Title: Fast Track Timer Equipment Installation Manual	**Doc Number:** RDS-INSFTTIM **Revision:** A

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Fast Track Timer
Equipment Installation Manual

Delphi Display Systems, Inc.

PROPRIETARY INFORMATION

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1 Introduction

This manual is designed to assist a Delphi Certified Fast Track Installer with the installation process. This manual is not intended to be a substitute for Delphi Factory Certified Training, and Delphi will not be liable for an installation performed by an non-certified installer.
It contains information specific to the hardware installation, including wiring, software configuration and system testing. Additional information on the Fast Track Timers is available in the User Manuals.

2 Operation Overview

A fully functional Fast Track Timer system is comprised of several components:

- Main Console
- Remote Display (or LCD if using DTIS)
- Cashier Window Loop (if applicable)
- Pick-up Window Loop

Additionally, in order to function properly, the Fast Track Timer System relies on input from:

- Customer Furnished Audio Communication System
- Menu Board Loop / Detector

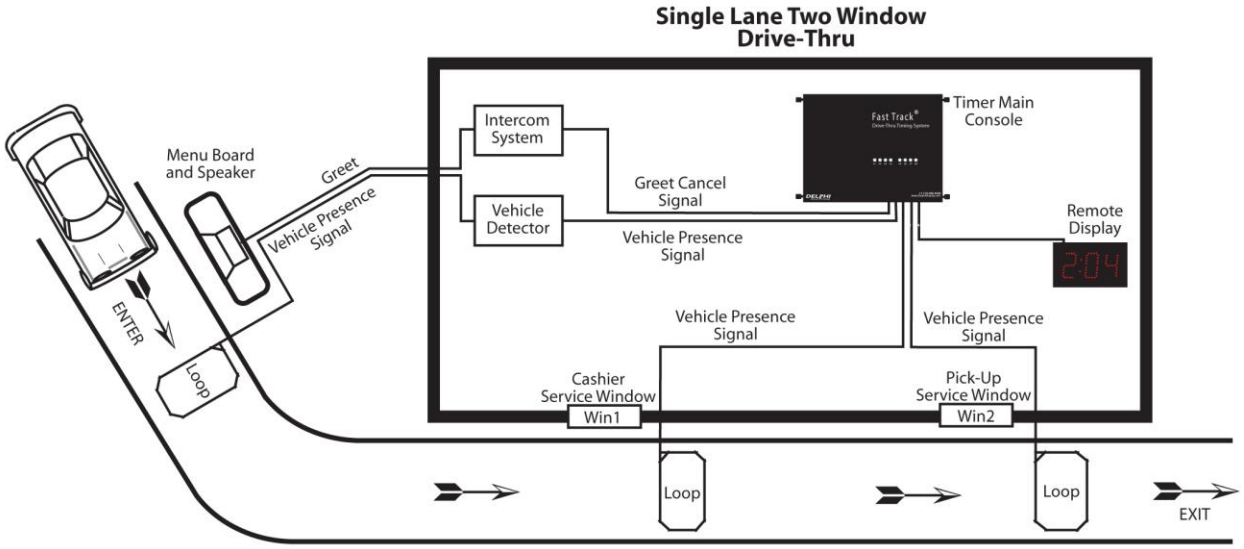

Figure 1 - Single Lane Example

Note: The Figure above shows an example of a typical single lane drive-thru. The Fast Track Timer can virtually be configured for any other restaurant setup. (See Appendix)

Caution: Operating a one window Fast Track Timer in a two-window store without an event measurement at the cashier window (first window), can result in inconsistent and inaccurate readings of both line times and car counts. An event that is not measured during a cars movement through the drive-thru lane distorts measurement of actual time between events and can lead to excessive Drive-Offs. Having both, higher and lower than actual times can be recorded under the following scenarios.

3 Equipment, Materials and Tools

3.1 Equipment and Materials Supplied

The following equipment and materials are supplied with the Timer:

- Installation Manual
- Main Console
- Remote Display(s)
- Interface PCB for Full Line Timer Option (located in Main Console)
- Green Stripe Interface Cable (connects Interface Board in Main Console to customer's furnished Menu Board Vehicle Detector and Intercom)
- Yellow Stripe Loop Cable (connects Vehicle Detector Board in the Main Console to Cashier Loop)
- Red Stripe Loop Cable (connects Vehicle Detector Board in Main Console to Pick-Up Loop)
- Primary Blue Stripe Remote Display Cable (connects Main Board in Main Console to the first Remote Display); this cable has a DIN connector on **one** end
- Daisy Chain Blue Stripe Remote Display Cable(s) (connects between two Remote Displays); this cable has a DIN connector on **each** end
- Remote Display Termination Plug (plugs into the open socket of the last Remote Display)
- Installation Hardware Kit
- Saw Cut Kit (if needed)
- Set Parameters Worksheet (used to record hours, shifts, dayparts, targets, etc.)
    - The intention of this worksheet is to be a record of the parameters set during installation, and filed with the dealer for future reference.
- User Guide
- Rolls of Thermal Printer Paper (2000 Series only)

3.2 Tools and Materials Needed But Not Supplied

The following equipment and materials are **NOT** supplied with the Timer:

- Drill bit set
- 5/16 in. diameter masonry bit, 18 in. length for saw cut (if performing saw cut)
- Drill
- Center punch
- Assorted screwdrivers (including a short handled Phillips driver)
- Wire strippers
- Digital Volt Meter
- Level
- Hammer
- Solder and Soldering Iron
- Fish tape or pull wire
- Wire molding and/or conduit. Not absolutely necessary, however, the finished appearance of the installation and its reliability is improved (helps to prevent damage to wiring).

3.3 Customer Supplied Equipment

The following customer supplied equipment is required to complete the installation. Section 7 of this manual provides detailed instructions for connecting the Timer to customer supplied equipment:

- Menu Board with Speaker
- Loop at the Menu Board Location with Vehicle Detector
- Wireless or Wired Intercom System

4 Plan Hardware Location

Selecting a proper location for the hardware will provide the store manager with an efficient and easy to use Fast Track Timer. A Fast Track Timer in the wrong location would make it difficult to use and program. Placement of loops is critical. Misplaced cashier and pick-up window loops will give false time indications. Remote Displays / LCDs should be installed in places where crew members can easily see them and respond to the information provided.

4.1 Main Console

This should be mounted in the Manager's Office, providing the manager access to the Timer as needed with a nearby phone for customer service, if necessary. Place the Main Console at a convenient height based on Timer Series. In other words, 2000 Series Timers have an on-board printer as well as front panel programming / report buttons so the Main Console must be place no higher on a wall than a user can easily access. 3000 Series Timers however do not need to be accessed by the user, so placing them higher on a wall is not only acceptable, but recommended. **DO NOT** install the Main Console at the service windows. This could cause an inconvenience when it comes to servicing the Main Console and interfere with store operation. It should be mounted at approximately eye level. Ensure there is a non-switched outlet within 6 feet of the Main Console, and 4 inches of clearance around all sides.

