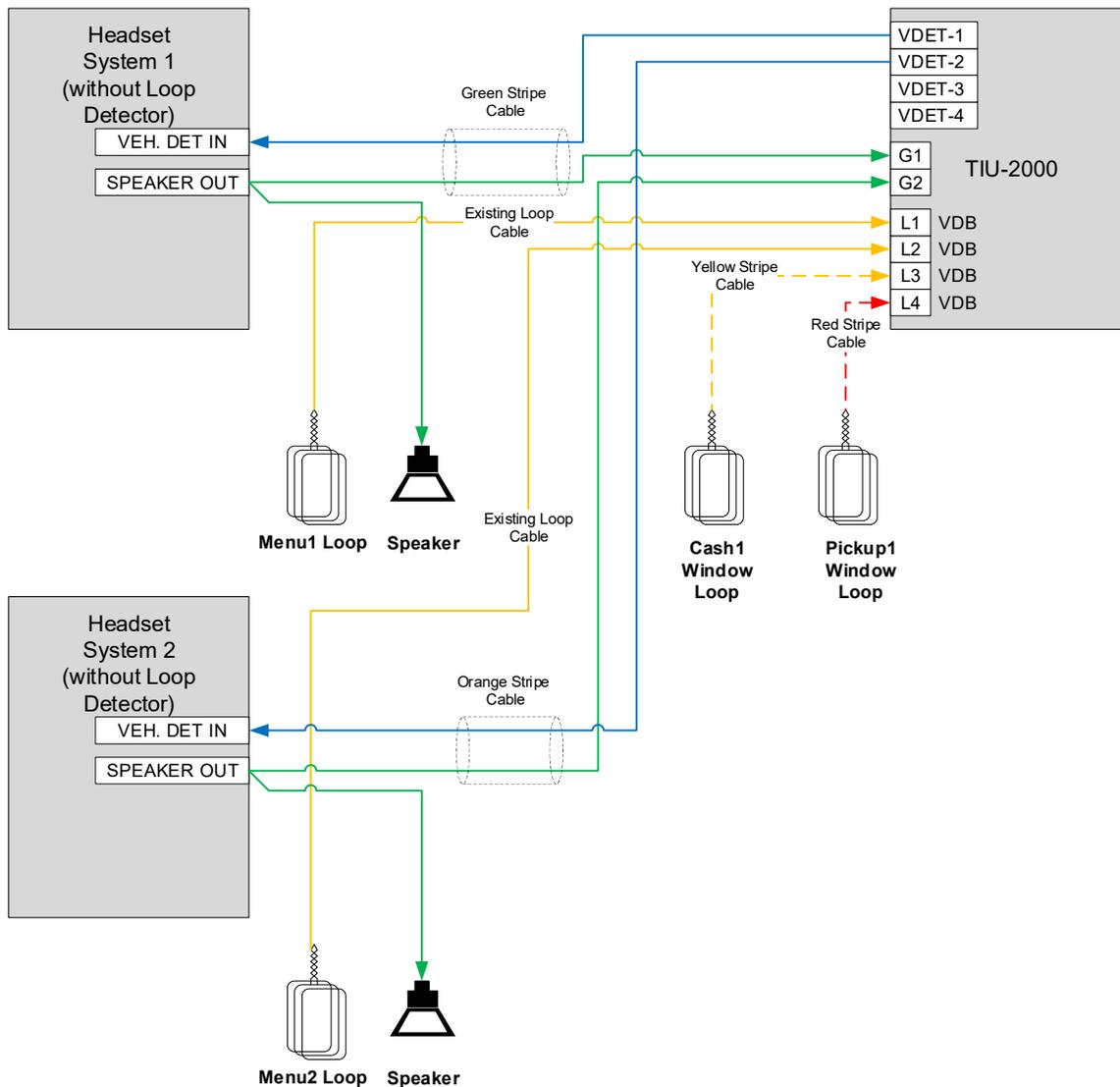
7.5.3 Headset Systems that do not Include a Loop Detector – One Window

For Y lane, 1 window configurations with headset systems that do NOT include a loop detector, the vehicle detect output (VDET-1) on the TIU-2000 is connected to the detect input of headset system 1 and VDET-2 is connected to the detect input of headset system 2 as shown below. For this configuration, L1, L2 and L3 slots in the TIU-2000 are populated with VDBs. Please refer to sections 7.9 through 7.11 for detailed connection information for the specific headset system in use.



7.5.4 Headset Systems that do not Include a Loop Detector – Two Windows

For Y lane, 2 window configurations with headset systems that do NOT include a loop detector, the vehicle detect output (VDET-1) on the TIU-2000 is connected to the detect input of headset system 1 and VDET-2 is connected to the detect input of headset system 2 as shown below. For this configuration, all four slots in the TIU-2000 are populated with VDBs. Please refer to sections 7.9 through 7.11 for detailed connection information for the specific headset system in use.



7.6 Tandem Lane Installations

The tandem lane wiring is identical to the Y lane configuration. Please refer to section 7.5 above.

7.7 Important Connection Considerations

IMPORTANT: ORDERING POINT VEHICLE DETECTION MUST BE MAINTAINED TO THE TIU WHETHER THE PRIMARY OR BACKUP INTERCOM SYSTEM IS IN USE. GREET TIMER CANCELLATION MUST OCCUR WHETHER THE PRIMARY OR BACKUP INTERCOM SYSTEM IS IN USE.

IMPORTANT: ALL WIRE-TO-WIRE CONNECTIONS MUST BE SOLDERED. DO NOT USE WIRE NUTS. ALL WIRE ENDS TO TERMINAL BLOCKS MUST BE TINNED. FAILURE TO SOLDER WIRE CONNECTIONS AND TO TIN WIRE ENDS TO TERMINAL BLOCKS CAN ULTIMATELY RESULT IN A MALFUNCTION.

7.8 Interfacing with an external Dual Output Menu Board Loop Detector

The TIU is capable of interfacing with any dual-output menu board loop detector provided the second output of the detector provides a VEHICLE PRESENCE SIGNAL (normally open contact closure).

1. Using the Green stripe interface cable, connect the RED wire to the NORMALLY OPEN NO. 2 and the BLACK wire to the COMMON NO. 2 output on the menu board loop detector.
2. Connect the same pair (same colors) of wires to pins 7 and 8 of the TIU Loop Input connector (L1 Input).
3. Install an XDI Card in the L1 slot and configure the jumpers for normally open inputs.
4. **Be sure to still make connection to headset system for greet input referring to the other proper wiring diagram.**

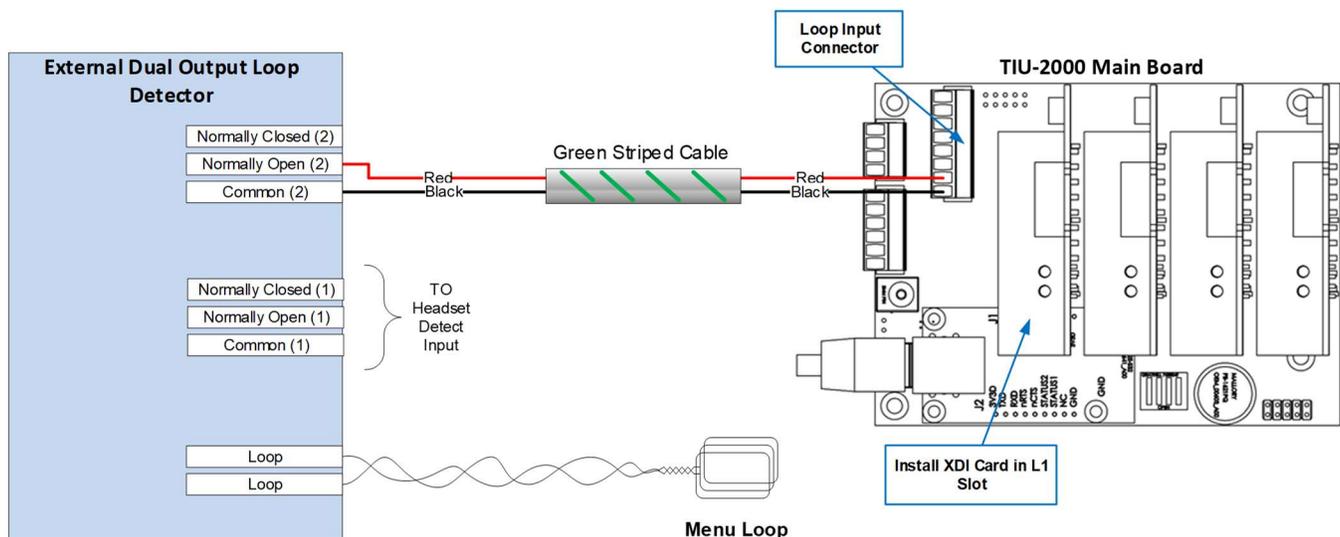


Figure 23 - Dual Output Loop Detector Interface

7.9 Interfacing with HME® Wireless Headset Systems

Although HME has produced more models than are detailed in the following section, we are covering only the later models that are most common in the field today. Should the installer run into an HME model that is not detailed in this manual, they should contact Delphi Customer Support for interface assistance.

