
Delphi Endura 15X V-Net™ Order Confirmation System (COD; aka OCB, COD, OCD) Installation Instructions

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Table of Contents

1	INTRODUCTION	3
1.1	ORDER CONFIRMATION SYSTEM (COD).....	3
1.2	TECHNICAL SUPPORT	3
2	REQUIRED TOOLS.....	3
3	OVERVIEW DIAGRAM.....	4
3.1	ELECTRICAL WIRING.....	4
3.2	RUNNING THE DATA CABLE	4
3.3	SAFETY WARNINGS!.....	4
3.4	CIRCUIT BREAKER LABELING.....	5
4	CABLING	5
4.1	CONNECTING THE DATA CABLE TO THE BACK OF THE COD	5
4.2	CONNECTING THE DATA CABLE INSIDE THE STORE TO THE VX VIDEO ENCODER	8
4.2.1	VX Video Encoder.....	8
4.3	CONNECTING THE COD POWER CABLE.....	9
5	POWER-ON SEQUENCE AND SYSTEM TEST	10
6	SPECIFICATIONS	10
6.1	ELECTRICAL SPECS.....	10
6.2	VX VIDEO ENCODER SPECS	11
6.3	DISPLAY SPECS.....	11
7	CHANGE HISTORY	11

Table of Figures

FIGURE 1 - BASIC SYSTEM DIAGRAM	4
FIGURE 2 - PROPERLY LABELED CIRCUIT BREAKERS	5
FIGURE 3 - RJ45 FIELD CONNECTOR KIT.....	5
FIGURE 4 - DETAIL OF SHIELDED RJ45 CONNECTOR	6
FIGURE 5 - STANDARD 568B PINOUT DETAIL.....	6
FIGURE 6 – FIELD CONNECTOR ASSEMBLY STEP 1	6
FIGURE 7 - FIELD CONNECTOR ASSEMBLY STEP 2	7
FIGURE 8 - FIELD CONNECTOR ASSEMBLY STEP 3	7
FIGURE 9 - FIELD CONNECTOR ASSEMBLY STEP 4	7
FIGURE 10 - FIELD CONNECTOR ASSEMBLY STEP 5	8
FIGURE 11 - PROPERLY CONNECTED CAT5 CABLE	8
FIGURE 12 - DELPHI VX VIDEO ENCODER DETAIL.....	9
FIGURE 13: INDICATOR LIGHTS	10
TABLE 1: INDICATOR LIGHT INDICATORS	10
TABLE 2: ENCODER SPECIFICATIONS	11
TABLE 3: FEATURES	11

1 Introduction

This is a customer document regarding installation procedure for the Delphi Endura 15X V-Net Order Confirmation System (COD). This document describes site preparation requirements as well as the installations of the speaker post, speaker/microphone assemblies, display module, Video over Cat5 Transmitter and cable terminations.

1.1 Order Confirmation System (COD)

The COD utilizes state-of-the-art technologies to improve the efficiency of Quick Service Restaurant drive-through operations. The display contains a large 15" (381mm) diagonal sunlight readable color LCD capable of showing both text and high-resolution graphics. Located outside near the drive through menu board, the COD provides instant visual feedback of the customer's order in a clear and concise manner. It also performs as an effective marketing tool by using high impact color graphics to enhance product promotions, special offers and suggestive sell opportunities.

1.2 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 1
International : +1-714-825-3400
Email: techsupport@delphidisplay.com

2 Required Tools

The following is a list of required tools. Some tools may not be required for all installations.

- **Category 5 Cable Tester** (VERY Important)**
- 10" #2 Philips screwdriver
- Wire Strippers
- 200' fish tape
- Cordless Drill/Driver
- Multi-Meter
- RJ45 Crimper