4.2 Remote Displays

Strategically place Remote Displays where the crewmembers and management can easily read them. A well-managed Drive-Thru requires team effort. Remote Displays can be either mounted on a wall, or hang from a suspended ceiling. No power outlet is required as it receives its power through the data cable running to the Main Console.

4.3 LCD (for DTIS only)

Place the LCD display(s) in the drive thru or kitchen area

4.4 Data Cables

Data Cables should be run inside the walls and ceiling tiles as much as possible. For circumstances where the cable MUST be run on the outside of the wall, use conduit or wire molding. Conduit and wire molding protect the wire, simplify future upgrades and repairs, and aesthetically improves the finished appearance of the installation. Unprotected cables and wires can be damaged by maintenance (such as employees cleaning near wire runs or banging equipment into wires), mice or other small animals chewing the wires, moisture and so on.

4.5 Loops

Loops should be located so they are approximately under the driver when the vehicle stops at any of the service windows. Improperly placed loops can cause the Fast Track Timer to miscalculate times during peak hours when there is heavy traffic. If the customer has pre-installed loops, it is important for the Timer Installer to ensure they are in the proper location. If they are not, new saw cuts may be necessary.

5 Special Suggestions and Precautions

- Run all wires inside wall, conduit or wire molding. Conduit and wire molding protects the wiring, simplifies future upgrades and repairs, and improves the finished appearance of the installation. Unprotected cables and wires can be damaged by maintenance (such as employees cleaning near wire runs or banging equipment into the wires), mice or other small animals chewing the wires, moisture, etc.
- Make sure Loops are properly placed. Improperly placed Loops can cause the Timer to miscalculate times during heavy traffic. The only correction for a Loop installed in the wrong

location is to make new saw cuts and install a new Loop. *See Saw Cut Installation Instructions for specific details on performing a saw cut with a Timer Installation.*

- Visually inspect the loop wires in saw cuts for insulation damage in the wire. The loop must be free of any damage. Saw cuts must be properly sealed with silicon concrete patch.
  IMPORTANT: *Moisture in saw cuts could damage the wires and cause malfunction.*
- Never install or service the Main Console or Remote Display with ac power applied. Always unplug the power transformer to disengage the power before starting installation or servicing.
- When clearing a paper jam or changing paper in the Thermal Printer (2000 Series), never use any device
- (scissors, screwdriver, pointed object, etc.).
- All wire-to-wire connections must be soldered. **DO NOT USE WIRE NUTS!** All stripped wire ends to terminal block must be tinned. Failure to solder wire connections and to tin wire ends to terminal block can ultimately result in a malfunction.
- **Do Not** change factory settings on circuit board pots or dip switches without checking with a Delphi representative. Call 1(800) 858-1320 during normal business hours (7:00 am to 4:30 pm Pacific Standard Time) to speak to a Delphi representative.

6 Installation Procedures

The Installations should be performed in the following order:

1. Wiring
2. Main Console
3. Remote Display(s)
4. LCD (if using DTIS)

6.1 Wiring

Once the mounting locations have been determined for each piece of hardware, the installer should begin running all of the Timer system wiring between these locations. There are general rules that apply to **ALL** Delphi wires running across stores that must be followed at all times:

- Wires running above the ceiling should always be suspended and secured. They are never to lie directly on ceiling tiles or light fixtures.
- Wires should never be run alongside conduit containing high voltage
- Wires should never be secured to any part of store fire sprinkler pipes
- When running wires vertically, they should be inside of walls, conduit or wire mould
- Power cords (110VAC) **CANNOT** be run through ceiling tiles. Doing so violates electrical code, and installer who does this will be required to return to store to correct at no cost to Delphi or customer.

6.1.1 Green Stripe Interface Cable

This cable is to be run from the Timer Main Console location to the customer's Menu Board Vehicle Detector. Typically, it is located inside their Headset System's Main Console (HME, 3M, Panason, etc). At times, they may be utilizing an external vehicle detector with a dual output, in which case the green Stripe Cable will run to this external vehicle detector instead.

6.1.2 Yellow Stripe Loop Cable

This cable is to be run from the Timer Main Console to the loop located at the Cashier window.

6.1.3 Red Strip Cable

This cable is to be run from the Timer Main Console to the loop located at the Pick-Up window.

6.1.4 PRIMARY Blue Stripe Cable (if using Remote Displays)

This cable has a DIN connector on ONLY ONE end, and is to be run from the Timer Main Console to the FIRST Remote Display

6.1.5 SECONDARY Blue Stripe Cable (if using Remote Displays)

This cable has a DIN connector on BOTH ends, and is to be run from the First Remote Display, to the Second. If there are additional Remote Displays, additional cables will be supplied for each.

6.1.6 VGA Cable (if using DTIS)

This cable is to be run from the location of the DTIS computer to the location where the LCD will be installed. The DTIS computer is defined as the computer that the DTIS Software will be loaded onto.

6.2 Main Console Installation

At this point, the installer has already determined the general location for the Main Console. Using the supplied Main Console Mounting Template, drill the four holes for the anchors, then install the supplied anchors and screws into the wall. The backplate of the Main Console has “keyhole” slots allowing it to be easily placed on all four screws, then the screws may be tightened to secure it properly to the wall.
***If the cables for the Main Console will be coming through the wall behind the timer, drill that hole and bring all the cables through it prior to setting the Main Console in place.

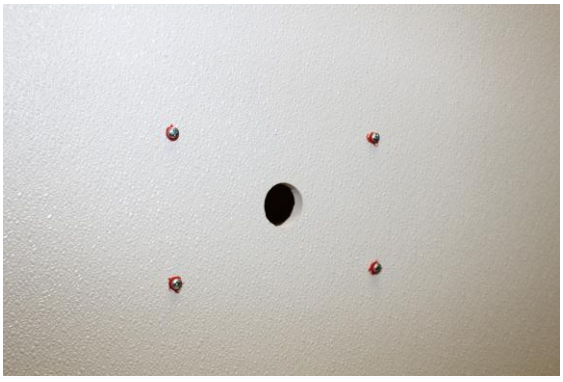

Figure 2 - Installing Main Console on Wall

6.3 Remote Displays

Remote Displays should be installed where the crew members can easily see them and respond to the information provided, but the installer should have the management approve the intended location before beginning the work. As many as six Remote Displays can be connected to the Timer. Time data is displayed only during the hours the store is open. When the store is closed, only a colon (2 dots) is shown on a minutes:seconds Display; a seconds only Display is blank.

6.3.1 Vertical Mount of Remote Display(s)

Using the vertical surface mounting bracket as a guide, mark and drill two holes for screws (or anchors if necessary) in the window frame, wall or other vertical surface. Install the two screws and tighten until the screw heads are approximately 1/8 inch from the mounting surface.