7.9.1 ALL HME Systems Utilizing a Switcher Board

Many HME Base Stations have a Switcher Board installed that allows the system to be switched between it and a wired backup system. Many HME Models have utilized the same Switcher Board over the years, so if the Base Station has a Switcher Board, the wiring will be the same from model to model. The following Figure shows how to interface the TIU to any HME System that utilizes a switcher board.

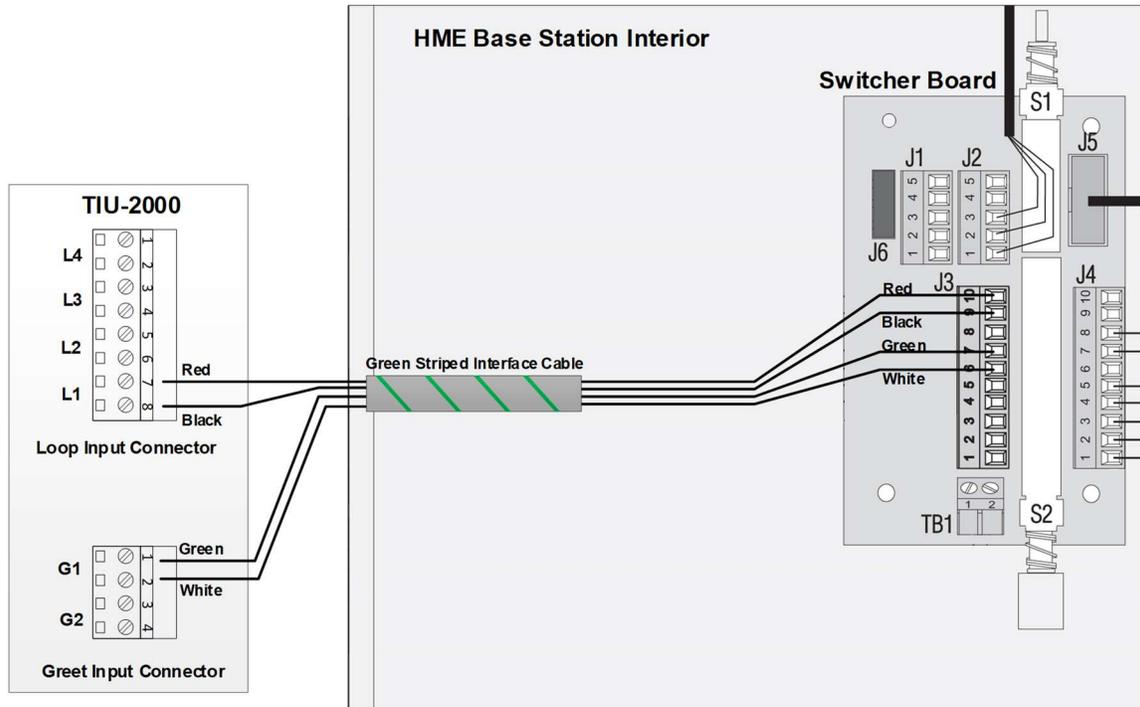


Figure 24 - HME 2500 / 1000 / 400 / 900 / 6000 / ION IQ Utilizing a Switcher Board

