Installation Instructions

Insight Track®
Drive Thru Timing System

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1   Introduction

The following instructions will describe the installation procedures for the Insight Track Timer System. This manual is specific to physical installation of the hardware. Please refer to the appropriate Configuration Manual for detail on how to configure the system following installation.

1.1   Supplied Equipment

Every shipment should contain the following equipment:

QTY	Description	Part Number	Item Number	Image
1*	Timer Interface Unit (TIU) w/ Power Adapter (If store is Y-Lane or Tandem Lane, 2 TIUs will be supplied) Power Supply	2500-TIU-1000 DPSAD-12125	1	
1	ISA 3300 Controller (model may vary)	2502-ISA3300	2	
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	VESA Mount Bracket for Insight ISA 3300 Controller 4 ea. screws, 6-32x3/16"	6201-0607-0000 1906-2212-0003	5	

1	HDMI to HDMI Cable – 18 inches.	5608-0023-2018	6	
1*	10' TIU Interface Cable, USB (If store is Y-Lane or Tandem Lane, 2 USB cables will be supplied)	5202-0050-0002	7	
1	100' Cat5e w/ RJ45 connectors (white)	3232-100-CAT5DS	8	
1	Cable, Red Stripe, Window Loop	5602-0057-3066	9	
1	Cable, Interface, Green Stripe, 66'	523	10	
1	Cable, Yellow Stripe 18 Gauge, 66', Window Loop (**ONLY** if 2 window store)	5602-0058-3066	11	
1	Cable, Interface, Orange Stripe, 66' (**ONLY** if Y Lane or Tandem Menu Store)	290	12	

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

1.2   Supplied Optional Items
The following items are also supplied to be used if needed:

1	9', 3 Outlet Extension Cord	9401-0044-0002	N/A	

2   Overview

All components of the system (Reference Figure 1) are intended to be installed in the drive thru booth area, with a single Cat5e cable running from the Controller to the customer's network router / switch, typically in the office.
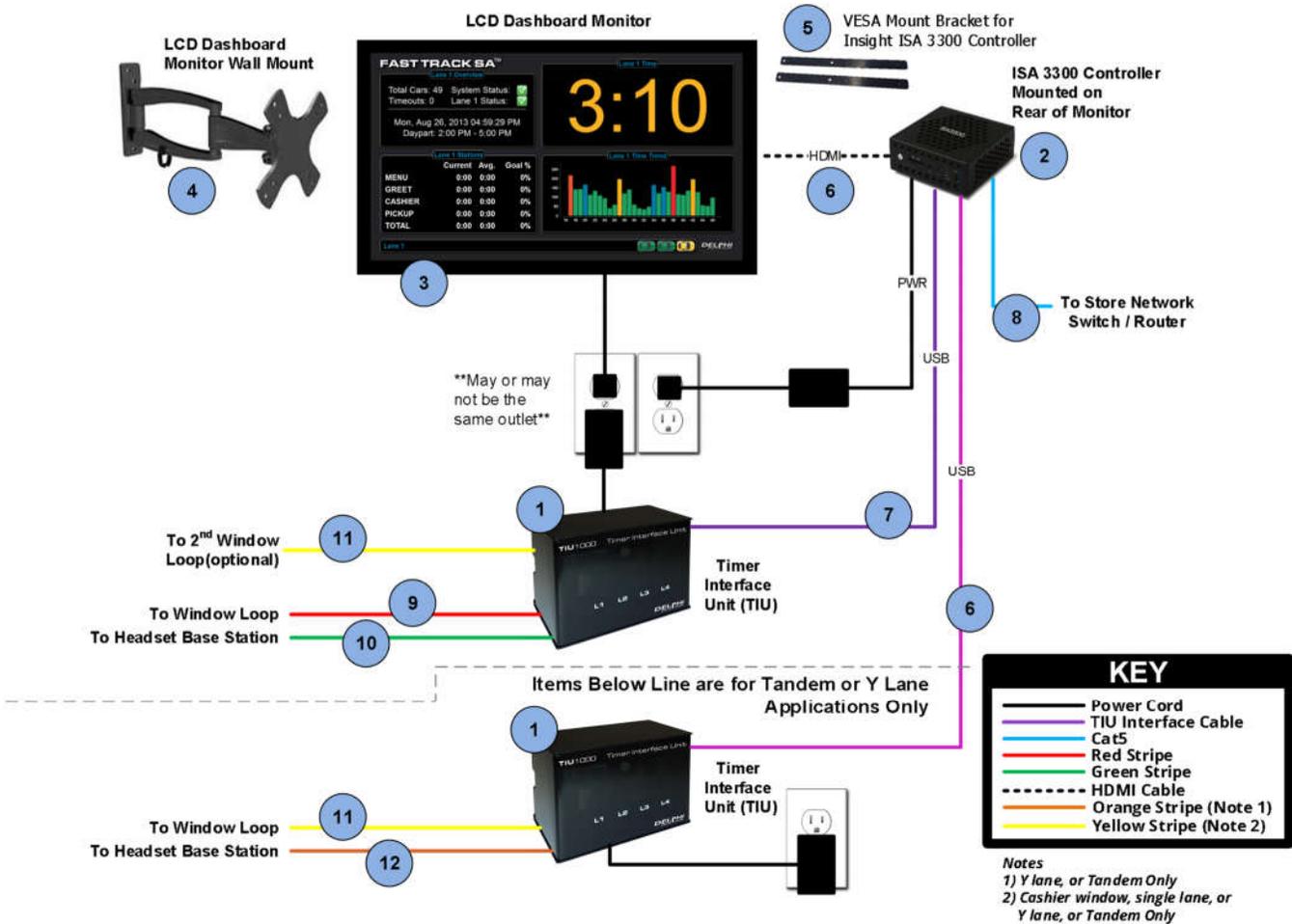
Figure 1- Connection Diagram

3   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

4   Plan Hardware Location

4.1   Determine Proper Location for Dashboard Monitor

The 22" 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 and example for location of the monitor.

Figure 2 - 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 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.

4.2   Determine Proper Location for the Timer Interface Unit (TIU)

The TIU must be connected to the controller on the rear of the dashboard monitor using the provided 10' TIU interface cable. To accomplish this, the TIU must be mounted close to the dashboard monitor. Typically, the monitor will be mounted between 24"-36" below the monitor where it will be easily viewable and accessible by the customer.

**If Y Lane or Tandem Menu store, there will be (2) TIUs, so mount them side by side.

LCD Dashboard Monitor

TIU
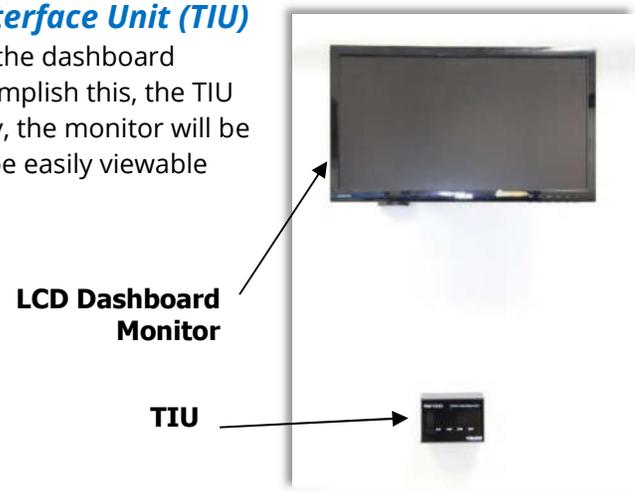
Figure 3 – Dashboard and TIU relative location

4.3   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-striped cable. This connection provides the menu board vehicle detection and audio greet signals to the TIU. The green-striped 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 Y-Lane or tandem configuration, the Orange stripe cable will be used to connect to the 2nd headset base station.

4.4   Locate the Window Loop Penetration Point

For a drive thru timer to be used, a ground loop vehicle dector must be installed at the window. Typically the penetration for this 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 restauarant, 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.