Figure 3 - Marking Holes for Vertical Mounting Bracket

Install the vertical surface mounting bracket to either side of the Remote Display as shown in Figure below and secure bracket to Remote Display with two 4-40 screws (furnished with bracket).

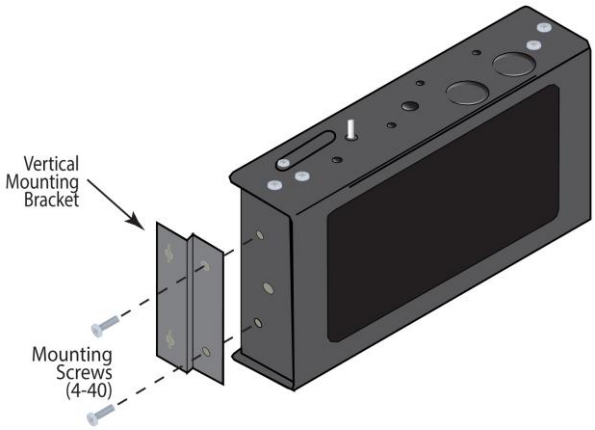

Figure 4 - Installing Bracket onto Remote Display

Figure 5 - Hanging Remote on Wall

Position the Remote Display in place over the installed mounting screws. Slide the keyholes onto the mounting screws and slide the Display down to lock it in place.

Plug the Blue Stripe Remote Display Cable(s) into the Remote Display. Dress the cable(s) along the mounting surface and secure in place with cable clamps.

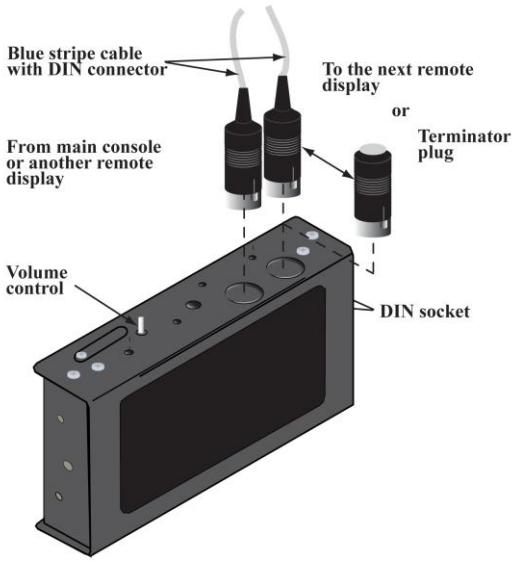

Figure 6 - Plugging in Cable(s) and / or Terminator Plug

NOTE: If this Remote Display is the last one in the series or the only Remote Display, a Remote Display Termination Plug is plugged into the **second** DIN socket. This is necessary to properly terminate the Remote Display circuit.

Continue repeating this process for all other remote displays if applicable.

6.3.2 Horizontal (Ceiling Tile) Mount of Remote Display(s)

Install two mounting brackets onto the top of the Remote Display(s) as shown in Figure below. Secure the brackets with 4-40 screws (furnished with brackets).

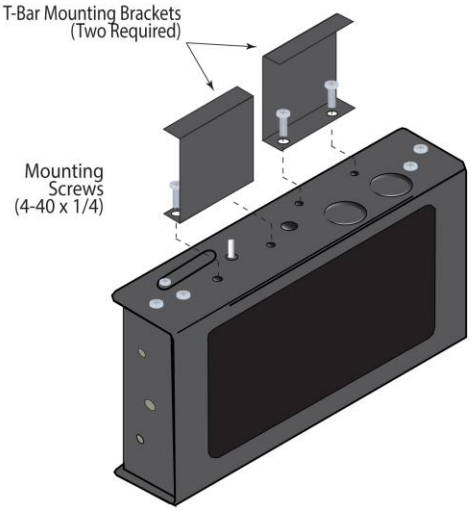

Figure 7 - Installing T-Bar Mounting Brackets to Remote Display

Notch the ceiling tile(s) then feed the Blue Strip Remote Display Cable(s) through the notch and down three inches as shown in Figure below.

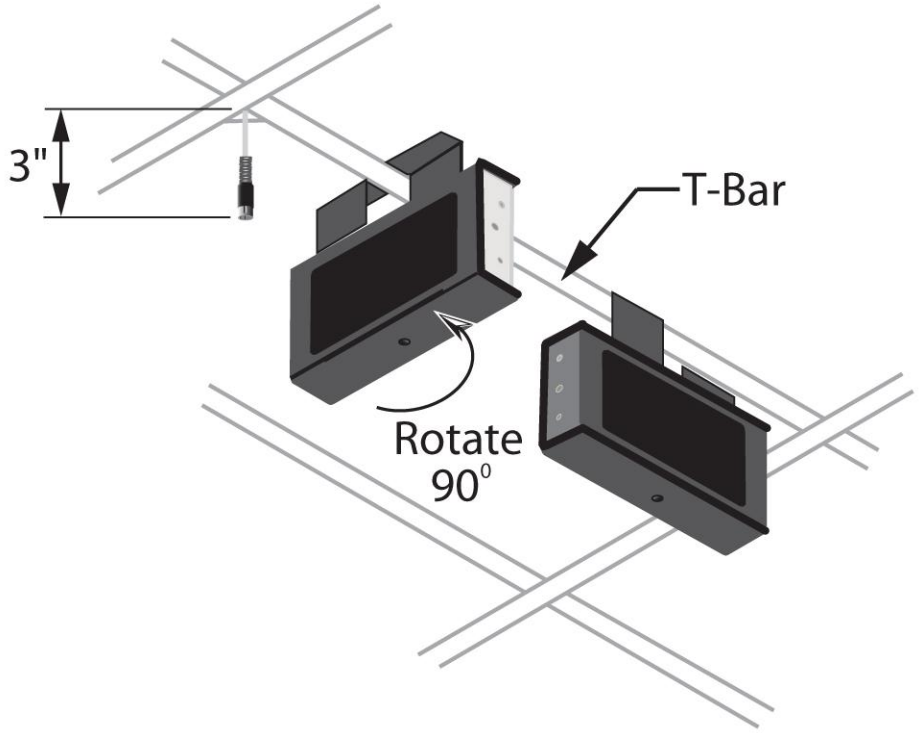

Figure 8 - Detail of T-Bar Installation

Position the Display in place on the ceiling so the T-bar goes between the mounting brackets. Push the ceiling tile, with the brackets, up about ½ inch, then rotate the Dis- play 90 degrees so the Display is in line with and tight against the T-bar.

Check to make sure the Remote Display is secure.

NOTE: If this Remote Display is the last one in the series or the only Remote Display a Remote Display Termination Plug is plugged into the **second** DIN socket. This is necessary to properly terminate the Remote Display circuit.

Plug the Blue Stripe Remote Display Cable(s) into the Remote Display. Continue repeating this process for all other remote displays if applicable. Pull any extra cable above the ceiling and secure.