7.9.2 HME ION IQ

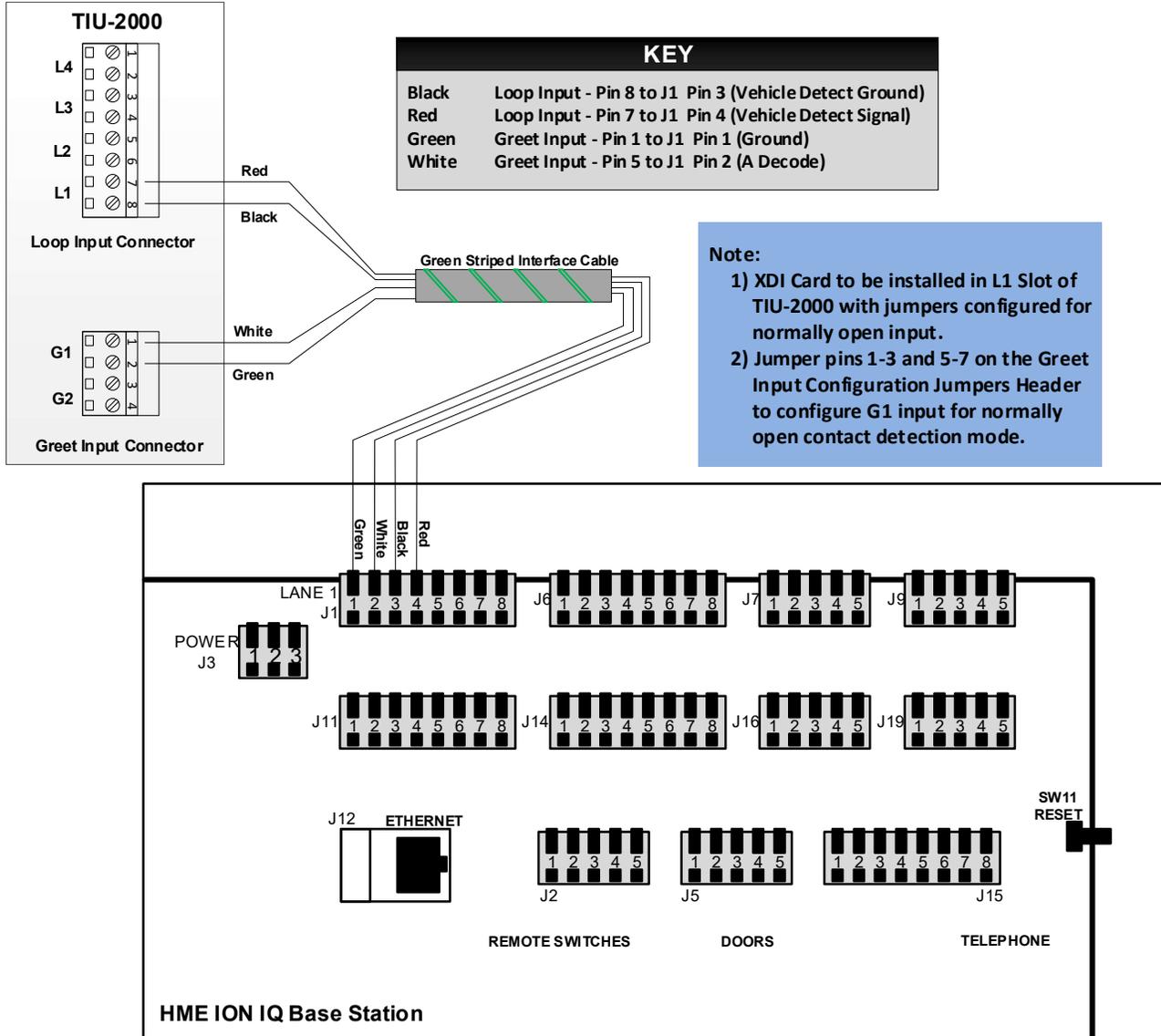


Figure 25 - HME ION IQ Interface

7.9.3 HME System 6000 / Wireless IQ

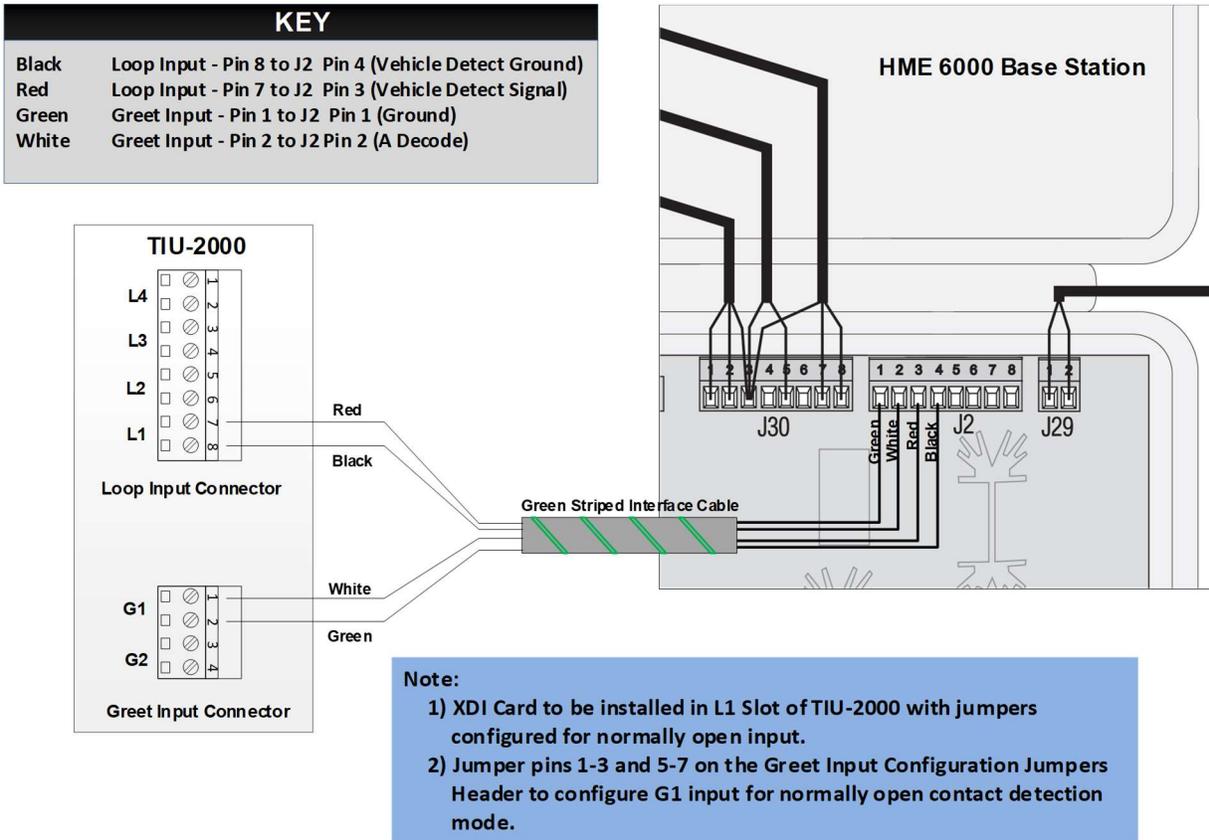


Figure 26 - HME System 6000 Wireless IQ Interface

7.9.4 HME System 400 / 900

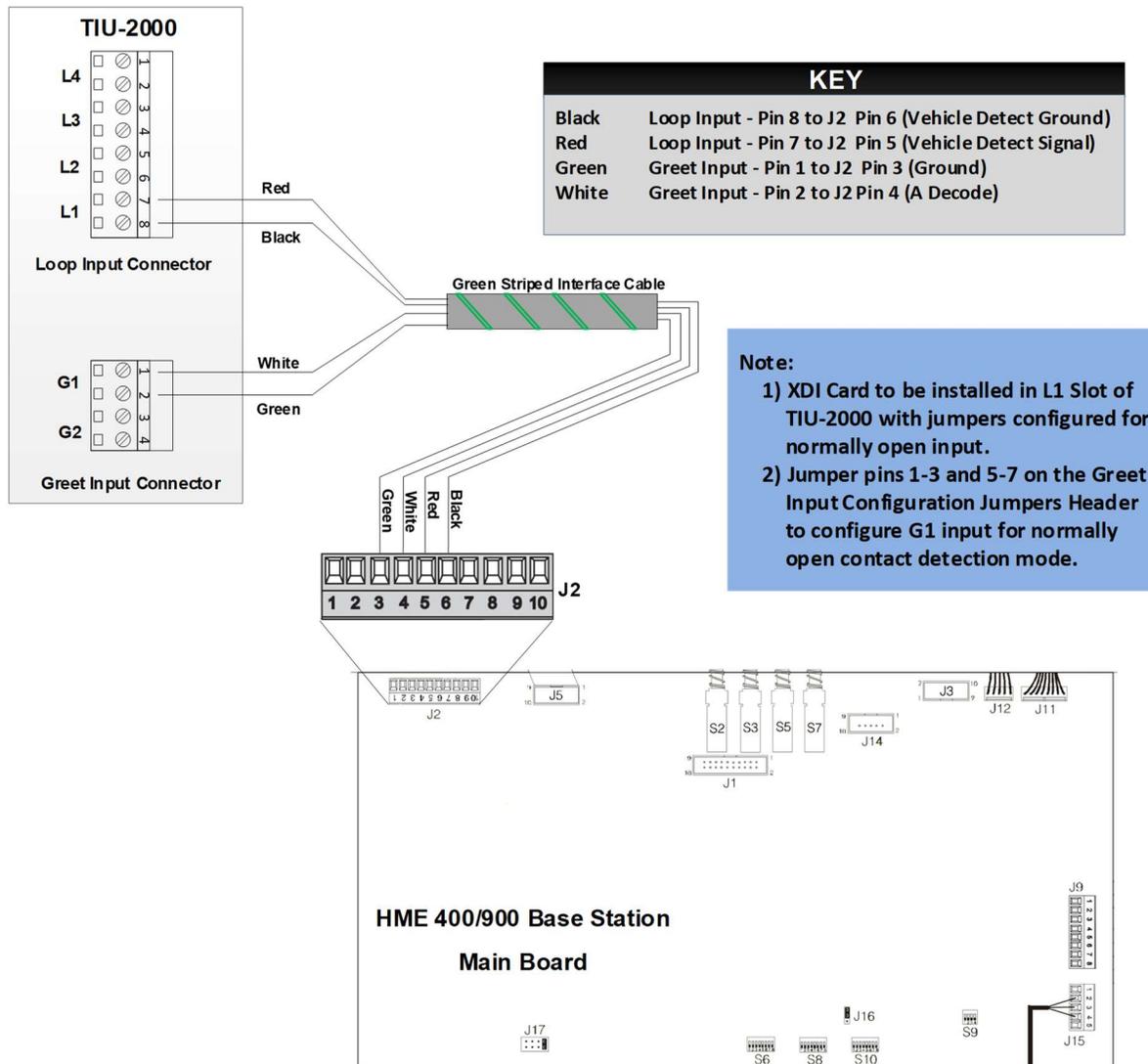


Figure 27 - HME System 400 / 900 Interface

7.9.5 HME System 1000

KEY	
Black	Loop Input - Pin 8 to J4 Pin 6 (Vehicle Detect Ground)
Red	Loop Input - Pin 7 to J4 Pin 5 (Vehicle Detect Signal)
Green	Greet Input - Pin 1 to J2 Pin 4 (Ground)
White	Greet Input - Pin 2 to J2 Pin 3 (A Decode)