5   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 and controller assembly.
4. Install the TIU(s).
5. Terminate all final connections between applicable devices

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

5.1   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). Also, drill a hole in the wall behind where the TIU will be installed to accommodate the incoming TIU interface and loop cables so that they can be routed to the rear of the device.

**If Y lane or Tandem Menu store, cables for both TIUs can run through this same hole, then be routed individually to each TIU.

Figure 4 - Hole for TIU Wiring

5.2   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.

5.2.1   Green Stripe Interface Cable

The green-stripe cable is to be run from the TIU location to the customer's menu board vehicle detector. Typically, it is located inside their headset system's main console.

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

The orange-stripe cable is utilized only for Y-lane or tandem menu configurations and is to be run from the 2nd TIU for lane two to the customer's menu board vehicle detector for the second lane. Typically, the vechicle detector is located inside the headset system's main console.

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

Red-stripe: pickup window; Yellow stripe: cash window. 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.

5.2.4   Cat5 Network Cables

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 dashboard monitor location where it will connect to the Controller attached to the rear of the monitor (in some cases, the controller may be mounted adjacent to the monitor). The other end of the cable will be routed to the stores network router/switch. Once routed, terminate the ends using the 568B method using the supplied RJ45 connectors.

5.2.5   TIU Interface Cable

The TIU interface cable routes between and is connected to both the TIU and the timer controller.

5.3   TIU Interface Cable (single wire - ONLY if Y Lane or Tandem Menu Store)

This cable is ONLY applicable for a Y Lane or Tandem Menu store. This cable will run from the TIU for the second lane to the Controller.

5.3.1   HDMI to HDMI Cable

The HDMI video cable is routed between the timer controller and the dashboard monitor. If more than one HDMI port is available on the monitor, choose HDMI 1.

5.4   Install Monitor Mount on Wall

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

5.5   Remove Monitor Stand and Install Controller Mounting Brackets

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 5).

Figure 5 - Remove Stand from Monitor

Attach the ISA Controller mounting plate to the VESA mounting brackets using the four supplied 6-32 screws as shown in the figure below.

Figure 6: Attach Controller Mounting Plate to the VESA Mounting Bracket

Attach the ISA Controller VESA mounting bracket assembly in between the back of the LCD monitor and the monitor mount plate and attach the mounting arm to the LCD monitor per the instructions provided in the packaging from the mount manufacturer (see

Figure 7).

ISA Controller VESA mount attached to rear of LCD monitor using VESA monting holes

Figure 7: Attach Controller Mounting Bracket assembly to rear of LCD monitor

5.6   Install Controller onto Back of Dashboard Monitor

Remove the controller from the packaging and place it onto mounting bracket with label upside down as shown, slide Controller downward to latch into position. Connect the HDMI between the controller and the monitor. Connect ther power supply (included in the controller box) to the controller. Connect the USB end of the TIU interface cable to the controller, and the other end to the TIU, connect the Cat5 cable as well. Connect the power cable to the monitor (See Figure 8).

Figure 8 – Mounted Controller and Cable Connections

5.7   Install TIU on 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. Make marks for the screws. Using the supplied screws and anchors, hang the TIU on the wall.
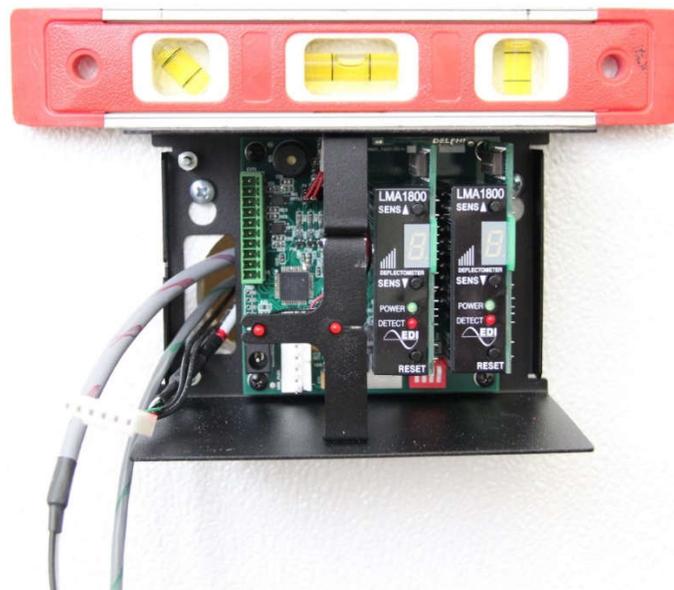
Figure 9 - Mounting TIU on Wall

5.7.1   TIU Connections

Plug the TIU Interface cable into the white receptacle on the TIU main board. Directly adjacent to the power connector, plug in the power cable, but **DO NOT** plug the other end of the power cable into the outlet yet.

Power Connector

TIU Cable Connection
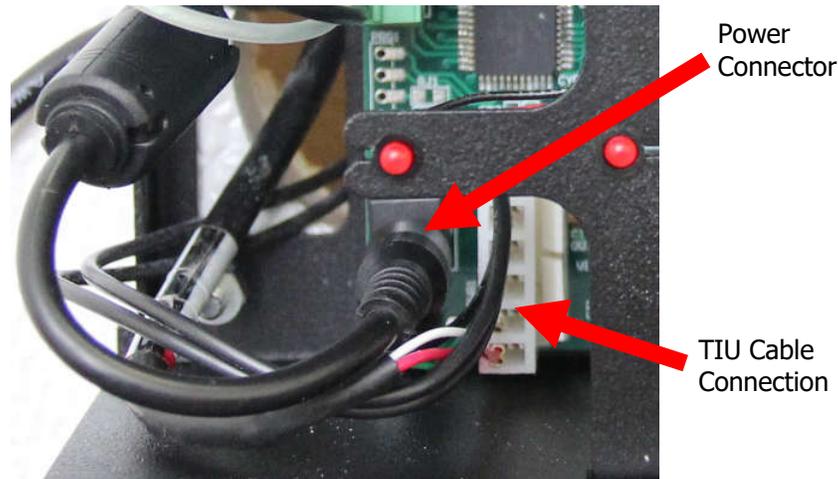
Figure 10 - TIU Interface Cable Connection

5.7.1.1 For Y Lane and Tandem Menu Stores

Plug in the additional TIU Interface Cable (single cable version) and the power connector in the same manner as the other TIU. Again **DO NOT** plug in the other end of the power cable to an outlet yet.

Confirm switch #1 ON only for the second lane TIU. Normally, all 4 switches are off (this will have been done at the factory before shipping). The dip switches are located just below the Vehicle Detector Board(s) inside the TIU. If not preset at the factory, set the dispswitch #1 to "ON" for the Lane 2 TiU.

For the green Phoenix connector, refer to the wiring diagrams in section 6.

5.8   Window Loop Connections

Red Stripe Cable – The red striped cable coming from the pickup window will connect to pins nine (9) and ten (10) of the Phoenix connector.