6.4 LCD Monitor (DTIS Installations Only)

Once the location has been selected for the LCD, install both the mounting bracket as well as the LCD as per the manufacturer's specifications. Mounting brackets differ greatly, so the following picture is for reference purposes and may not reflect the exact model of the bracket / LCD used at the store.

Figure 9 - Properly Mounted LCD and Bracket

The VGA cable coming to the display should be hidden as much as possible inside the wall or inside wire moulding. When LCD installation is complete, be sure to secure all cables.

7 Connections

At this point, all of the hardware should be physically installed, so the next step is to make all of the necessary connections.

- Be sure all of the blue stripe cables are connected to the remote displays if there are any in use, and that the last remote display has the Terminator Plug installed.
- All connections to the Main Consule should be completed, including the interface between the Main Console and the customer's Ordering Point Vehicle Detection and Intercom System.

NOTE: **DO NOT** apply power to the Main Consule until ALL connections have been completed. Applying power prior to completing all the connections could result in equipment failure and voiding of system warranty.

There are several manufacturers, models and configurations of Ordering Point Vehicle Detectors and Intercom systems in use. The Fast 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 Main Console 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 Vehicle Detection or Intercom 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 TIMER 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 ULTI- MATELY RESULT IN A MALFUNCTION.

7.1 Interfacing with a Dual Output Menu Board Loop Detector

The Fast Track Timer is capable of interfacing with any Dual Output Menu Board Loop Detector as long as 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 4 and 3 of J5 connector on the Interface Board located in the Main Console.

3. Connect a jumper wire between pins 1 and 2 of J5 connector on the Interface Board.

4. Verify that the Intercom System is connected to the No. 1 terminals.

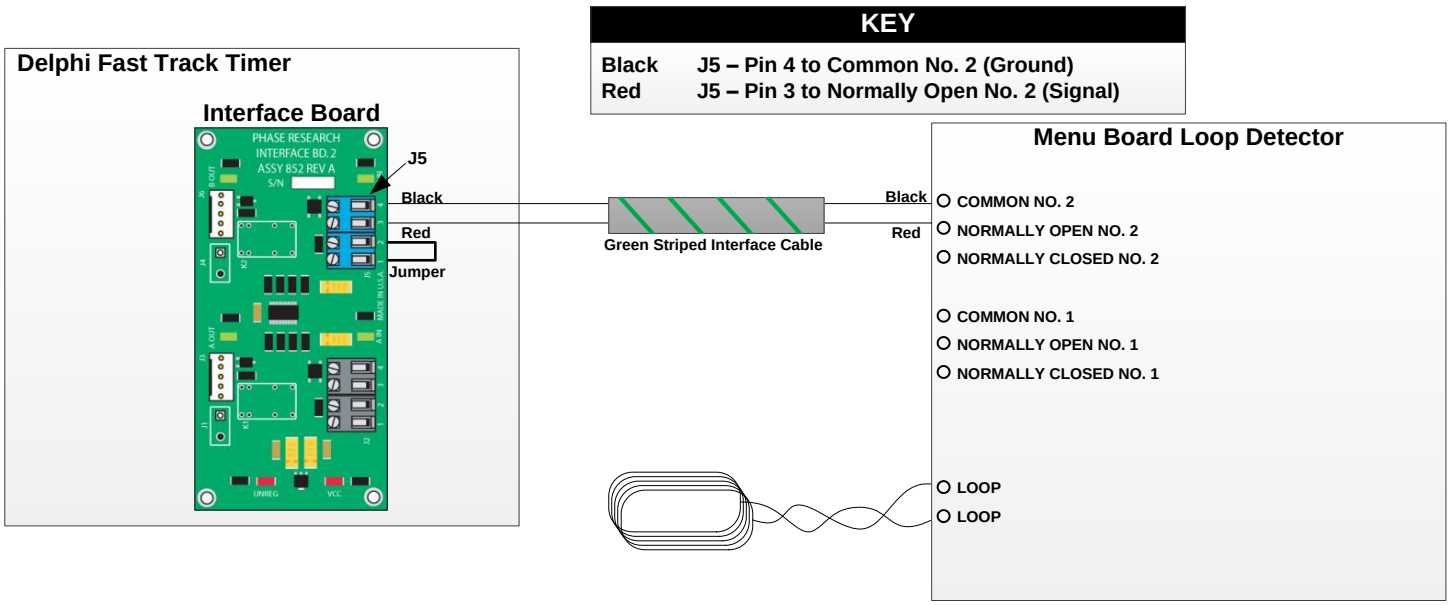

Figure 10 - Dual Output Loop Detector Interface

7.2 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.

7.2.1 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 Fast Track Timer to any HME System that utilizes a switcher board.

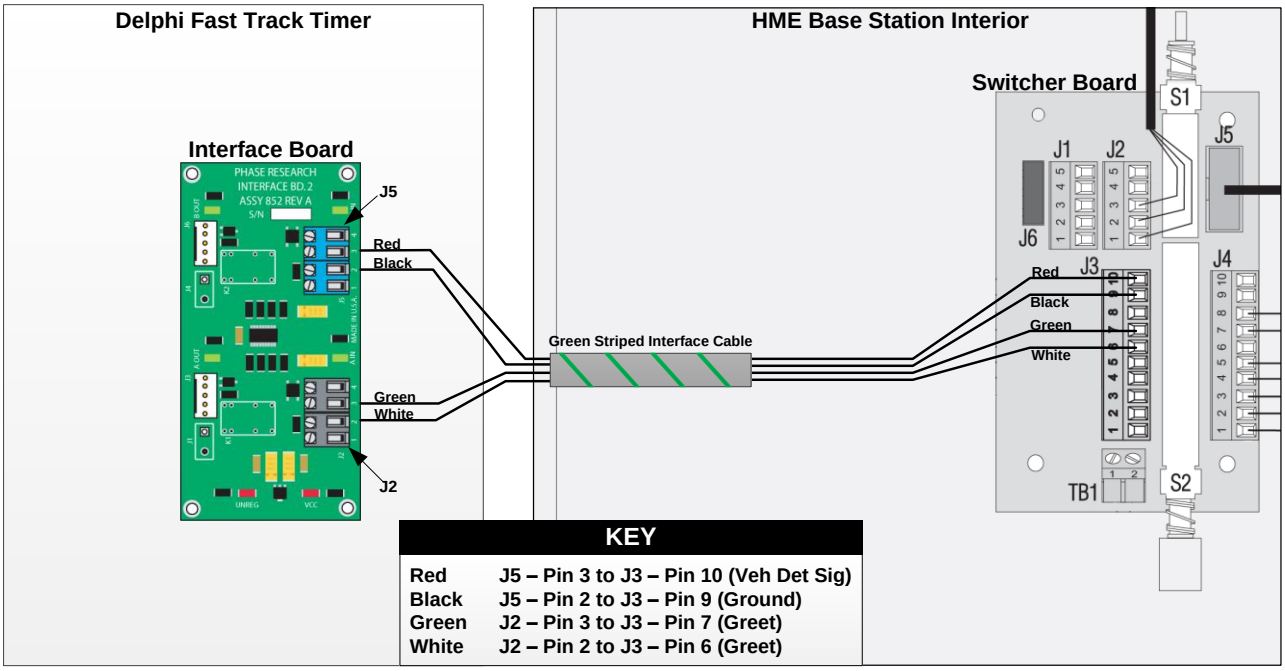

Figure 11 - HME 2500 / 1000 / 400 / 900 / 6000 / ION IQ Utilizing a Switcher Board