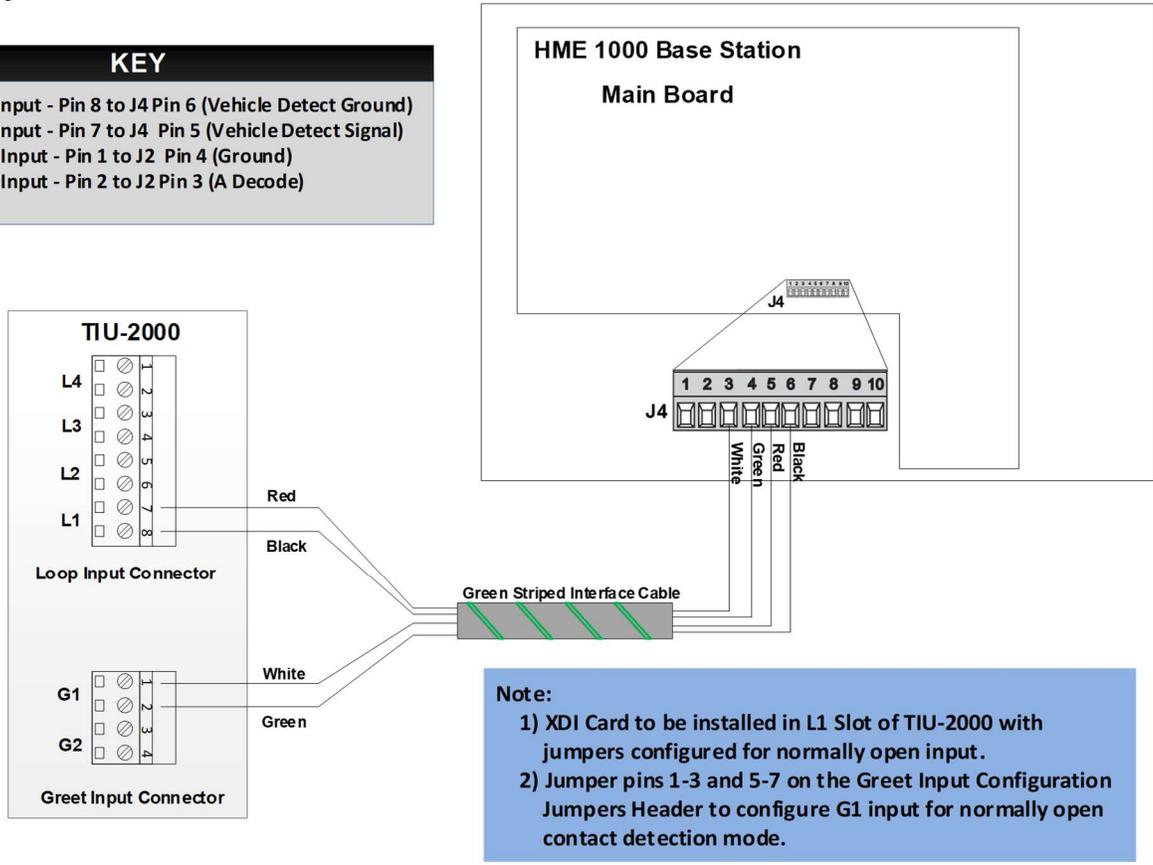


Figure 28 - HME System 1000 Interface

7.9.6 HME System 2500

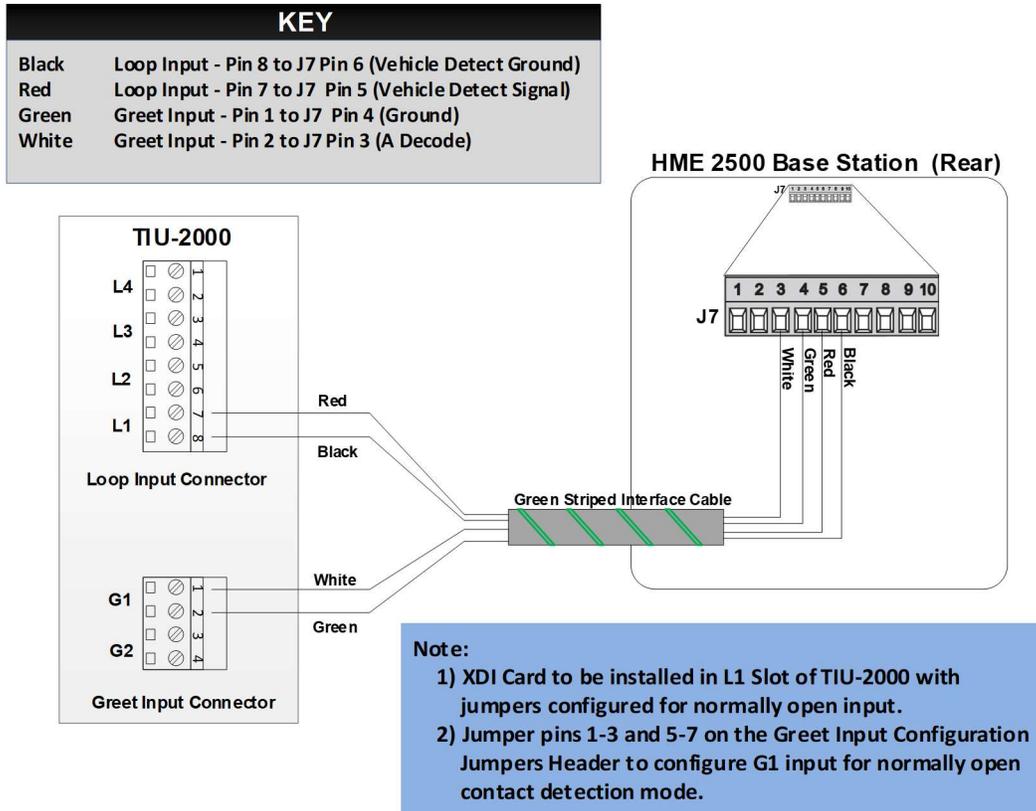


Figure 29 - HME System 2500 Interface

7.10 Interfacing with PAR (3M) Audio Systems

Just as with HME, PAR (3M) has several models of Base Stations. Most of these have the exact same wiring, the only exception being the XT1 Base Station.