Yellow Stripe Cable – If the customer is timing two (2) windows in the same lane, a Yellow stripe cable is supplied and runs from the Pay / Cashier window to pins seven (7) and eight (8) of the green phoenix connector.
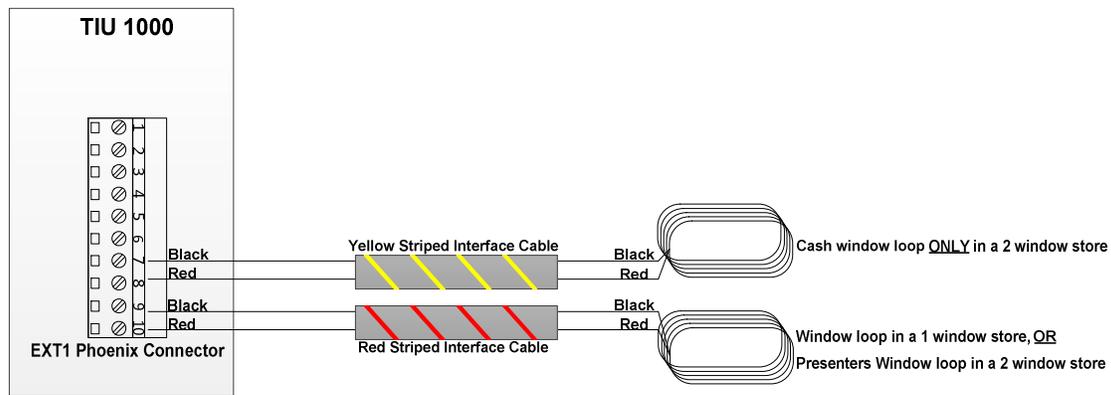
Figure 11 – Window Loop Connections to TIU

6　Menu and Greet Connections

Green Striped Cable: There are several manufacturers, models and configurations of ordering point vehicle detectors and intercom systems in use. The Insight Track Timer works with all current models of these systems. Successful operation of a full-line timer depends upon proper interface with the ordering point vehicle detection system. Full-line timers start the timing sequence with arrival of the vehicle at the ordering point. The following information will detail the connections between the TIU and multiple types of vehicle detectors and intercom systems. It is the responsibility of the installer to properly identify the customer's system, and utilize the correct procedures. If the customer has a system that is not detailed in this section, please contact Delphi Display Systems Customer Support for further assistance.

> **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.

6.1　Interfacing with a 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 1 and 2 of EXT1 connector in the TIU.

3. Connect a jumper wire between pins 3 and 4 of EXT1 connector in the TIU.

4. **Be sure to still make connection to headset system for greet input referring to the other proper wiring diagram.**
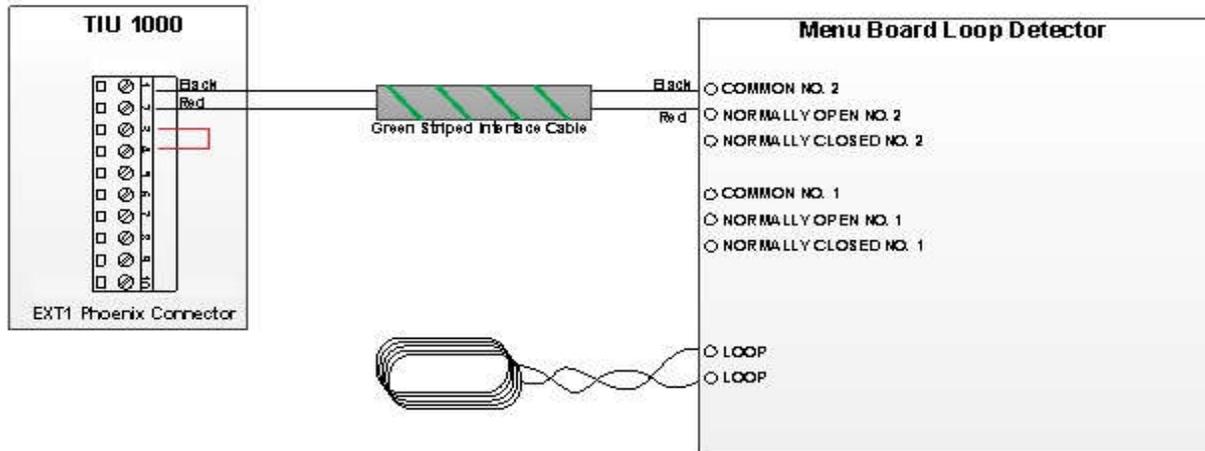
Figure 12 - Dual Output Loop Detector Interface

6.2   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.

6.2.1   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 a TIU to any HME System that utilizes a switcher board.
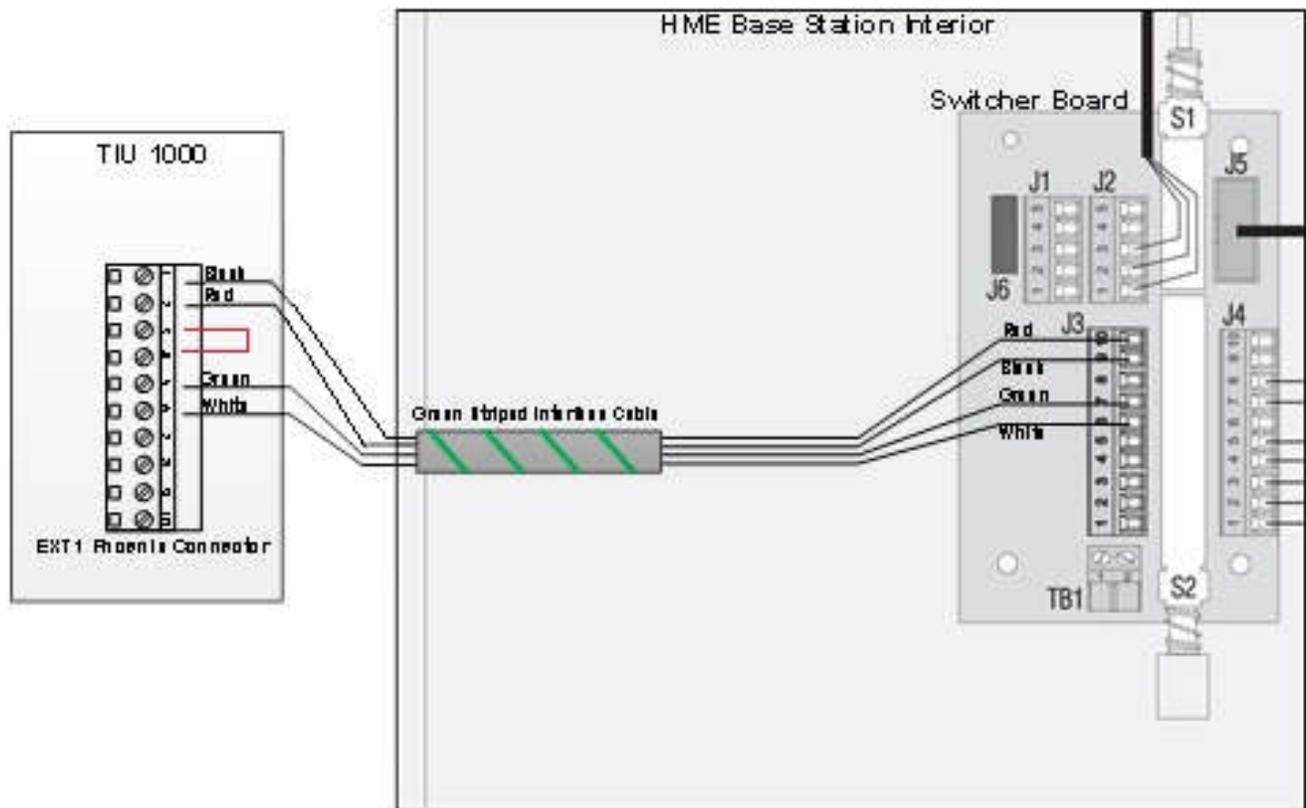
Figure 13 - HME 2500 / 1000 / 400 / 900 / 6000 / ION IQ Utilizing a Switcher Board