7.2.2 HME ION IQ

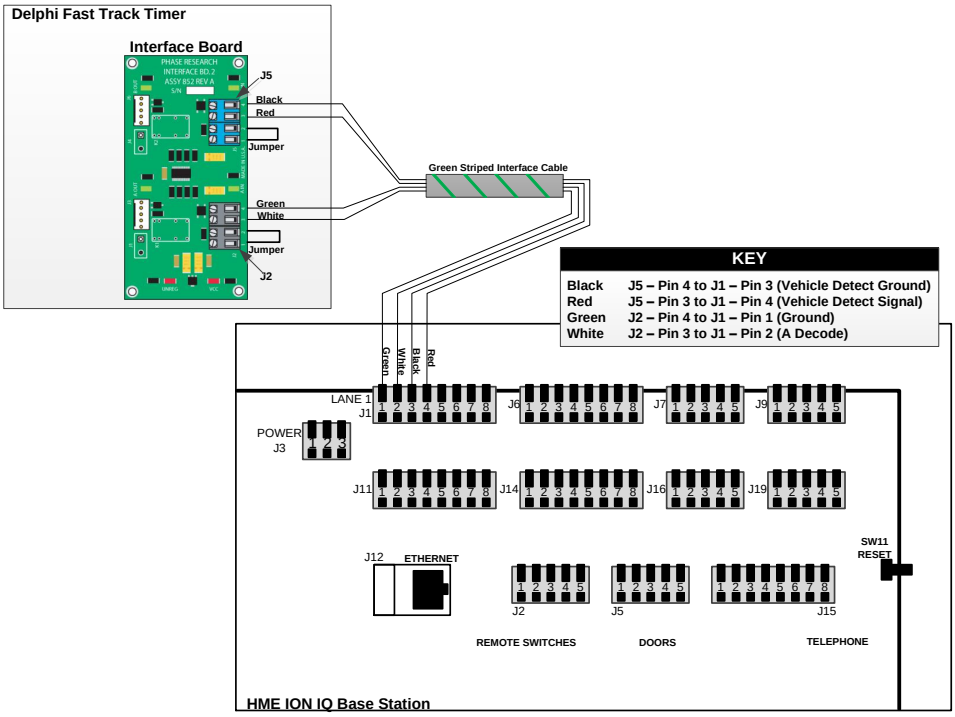

Figure 12 - HME ION IQ Interface

7.2.3 HME System 6000 / Wireless IQ

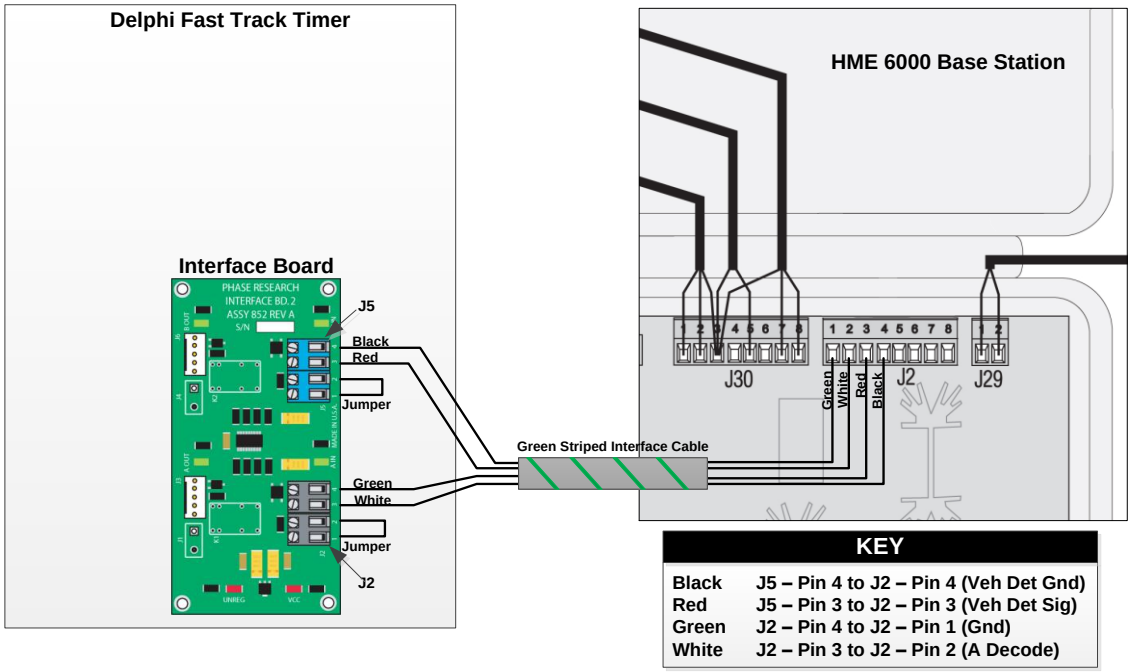

Figure 13 - HME System 6000 Wireless IQ Interface

7.2.4 HME System 400 / 900

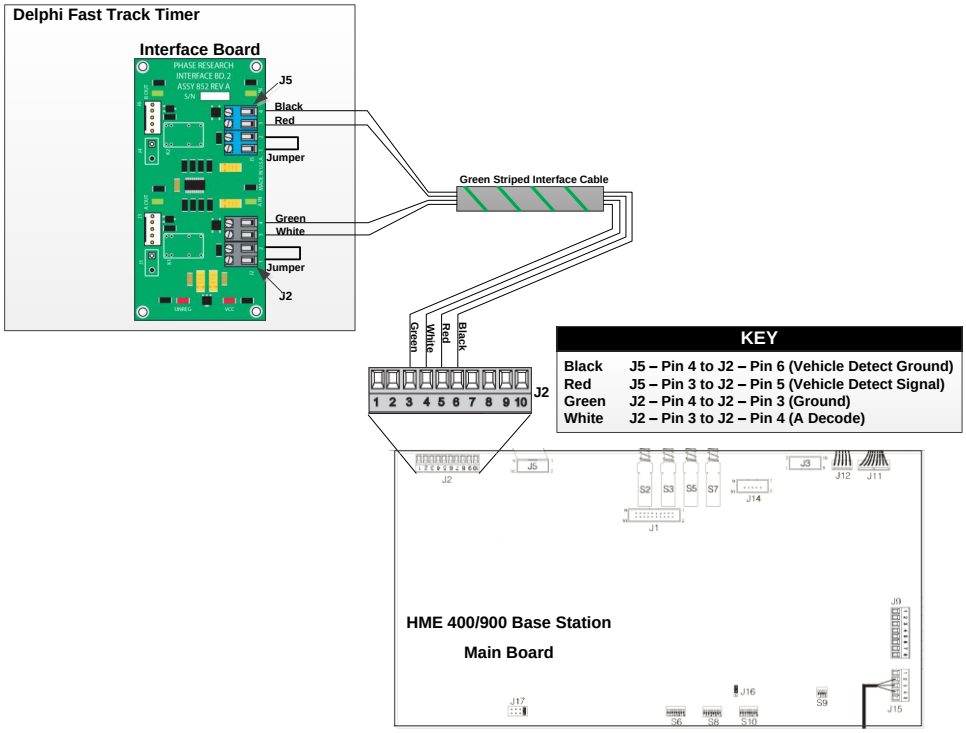

Figure 14 - HME System 400 / 900 Interface