7.10.1 PAR (3M) XT-1 Interface

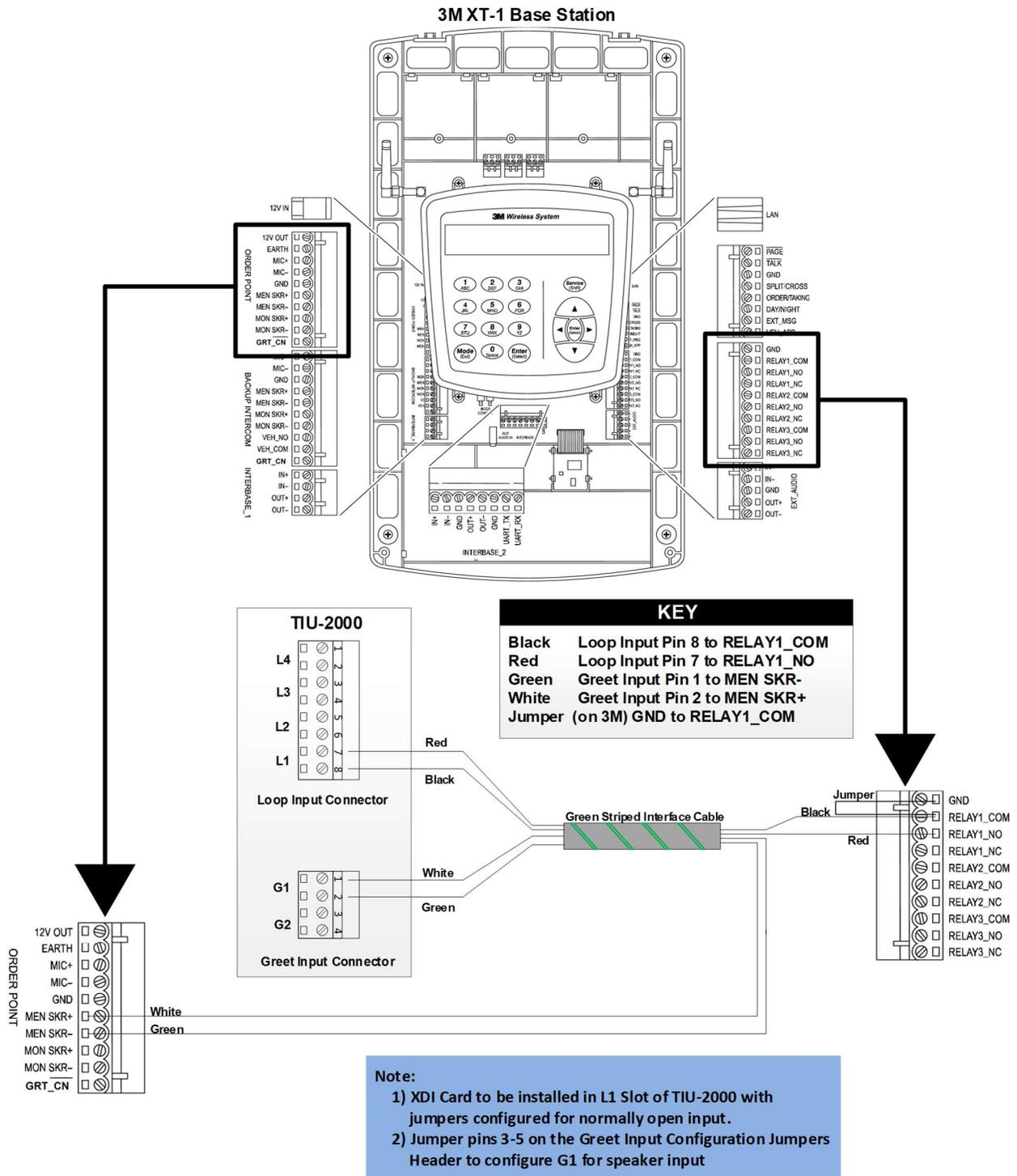


Figure 30 – PAR (3M) XT-1 Interface

7.10.2 PAR (3M) C760 / 960 / 1060 Interface

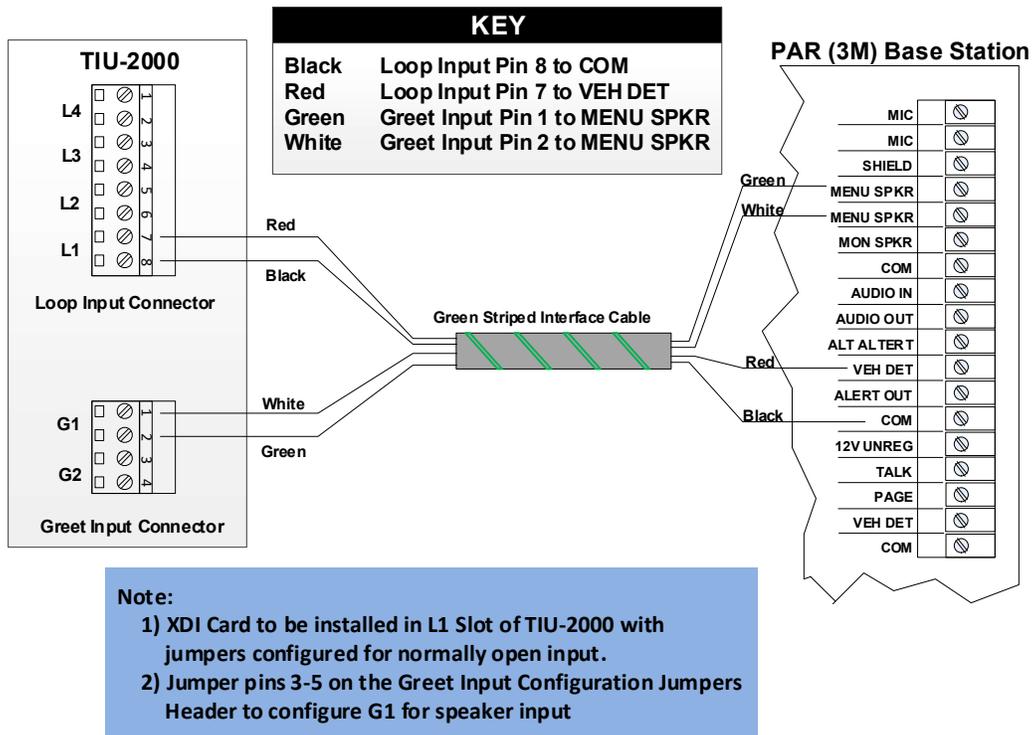


Figure 31 – PAR (3M) C760 / 960 / 1060 Interface

7.10.3 PAR (3M) G5 Interface

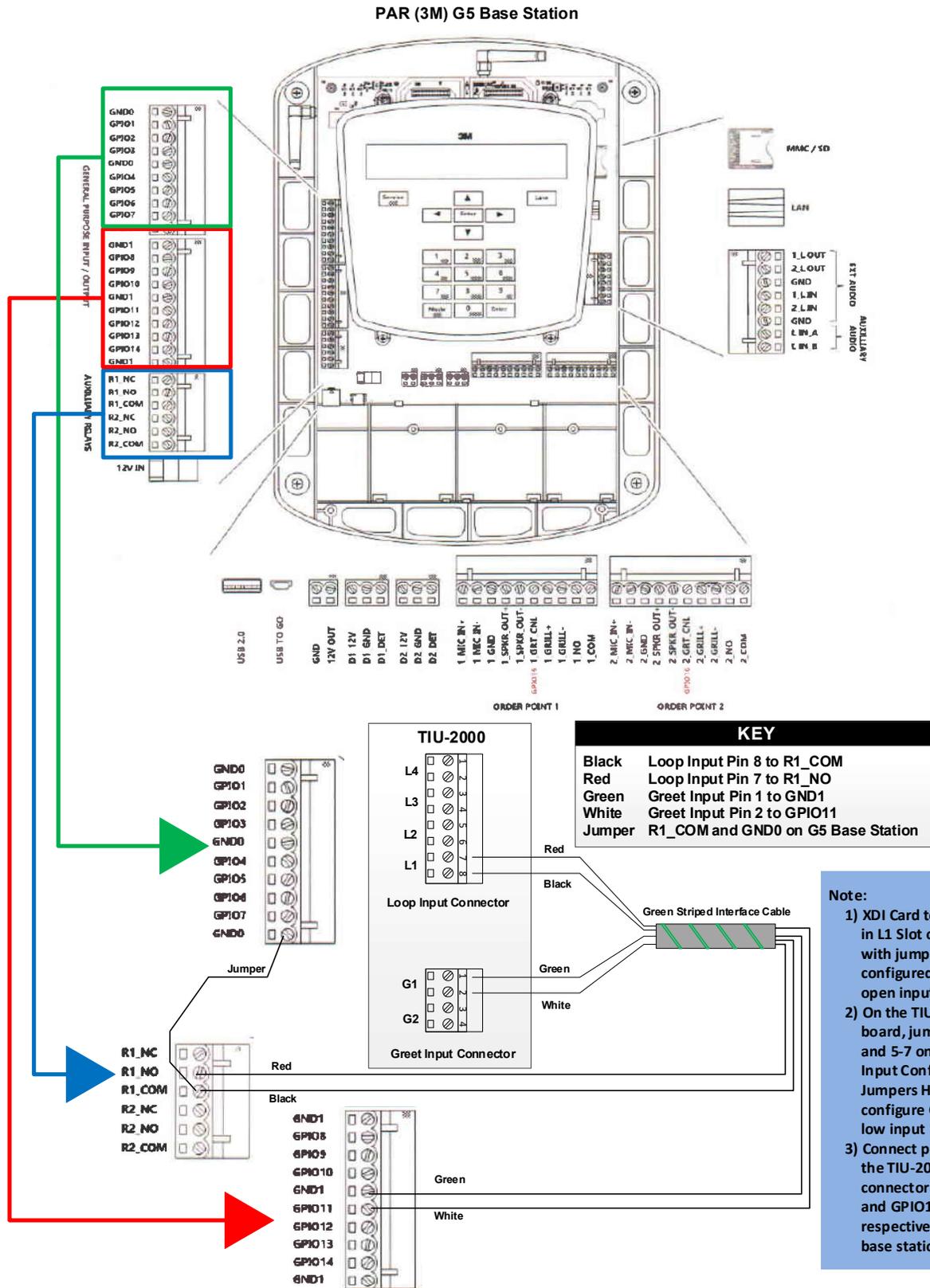


Figure 32 - PAR (3M) G5 Interface

7.11 Interfacing with Panasonic Audio Systems

Panasonic Wireless Audio Systems typically require an external vehicle detector. If an existing vehicle detector is in place, it must be a Dual Output model. If the Panasonic headset system is being installed along with the timer, the TIU-2000 can supply the Vehicle Detector populated in slot L1 alleviating the need for an external detector.