6.2.2   HME ION IQ
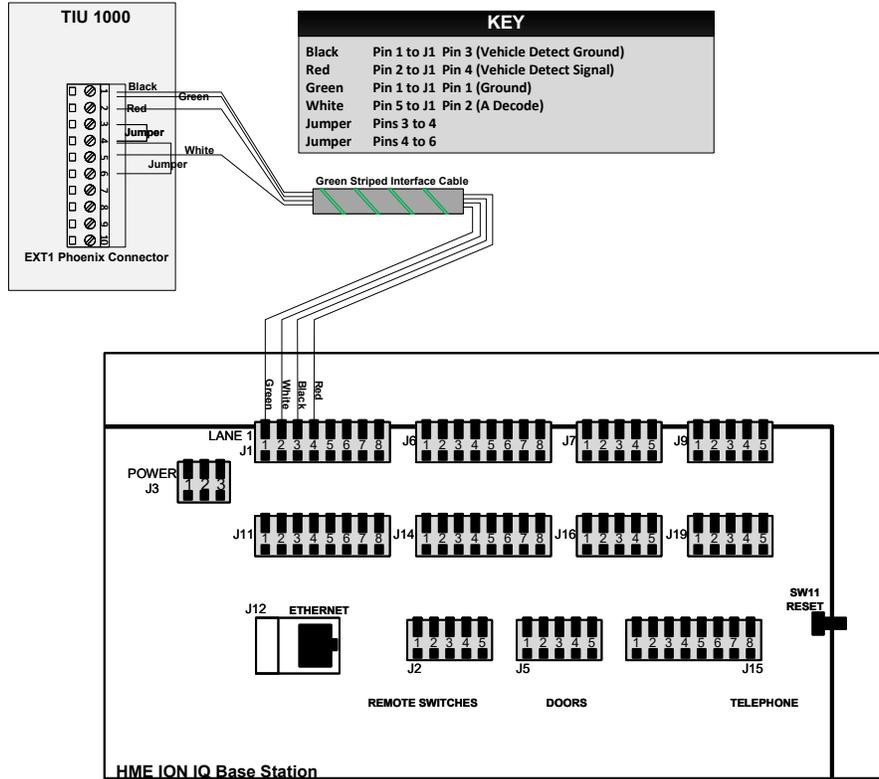
Figure 14 - HME ION IQ Interface

6.2.3   HME System 6000 / Wireless IQ
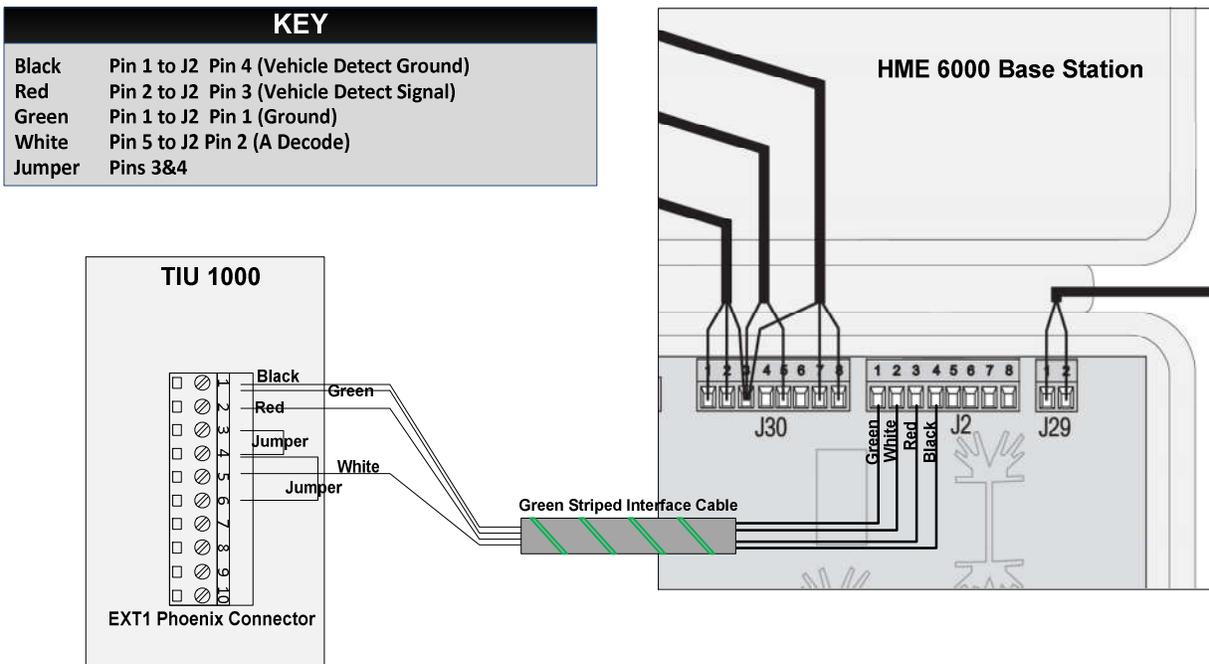
Figure 15 - HME System 6000 Wireless IQ Interface