7.2.5 HME System 1000

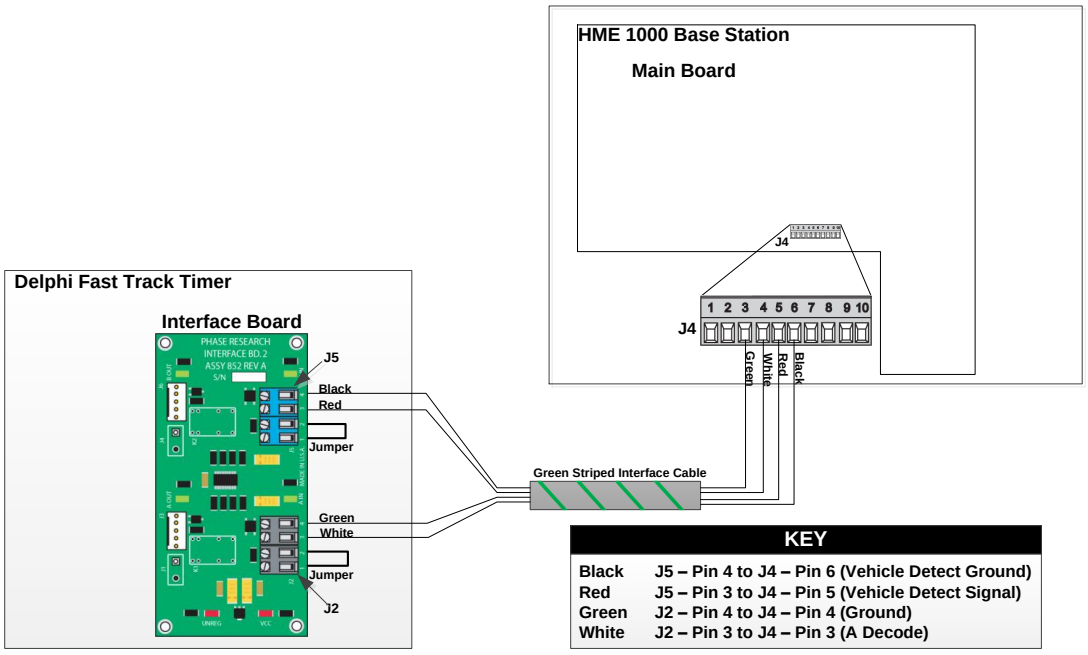

Figure 15 - HME System 1000 Interface

7.2.6 HME System 2500

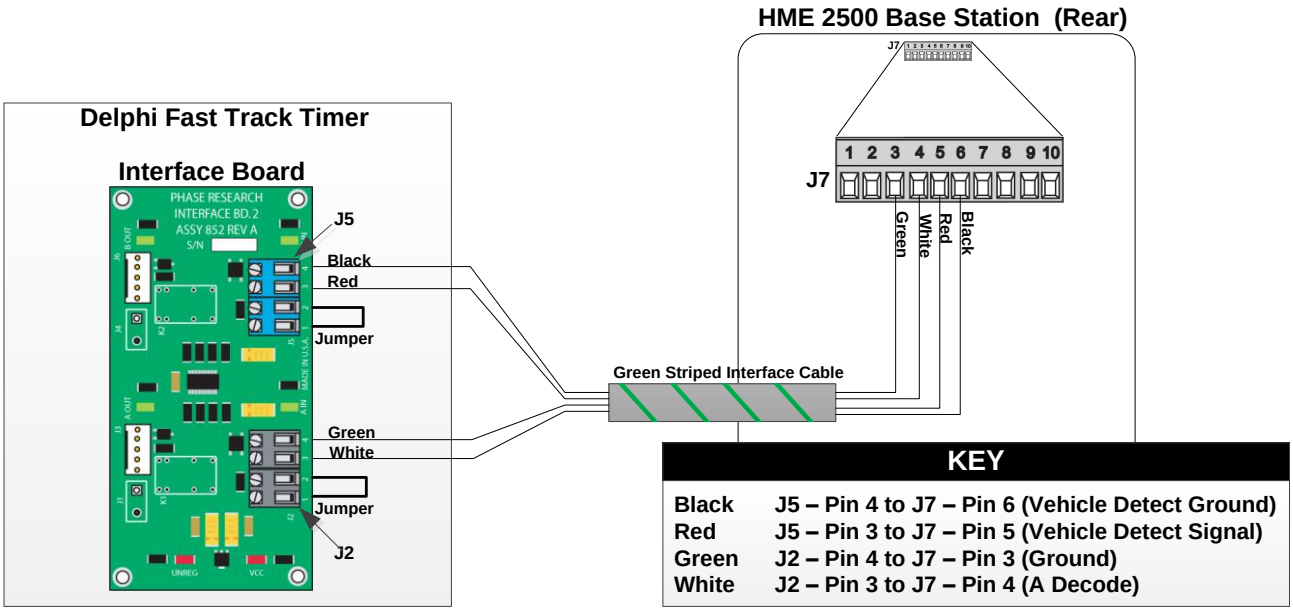

Figure 16 - HME System 2500 Interface

7.3 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 3Ms latest system, the XT-1.