7.11.1 Panasonic Attune WX-C3000 Interface

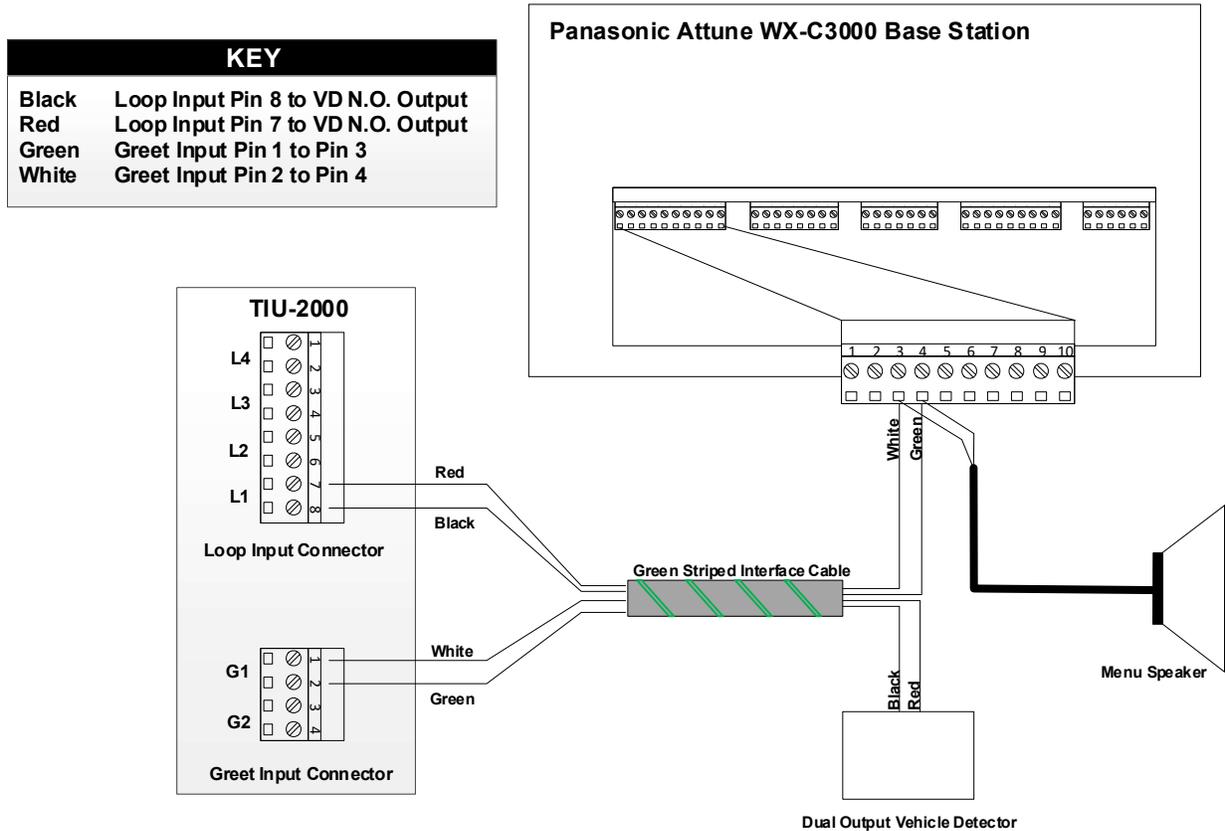


Figure 33 - Panasonic Attune WX-C3000 Interface

7.11.2 Panasonic Ultraplex 2010 / 1010 / 910 / 510 Interface

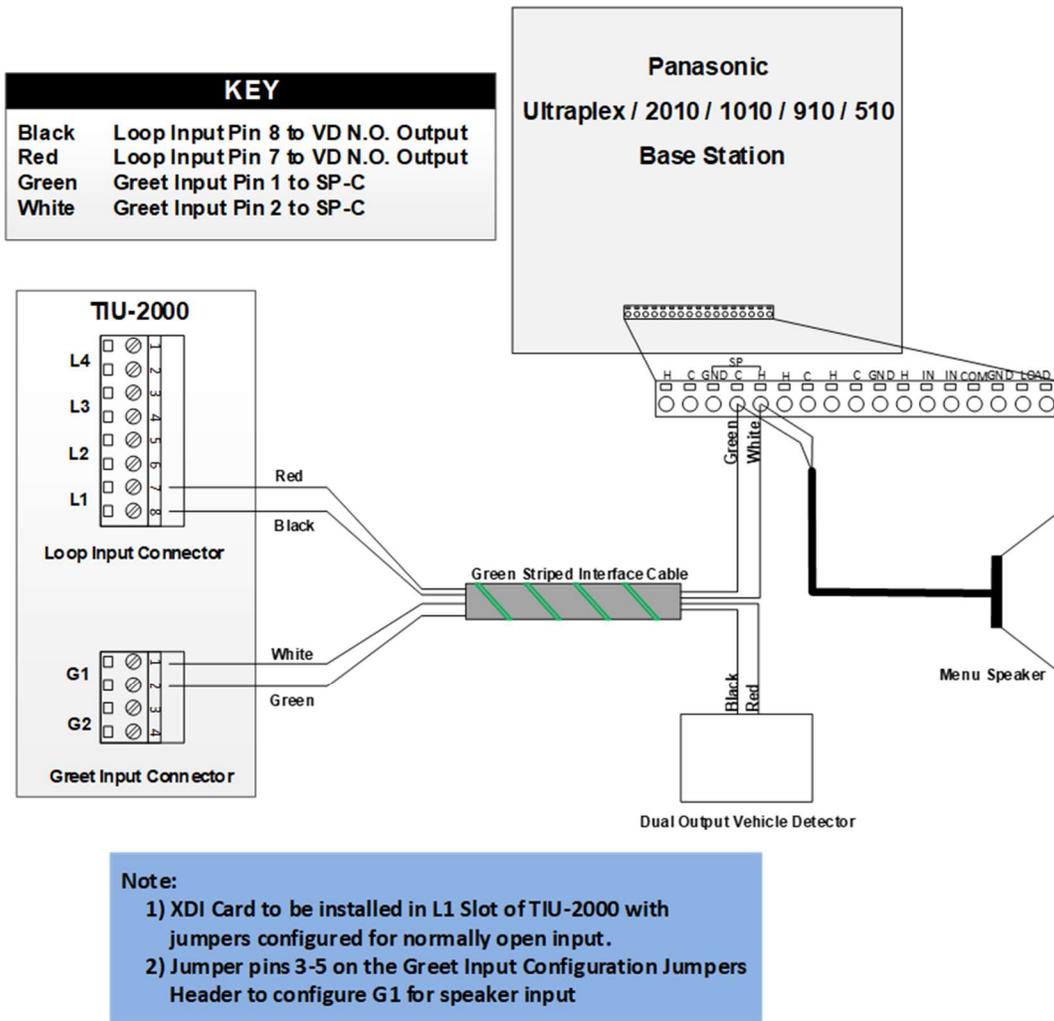
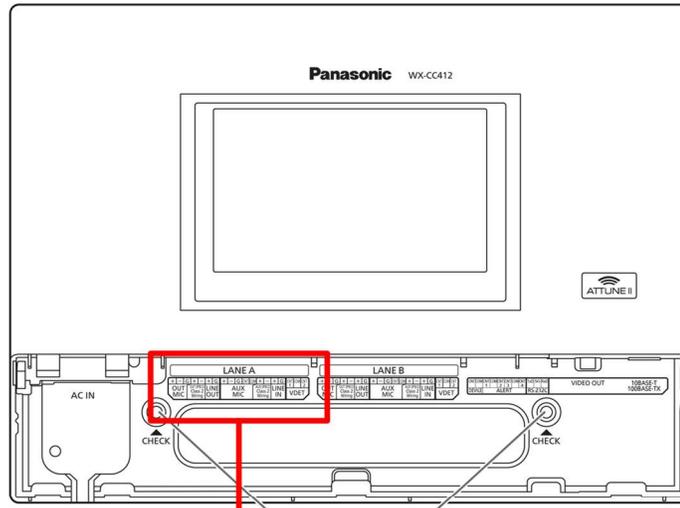


Figure 34 - Panasonic Ultraplex Interface

7.11.3 Panasonic Attune 2 (WX-CC411/WX-CC412) Interface (with external loop detector)

Panasonic Attune 2
WX-CC411 / WX-CC412



KEY	
Black	Loop Input Pin 8 to Existing Loop Detector Output GND
Red	Loop Input Pin 7 to Existing Loop Detector Output
Green	Greet Input Pin 1 to OUT SP (+)
White	Greet Input Pin 2 to OUT SP (-)

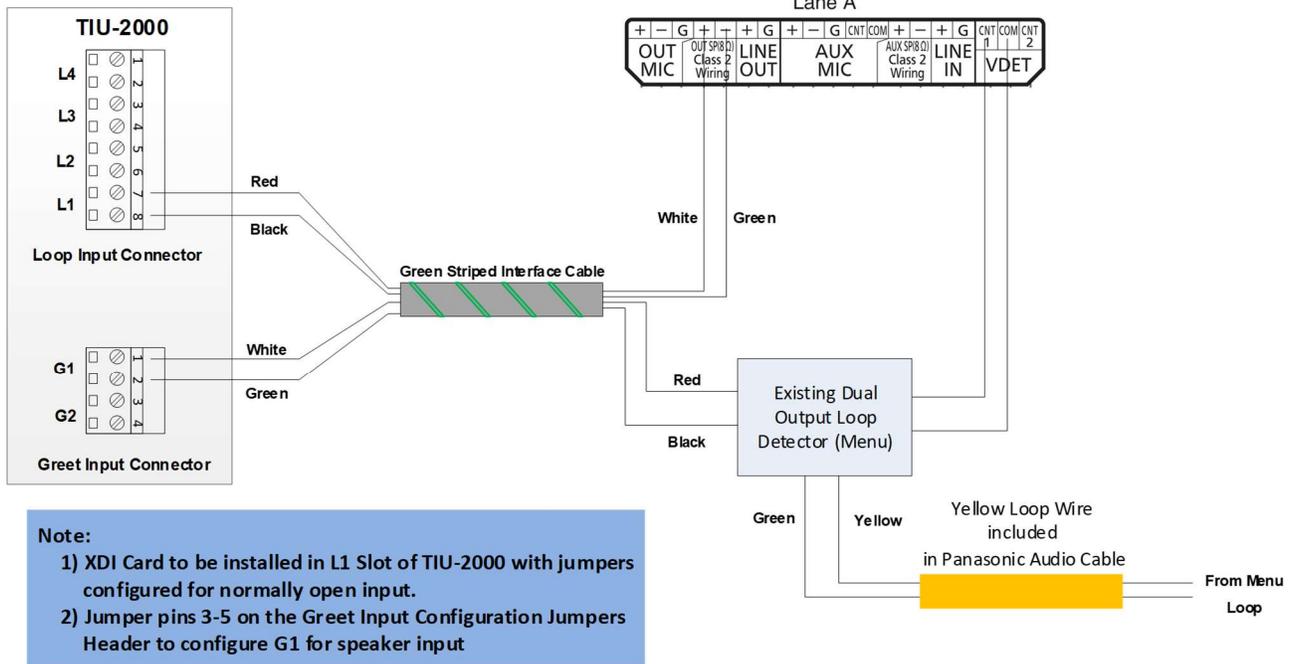


Figure 35 - Panasonic Attune 2 (WX-CC411/WX-CC412) Interface w/ Ext. Loop Detector