6.2.4   HME System 400 / 900
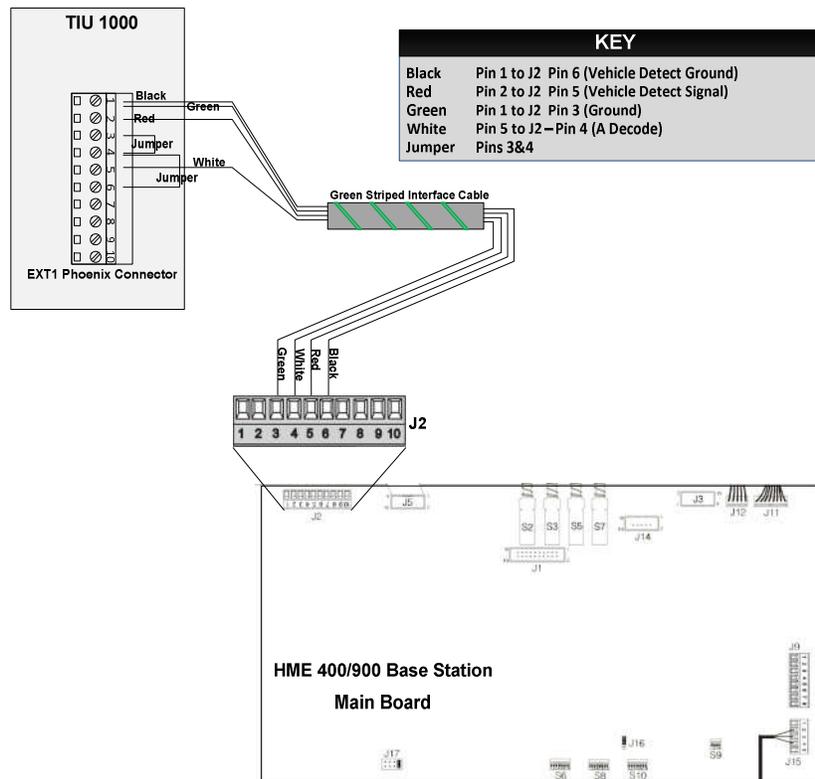
Figure 16 - HME System 400 / 900 Interface

6.2.5   HME System 1000
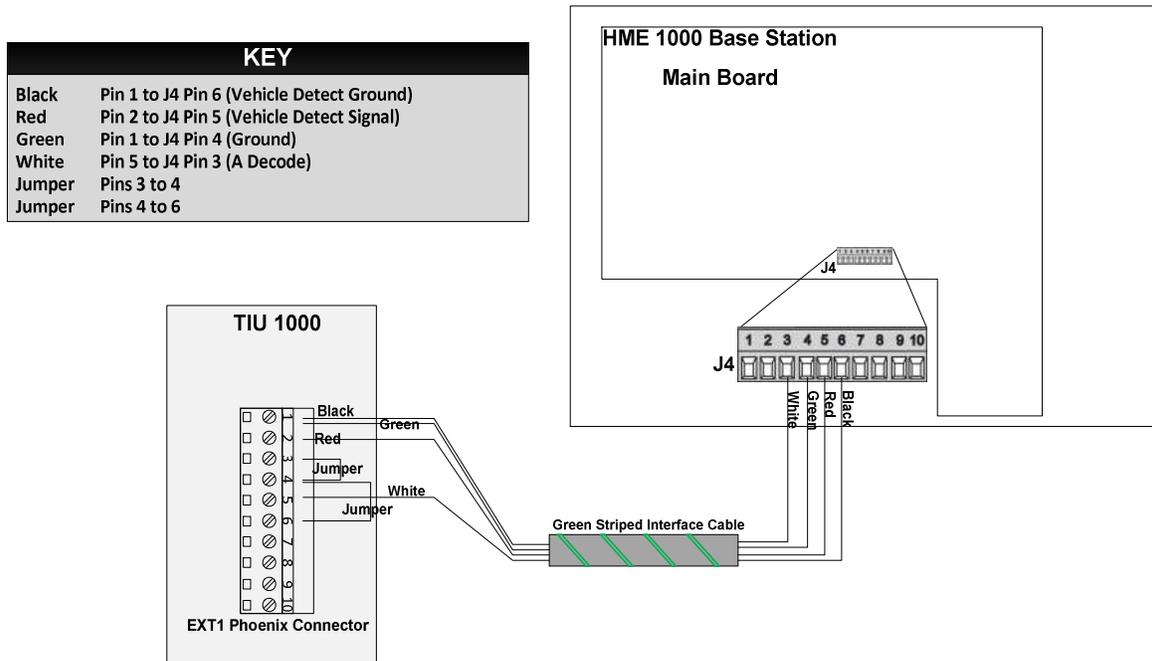
Figure 17 - HME System 1000 Interface

6.2.6 HME System 2500

KEY	
Black	Pin 1 to J7 Pin 6 (Vehicle Detect Ground)
Red	Pin 2 to J7 Pin 5 (Vehicle Detect Signal)
Green	Pin 1 to J7 Pin 4 (Ground)
White	Pin 5 to J7 Pin 3 (A Decode)
Jumper	Pins 3 to 4
Jumper	Pins 4 to 6
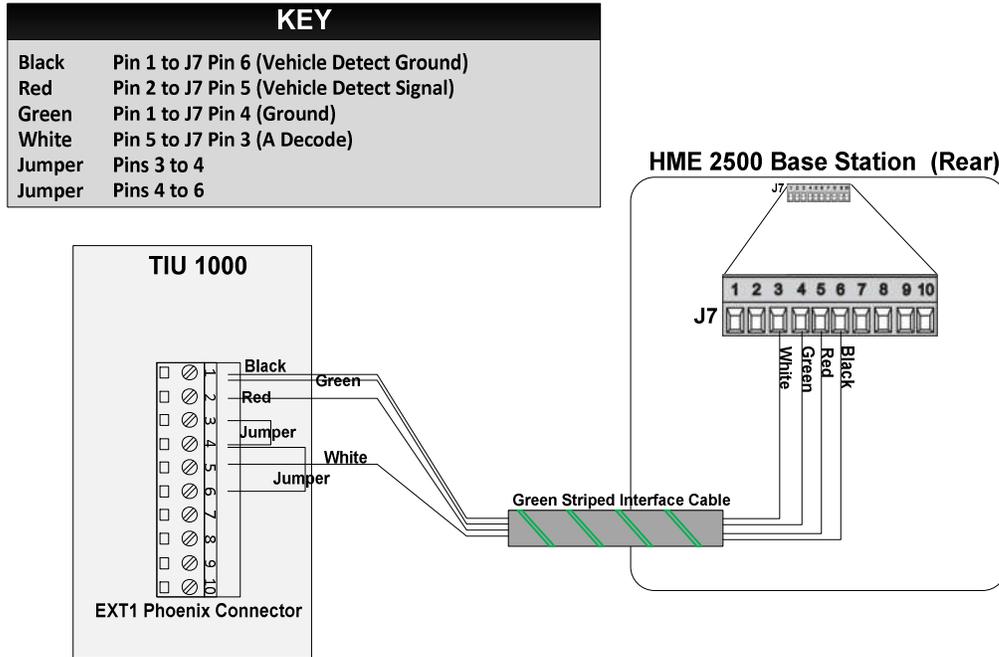
Figure 18 - HME System 2500 Interface

6.3   Interfacing with 3M Audio Systems

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

6.3.1   3M XT-1 Interface

KEY

Black	Pin 1 to RELAY1_COM
Red	Pin 2 to RELAY1_NO
Jumper	Pins 3 / 4
Green	Pin 5 to MEN SKR-
White	Pin 6 to MEN SKR+
Jumper	(on 3M) GND to RELAY1_COM
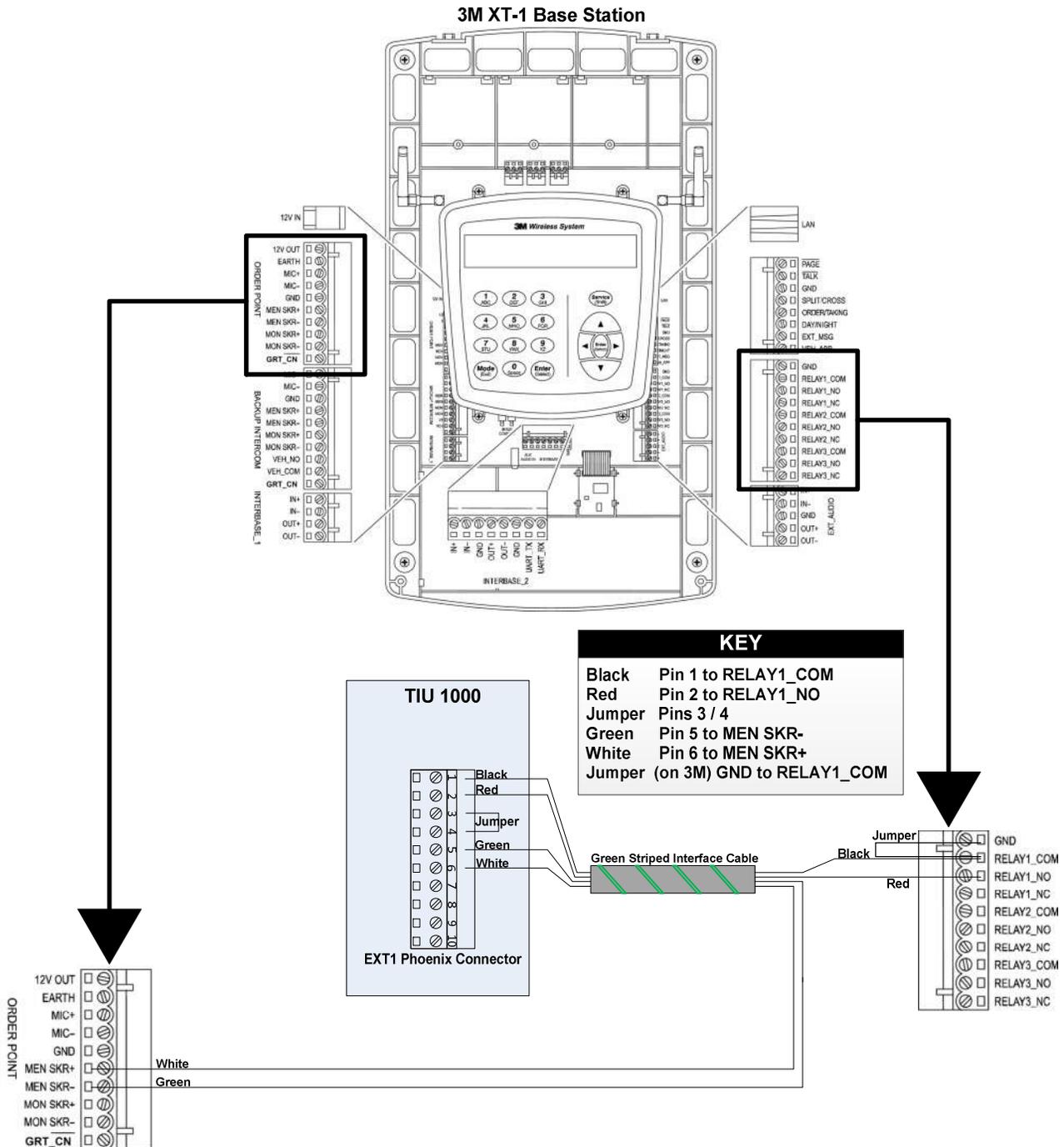
Figure 19 - 3M XT-1 Interface

6.3.2 3M C760 / 960 / 1060 Interface

KEY

Black	Pin 2 to COM
Red	Pin 3 to VEH DET
Green	Pin 5 to MENU SPKR
White	Pin 6 to MENU SPKR