7.3.1 3M XT-1 Interface

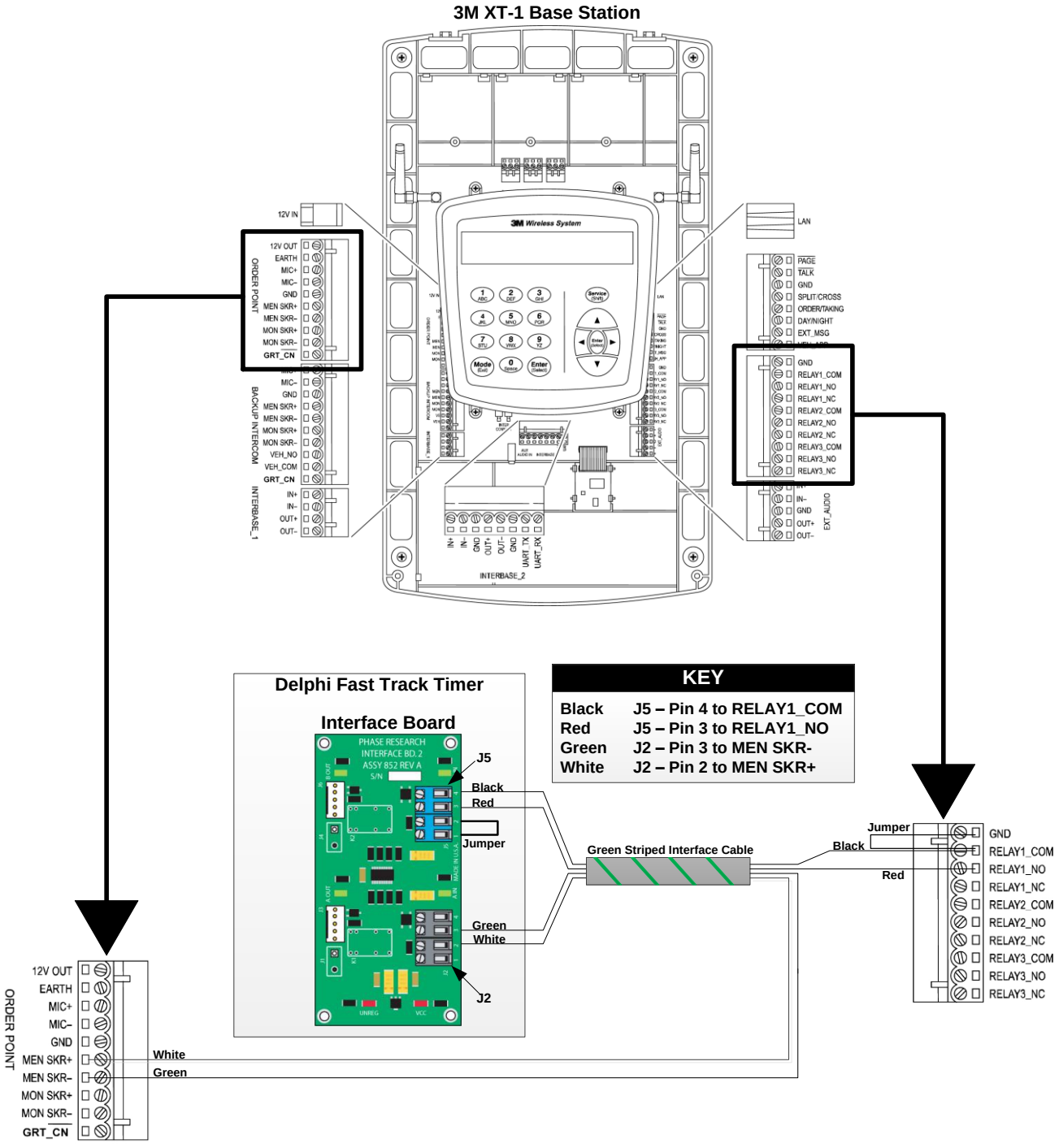

Figure 17 - 3M XT-1 Interface

7.3.2 3M C760 / 960 / 1060 Interface

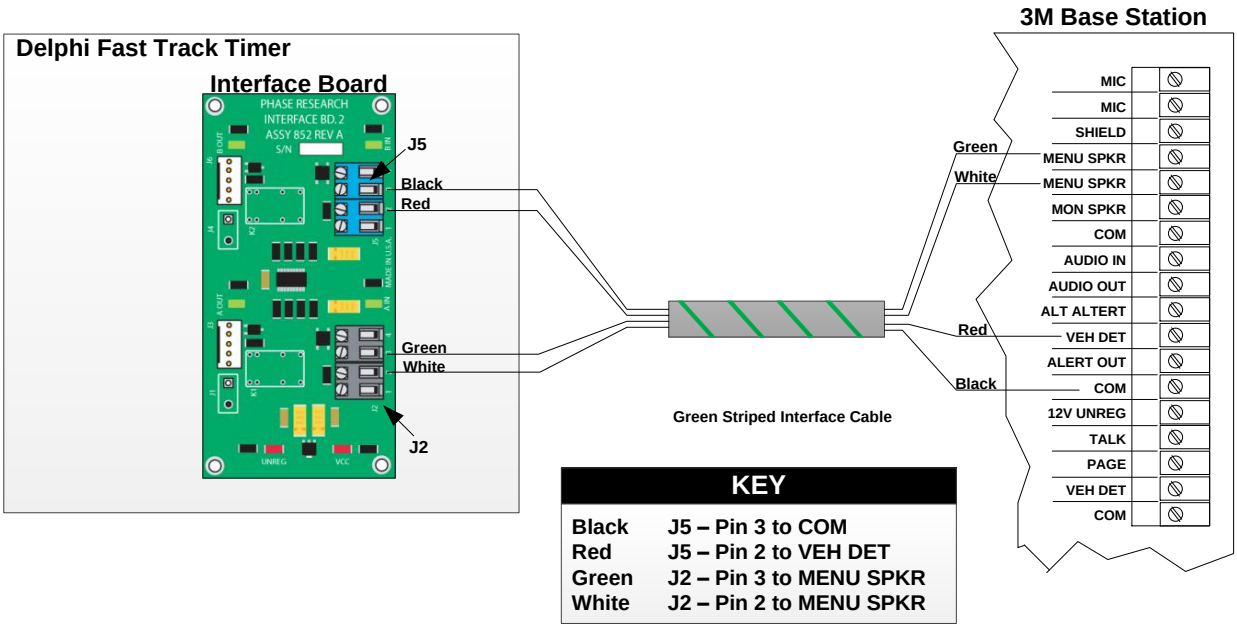

Figure 18 - 3M C760 / 960 / 1060 Interface

7.4 Interfacing with Panasonic Audio Systems

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