7.11.4 Panasonic Attune 2 (WX-CC411/WX-CC412) Interface (without external loop detector)

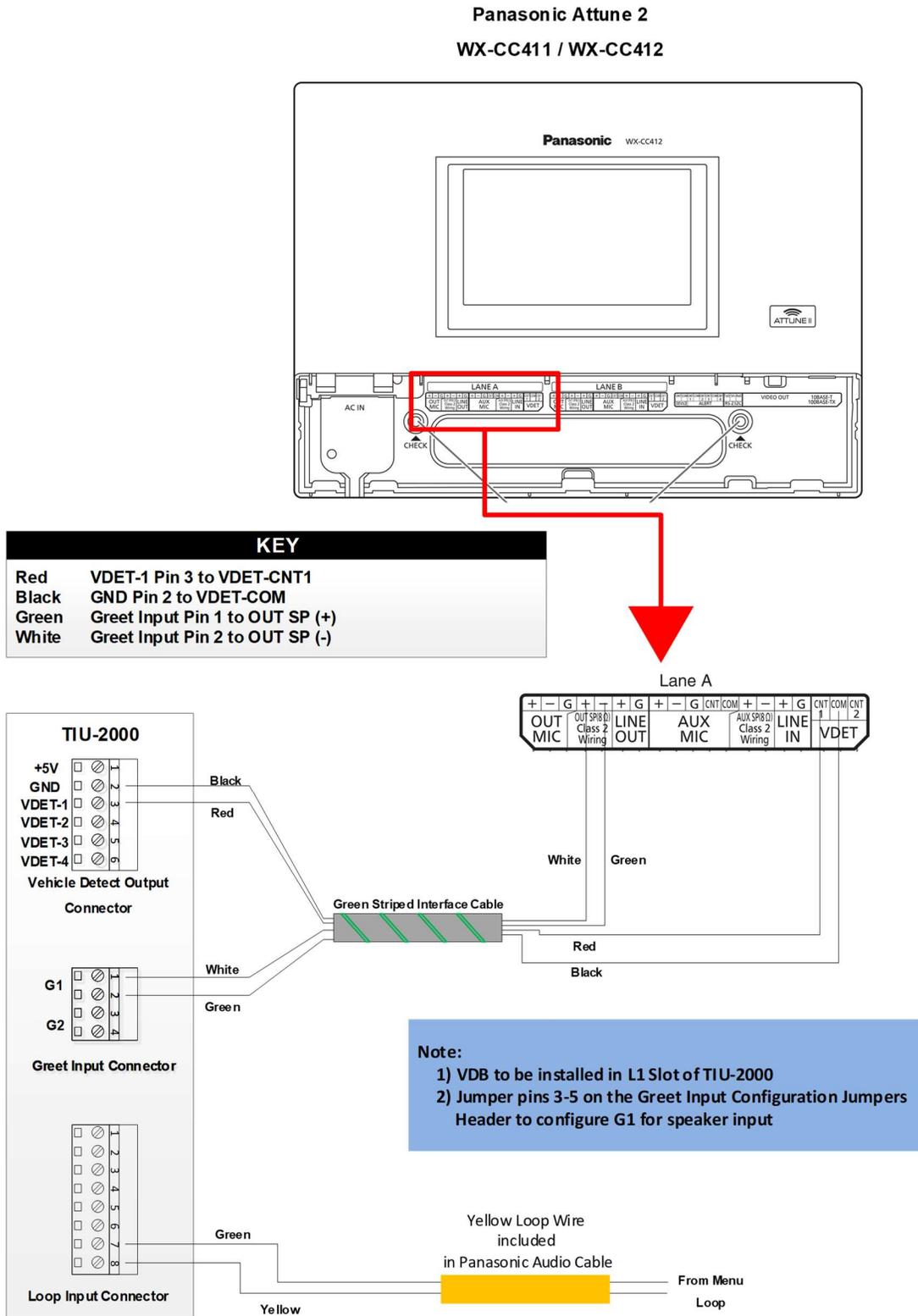


Figure 36 - Panasonic Attune 2 (WX-CC411/WX-CC412) Interface w/o Ext. Loop Detector

8 Power Up

Once all connections are complete, apply power to the dashboard monitor, the controller, and the TIU. The dashboard will illuminate and, after several minutes, the Timer Dashboard screen will appear on the monitor. The TIU will illuminate, including the Vehicle Detectors. Three (3) beeps will be heard upon application of power.

9 TIU Indicator Lights

The TIU-2000 has multiple indicator light and numbers:

L1-L4 When lit, indicates that a vehicle is present at the respective loop input.

G1-G2 When lit, indicates that a greet signal is present on the respective greet input.

X1-X2 When lit, indicates that the TIU is in a special diagnostic mode. These indicators should NOT be lit during normal operation. If they are lit, check to make sure that all 4 dip switches are set to OFF.

L1-L4 Indicators (when populated with Vehicle Detector Boards):

When Green light is lit, indicates power to the Vehicle Detector Board (VDB). When Red light is lit, indicates a vehicle is present at the respective loop. Red numbers indicate detection sensitivity during Vehicle presence. When a standard car is present, the number should be a "5". If not, while the vehicle is still there, push the black buttons above or below the number to raise or lower the sensitivity until the desired number is achieved. To access the sensitivity buttons on the VDB, first remove the front cover by loosening the two thumbscrews located on the sides of the unit.