TIU 1000

Black
Red
Green
White

EXT1 Phoenix Connector

Green Striped Interface Cable

3M Base Station

Green
White
Red
Black

MIC
MIC
SHIELD
MENU SPKR
MENU SPKR
MON SPKR
COM
AUDIO IN
AUDIO OUT
ALT ALTERT
VEH DET
ALERT OUT
COM
12V UNREG
TALK
PAGE
VEH DET
COM
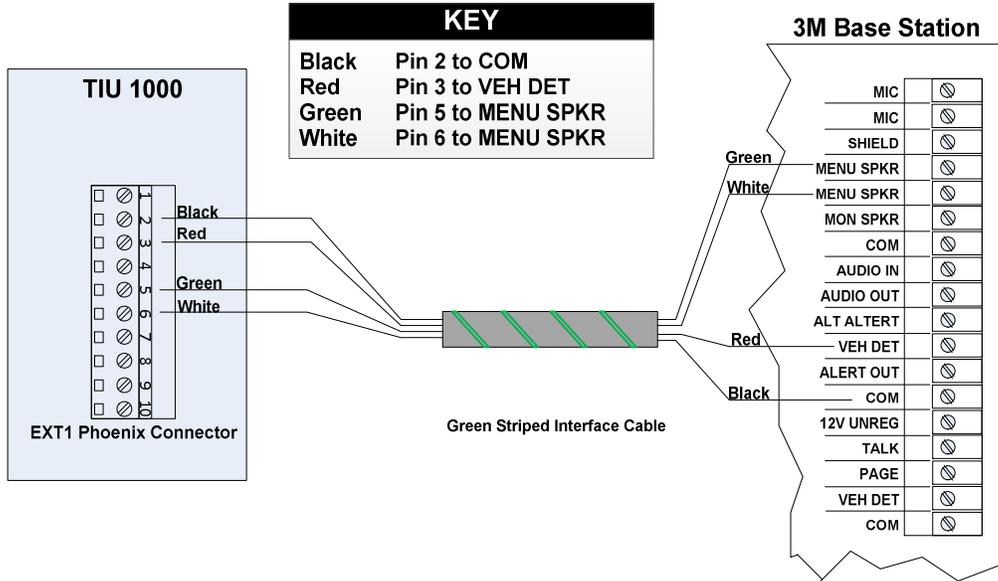
Figure 20 - 3M C760 / 960 / 1060 Interface

6.3.3 3M G5 Interface

Figure 21 - 3M G5 Interface
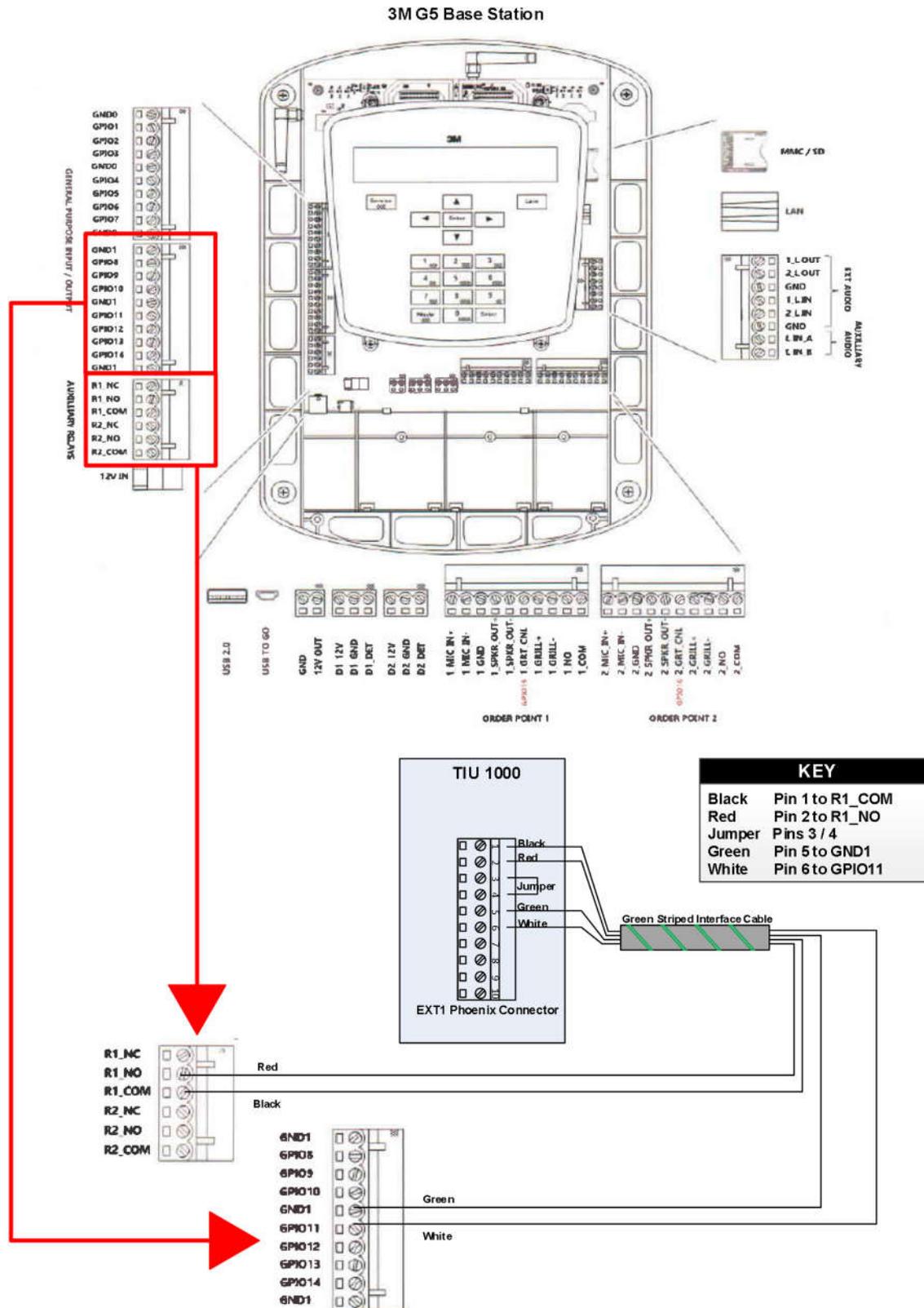
6.4 Interfacing with Panasonic Audio Systems

Panasonic Wireless Audio Systems will ALWAYS utilize an external vehicle detector. In order for a TIU to properly interface with a Panasonic system, a Dual Output Vehicle Detector must be in use.