7.4.1 Panasonic Attune WX-C3000 Interface

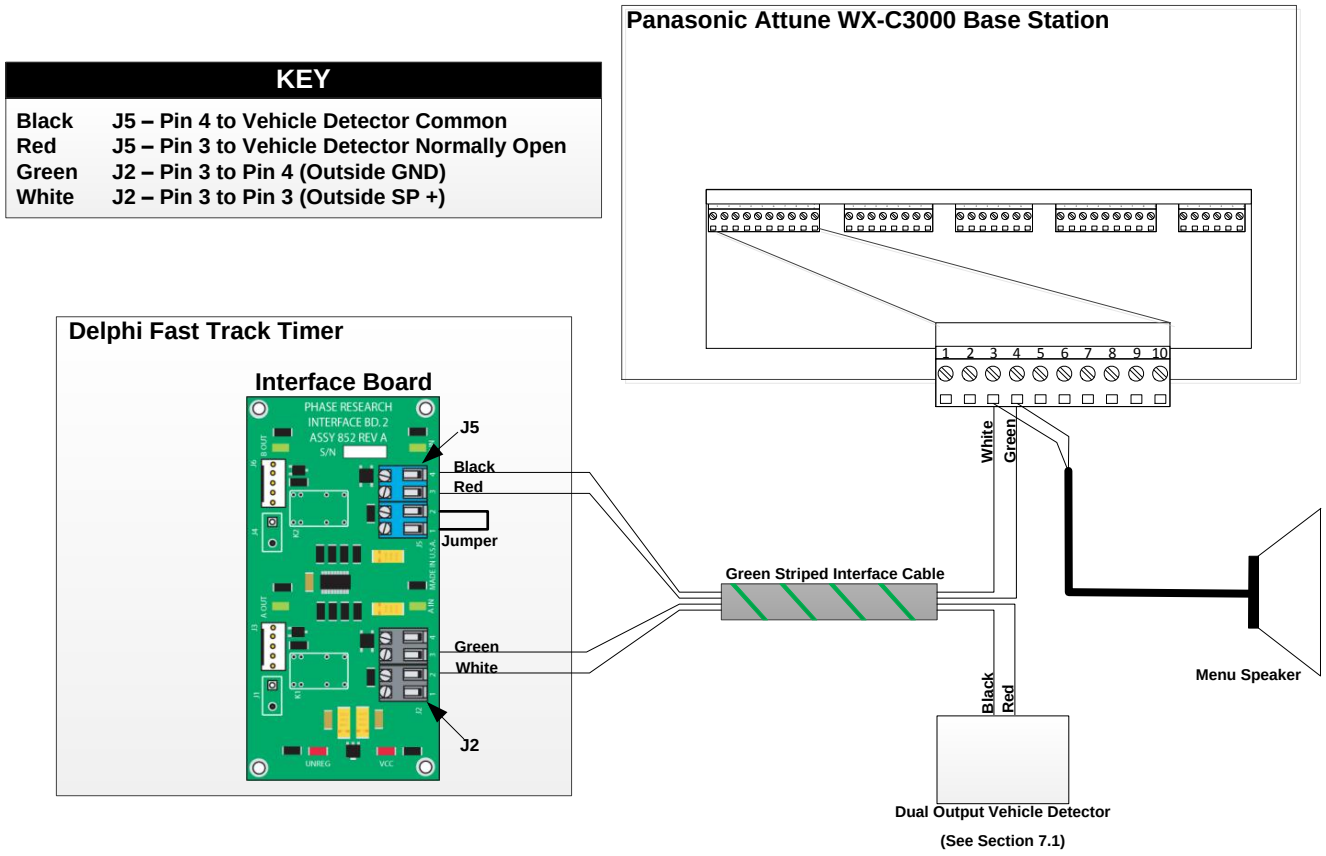

Figure 19 - Panasonic Attune Interface

7.4.2 Panasonic Ultraplex 2010 / 1010 / 910 / 510 Interface

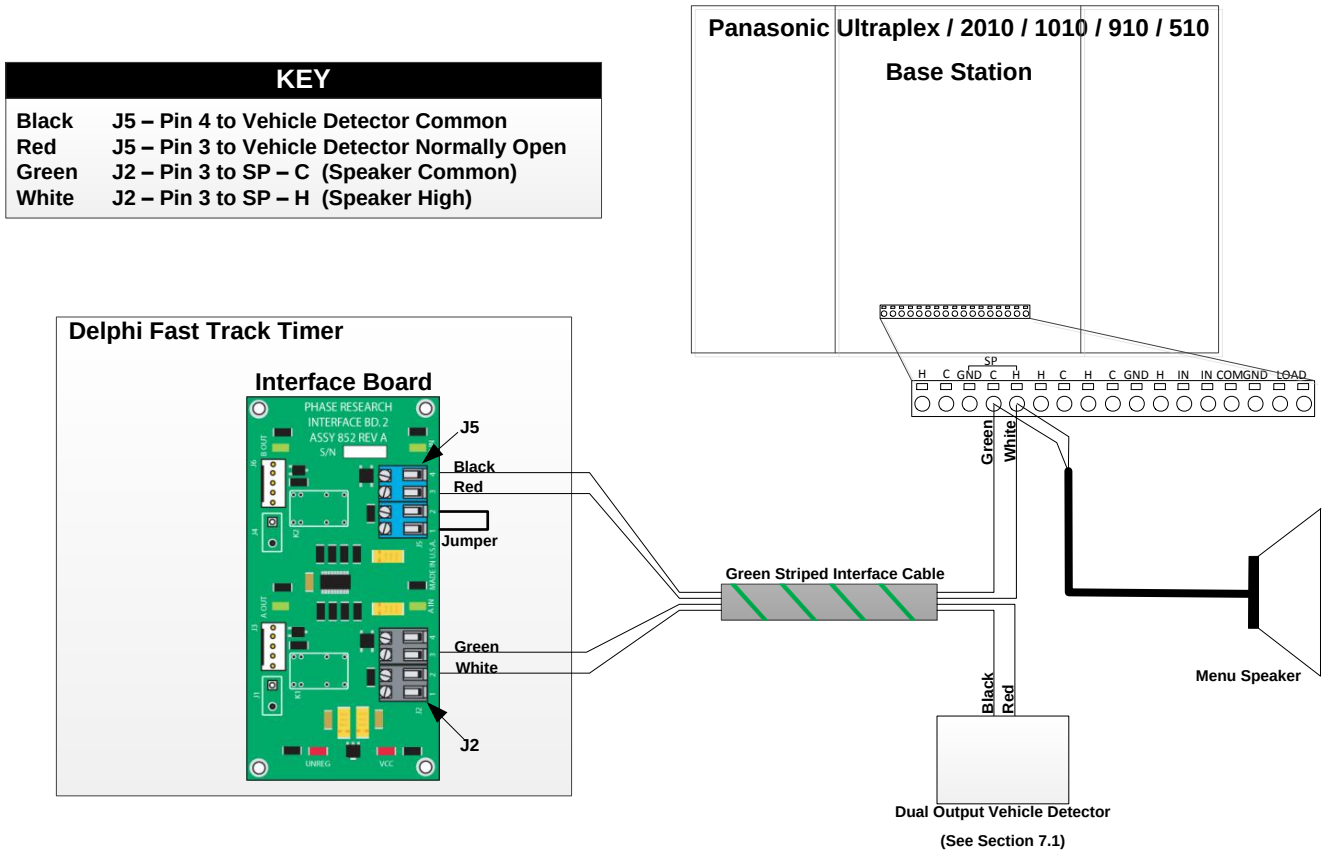

Figure 20 - Panasonic Interface

8 Change History

Change	Version	Date	Author
Initial Release			