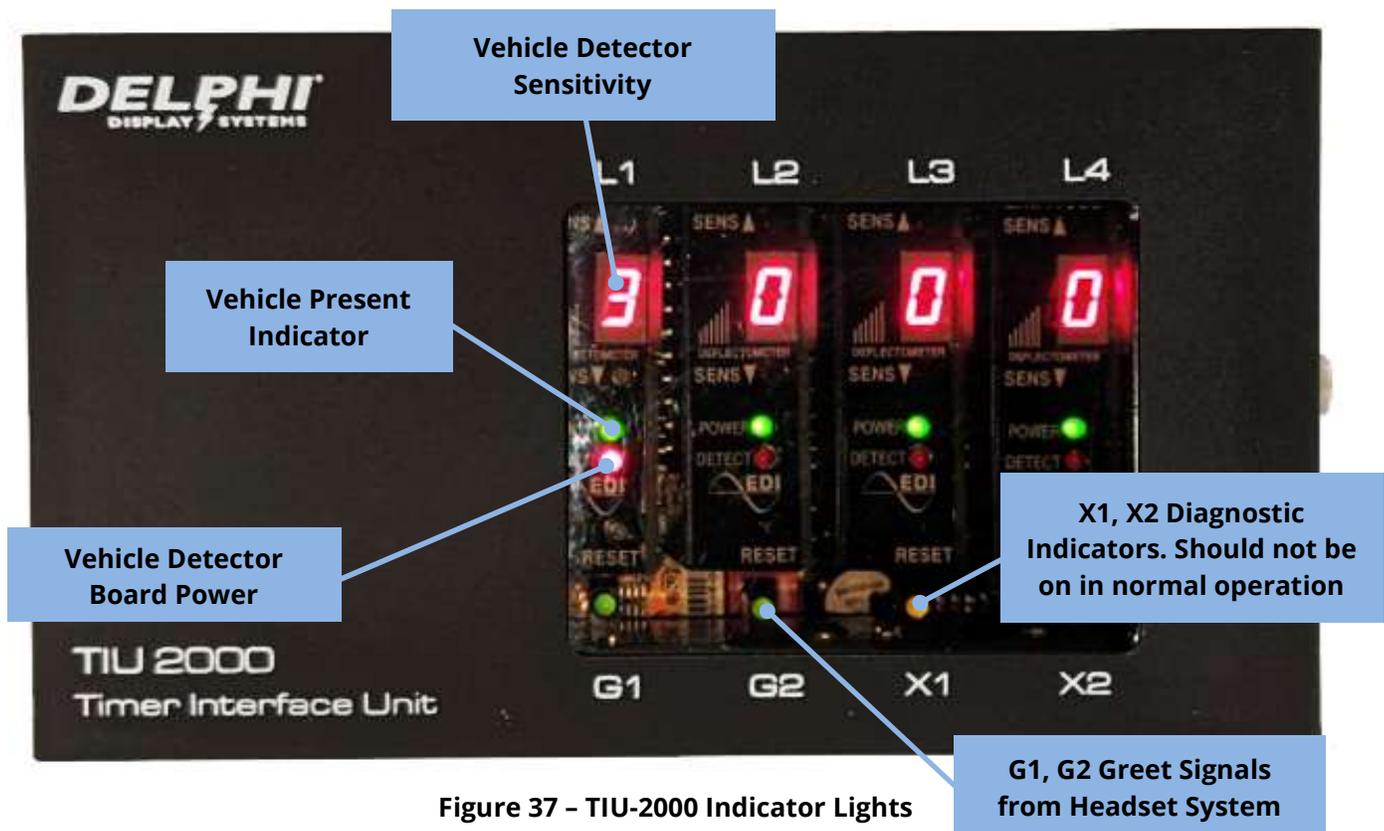


Figure 37 - TIU-2000 Indicator Lights

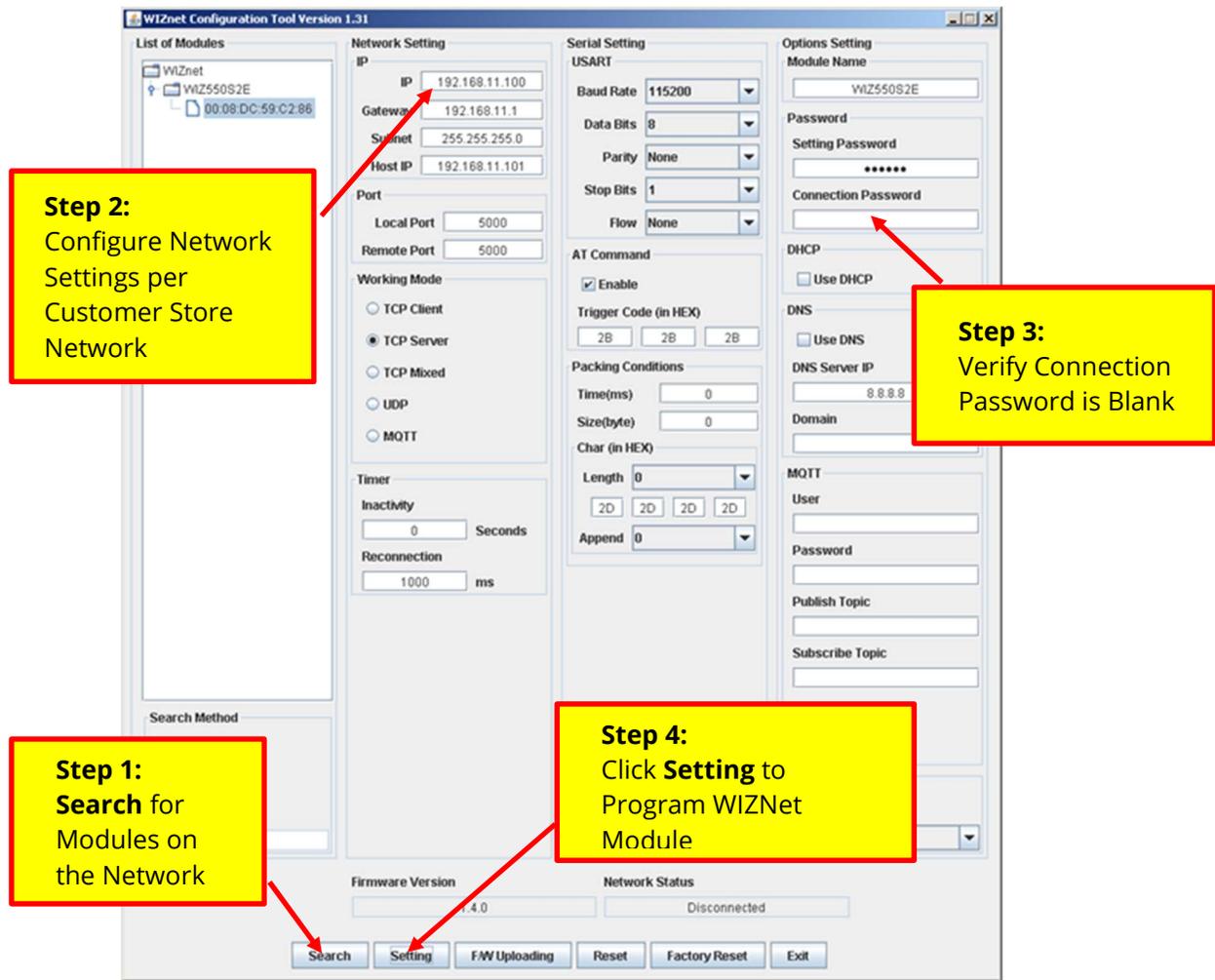
10 Configuring the System

10.1 Set IP Address, subnet and gateway for ISA-3300

1. The IP address only needs to be changed if the ISA-3300 controller was shipped with the default IP of 192.168.21.XXX.
2. Log on to the web interface. This can be done directly on the ISA-3300 controller or from a computer on the same network using Chrome or Firefox. <https://localhost/configMgmt/login.jsp>
 - a. User Name: **delphidisplay**
 - b. Password: **!ns!ght**Change "localhost" in link to IP address of the ISA controller if accessing from a remote computer.
3. Click on **Admin** at the top right
4. Click on **System Configuration**
5. Proceed to change IP address, Subnet Mask and Gateway information and click **Save!** The unit will now reboot and save the new information.

10.2 Set IP Address, Subnet and Gateway for TIU-2000

1. Log on to the ISA-3300
2. Open the **File explorer**
3. Click on **Other Locations**
4. Click on **Computer**
5. Click on **Insight** folder
6. Double click on **TIU2000-IP-Change**. This will open the WIZnet Configuration tool
7. Click the **Search** button
8. The mac address of each TIU-2000 will be listed under **List of Modules**. Click on your device.
9. Proceed to change the IP, Subnet and Gateway information.
10. Verify that the Connection Password is Blank.
11. Click on **Setting** to save. When prompted for a password use **WIZnet**



10.3 Configuring Network Ports

1. Confirm that the following ports are open on the store network. These are required for the equipment communicate over the network properly. If Score™ is to be installed as part of this Track configuration, please note the port numbers required below to allow communication with Delphi's cloud servers.

Device	Host	Port(s)	Notes
TIU-2000	localhost	5000	Network traffic between TIU-2000 and ISA
Score™	score.delphicloud.net	443, 1443	Network traffic between ISA and Cloud servers
Any	ntp.ubuntu.com	123	Network time synch for ISA time clock

10.4 Setting store parameters

2. Log on to the web interface. This can be done directly on the ISA box or from a computer on the same network using Chrome or Firefox. <https://localhost/configMgmt/login.jsp>
 - a. User Name: **delphidisplay**
 - b. Password: **Ins!ght**

- Change "localhost" in link to IP address of the ISA controller if accessing from a remote computer.
3. Under the Track heading, click on **Configuration - Configure timing system settings**
 4. Click on **Hours** tab and change the open and closing times to match the customer's settings.
 5. Click **Save**
 6. Click on the **Day Parts** tab and change Start Time for each daypart to match the customer's settings.
 7. Click **Copy to All Days**
 8. Click **Save**

10.5 Creating a shortcut to Insight homepage.

From Chrome:

1. Open the following link from the customer's browser: <https://localhost/configMgmt/login.jsp>
Change "localhost" in link to IP address of the ISA controller if accessing from a remote PC.
2. Click the Chrome Menu from the browser toolbar.
3. Select **More Tools**
4. **Create Shortcut**
5. Give it the name "Insight Track" and hit **Create**

From Firefox:

1. Open the following link from the customer's browser: <https://localhost/configMgmt/login.jsp>
Change "localhost" in link to IP address of the ISA controller if accessing from a remote PC.
2. Click and hold the site **icon**, located directly to the left of the address bar at the top of the Firefox window.
3. Drag the site icon to any empty location on your desktop.
4. Release the mouse button to create the Firefox website shortcut.
5. Rename the shortcut to "Insight Track".

11 Testing the System

To test the system, observe the dashboard monitor and the TIU while vehicles are running through the drive thru. If the store or drive thru lane is closed, the installer can utilize his/her own vehicle for testing.

11.1 Testing Menu / Greet / Total

- When a vehicle arrives at the Menu Board (Typically connected to **L1**)
 - Menu Time, Greet Time and Total Time will begin counting. Depending on which dashboard is being used on the monitor, these items should visibly begin counting. If not, verify all the wiring between the headset system and the TIU is correct.
 - **L1** should light up red.
- When someone wearing a headset speaks to the customer outside, **G1** should light up or flash red **AND** the Greet time should stop counting, signifying the customer has successfully been greeted.
 - **If the store or lane is closed and the installer is using their own vehicle for the testing, he/she should leave their vehicle at the menu board, and walk inside to observe and verify the counting on the Dashboard and the indicator lights on the TIU. By putting on a headset and speaking into it, **G1** should light up red.
- When the vehicle pulls away from the Menu Board:
 - **L1** should extinguish
 - Menu time should stop counting
 - Total time should continue to count

11.2 Testing Window / Total

Perform the following test based on the configuration of the store.

11.2.1 For a Single Window store (or if first window is not being timed):

- When the vehicle arrives at the window:
 - **L2** (or **L3**) should light up red, depending on what slot the window was connected to.
 - Number should display a "5" for a standard size car. If not, refer to instructions in section 9.
 - Window time should begin counting
 - Total time should continue to count
- When the vehicle pulls away from the window:
 - **L2** (or **L3**) should extinguish
 - Number will return to 0 (ZERO)
 - Window time AND Total time will stop counting

11.2.2 For a Two Window Store:

- When vehicle arrives at the first window:
 - **L2** should light up red.
 - Number should display a "5" for a standard size car. If not, refer to instructions in section 9.
 - Window 1 should begin counting.
 - Total time should continue to count.
- When the vehicle pulls away from the first window:
 - **L2** should extinguish.
 - Number will return to 0 (ZERO).
 - Window 1 time will stop counting but Total time will continue.
- When vehicle arrives at the second window:
 - **L3** should light up red.
 - Number should display a "5" for a standard size car. If not, refer to instructions in section 9.
 - Window time should begin counting.
 - Total time should continue to count.
- When the vehicle pulls away from the second window:
 - **L3** should extinguish.
 - Number will return to 0 (ZERO).
 - Window time AND Total time will stop counting.

If any of the previous items do not happen as they are supposed to, verify all wiring, then call Delphi Technical Support if the problem persists.

12 Verify Online Access with Delphi Technical Support

Once the system has been configured and tested per the above steps, please contact Delphi Technical Support at the number below. Please have the store number ready. Delphi's technical support will then confirm that remote access to the system is available and will also confirm proper detection functionality for all configured timing stations (i.e. Menu, Greet, Cash, Pickup).

Delphi Display Systems, Inc.
3550 Hyland Avenue
Costa Mesa, CA 92626
In the US: 1-800-456-0060, Option 9, then Option 2
International : +1-714-825-3400
Email : techsupport@delphidisplay.com

13 Document Revisions

Revision #	Date	Notes
A	7/20/20	Initial Release
B	12/7/20	Removed references to Dual Lock installation for ISA-3300
C	3/15/21	Added connection diagram and optional equipment listing for dual monitor configurations.
D	4/27/21	Corrected errors and added notes in Par G5 base station diagram for G1 signal connections. Corrected TIU-2000 jumper configuration for active low G5 GPIO11 output.
E	11/18/21	Clean up.
F	8/1/22	Updated default jumper configuration diagram to show 4 jumpers now set at the factory. Added detail to wiring diagram 7.2.
G	9/1/22	Added Configuring System and Verify Online Access with Delphi Technical Support sections.