6.4.1 Panasonic Attune WX-C3000 Interface
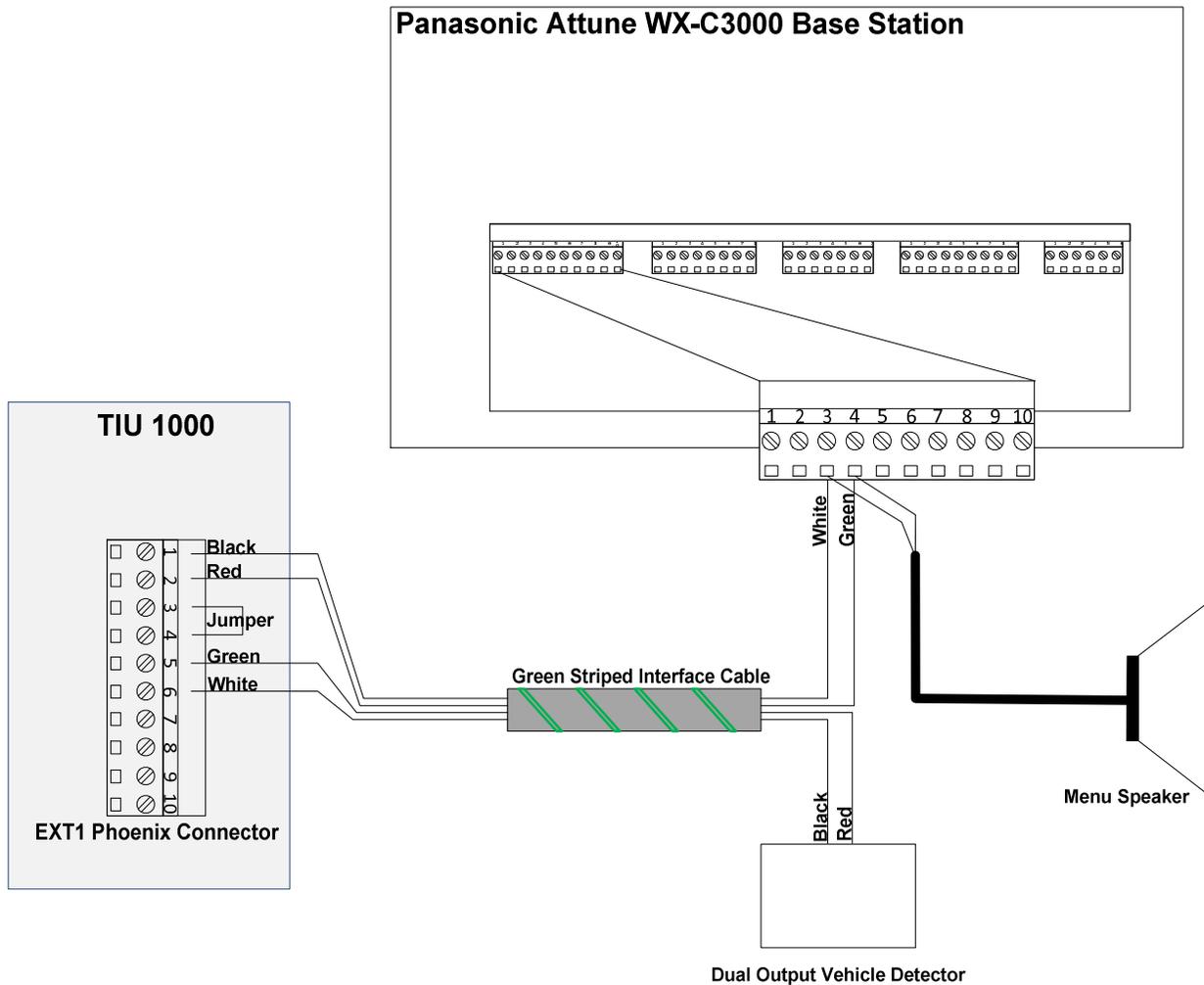
Figure 22 - Panasonic Attune WX-C3000 Interface

6.4.2   Panasonic Ultraplex 2010 / 1010 / 910 / 510 Interface
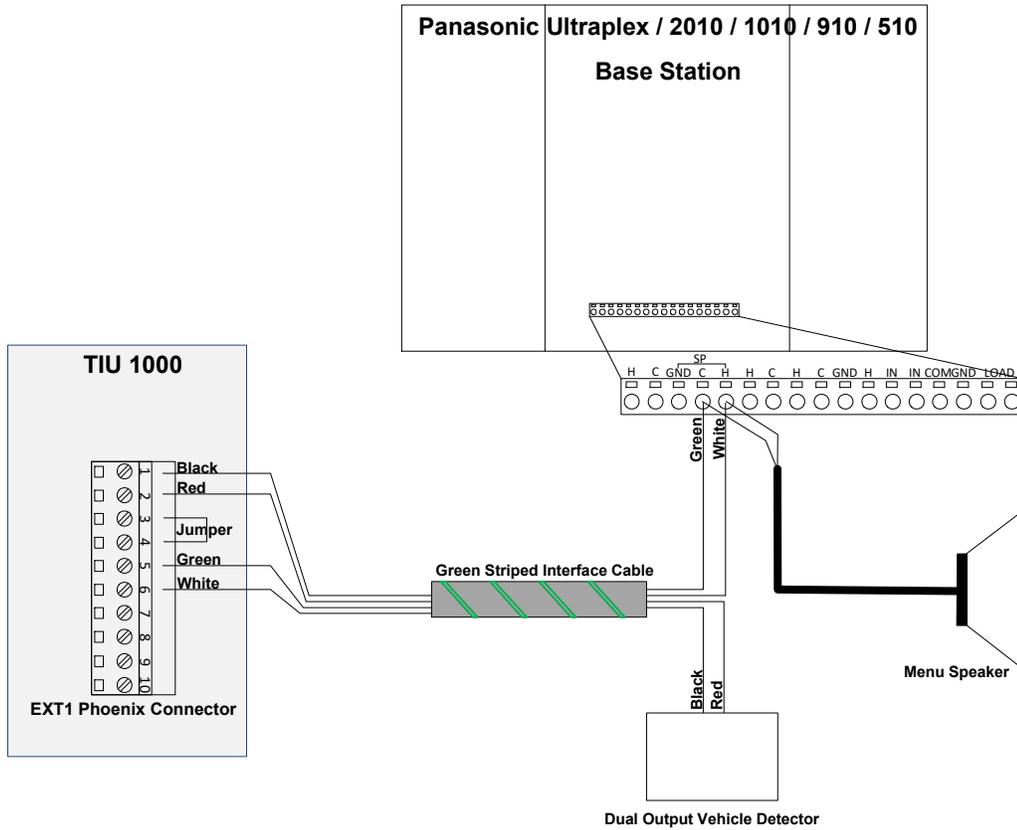
Figure 23 - Panasonic Ultraplex Interface

6.4.3 Panasonic Attune 2 (WX-CC411/WX-CC412) Interface

Panasonic Attune 2
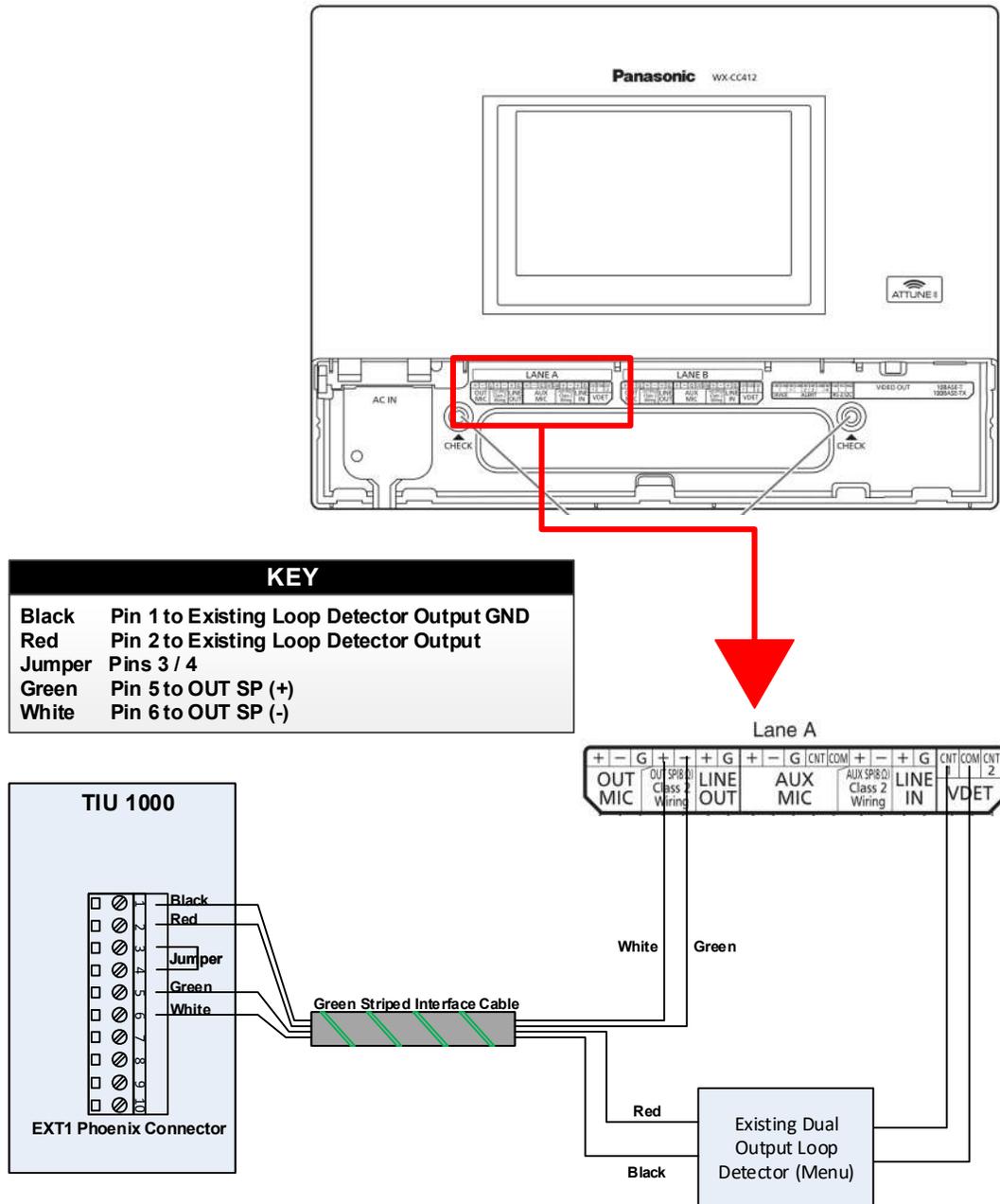
WX-CC411 / WX-CC412

Figure 24 - Panasonic Attune 2 (WX-CC411/WX-CC412) Interface

7   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.

8   TIU Indicator Lights

The TIU posseses multiple indicator light and numbers:

> **L1** – When lit, this indicates that a vehicle is present at the Menu Board.
> **L2** – When lit, this indicates that the Greet signal is being seen by the Timer.
> **L3** – When lit, this indicates that a vehicle is present at the Pay or Cashier Window, if applicable.
> **L4** – When lit, this indicates that a vehicle is present at the Pick Up or Presenter Window.

L3 and L4 Indicators:

When Green light is lit, indicates power to the Vehicle detector board. When Red light is lit, indicates a vehicle is present at the respective window. 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 (remove front cover to access sensitivity buttons on the Vehicle Detector Board)
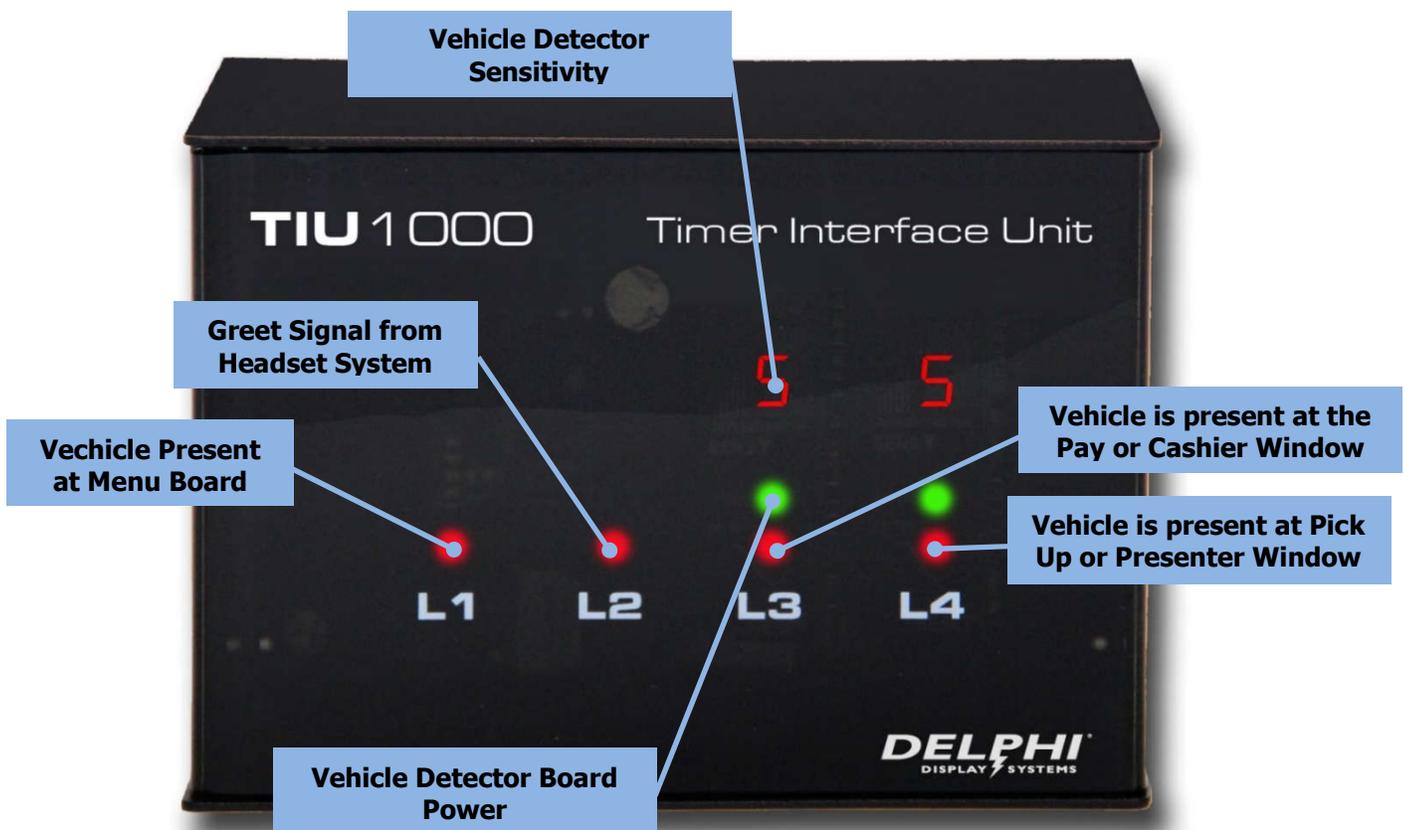
Figure 25 – TIU Indicator Lights

9   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.

9.1   Testing Menu / Greet / Total

- When a vehicle arrives at the Menu Board
  - o   Menu Time, Greet Time and Total Time will begin counting. Depending on which template 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.
  - o   L1 should light up red.
- When someone wearing a headset speaks to the customer outside, L2 should light up or flash red **AND** the Greet time should stop counting, signifying the customer has successfully been greeted.
  - o   **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, L2 should light up red.
- When the vehicle pulls away from the Menu Board:
  - o   L1 should extinguish
  - o   Menu time should stop counting
  - o   Total time should continue to count

9.2   Testing Window / Total

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

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

- When the vehicle arrives at the window:
  - o   L4 should light up red
  - o   Number should display a "5" for a standard size car. If not, refer to instructions in section 8
  - o   Window time should begin counting
  - o   Total time should continue to count
- When the vehicle pulls away from the window:
  - o   L4 should extinguish
  - o   Number will return to 0 (ZERO)
  - o   Window time AND Total time will stop counting

9.2.2   For a Two Window Store:

- When vehicle arrives at the first window:
  - o   L3 should light up red.
  - o   Number should display a "5" for a standard size car. If not, refer to instructions in section 8.
  - o   Window 1 should begin counting.
  - o   Total time should continue to count.
- When the vehicle pulls away from the first window:
  - o   L3 should extinguish.
  - o   Number will return to 0 (ZERO).
  - o   Window 1 time will stop counting but Total time will continue.
- When vehicle arrives at the second window:

- o   L4 should light up red.
- o   Number should display a "5" for a standard size car. If not, refer to instructions in section 8.
- o   Window time should begin counting.
- o   Total time should continue to count.
- When the vehicle pulls away from the second window:
  - o   L4 should extinguish.
  - o   Number will return to 0 (ZERO).
  - o   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.

10 Technical Support

For technical assistance, please contact:

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