3 Overview Diagram

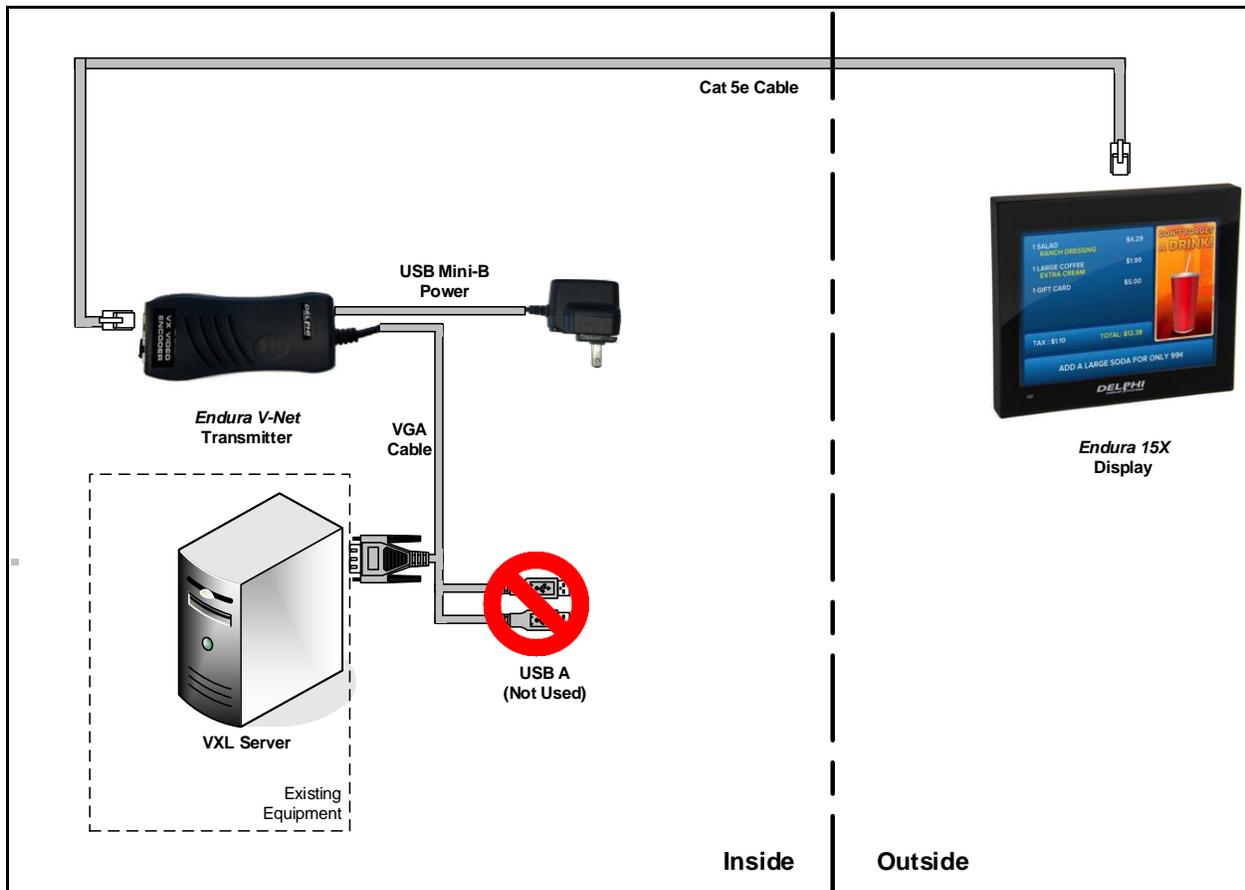


Figure 1 - Basic System Diagram

As the diagram shows above, the system consists of the display outside (variable mounting options), VX Video Encoder, VXL server and associated cabling. The server is NOT supplied by Delphi and must be capable of supplying both the slideshow images as well as the Order Confirmation screen to the display.

3.1 Electrical Wiring

COD must be provided power 24 hours/day, 7 days/week. It must also be on a dedicated circuit with its own breaker, not sharing power with any other electrical devices. Failure to follow this requirement may void the product warranty.

3.2 Running the Data Cable

The data cable is provided by Delphi Display Systems. It is a Category 5 (CAT5E) cable that will run from the COD display to the VX Video Encoder in the office. Pull the data cable through the appropriate conduit. Leave 5' (1.5m) of cable protruding from the end of the conduit inside the mounting solution. This will allow enough cable to connect to the back of the display module. **Do not under any circumstances leave any more than 5' (1.5m) of data cable inside the mounting solution.**

3.3 SAFETY WARNINGS!

- Verify that the circuit breaker has been turned off. If uncertain about the wiring, contact a qualified electrician.
- Follow all manufacturers' instructions for your tools.
- Verify all wires are properly connected and covered.
- Observe all applicable codes and ordinances.

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3.4 Circuit Breaker Labeling

Delphi supplies a sticker with every new installation that is to be used to mark the correct circuit breaker that supplies power to the COD. The sticker is affixed to the back of all new displays near the power connection. Place this label directly on the correct circuit breaker in a way that does not impede the use of the breaker. If no sticker is supplied, mark the breaker with a permanent marker as shown in Figure below.

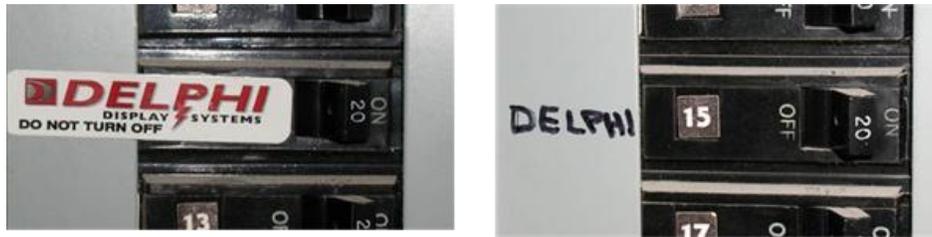


Figure 2 - Properly Labeled Circuit Breakers

4 Cabling

4.1 Connecting the Data Cable to the Back of the COD

The Cat5 cable should be terminated and connected to the back of the COD display using the supplied RJ45 Field Connector Kit as seen in the Figure below. Failure to use the required waterproof connector will void the system warranty.

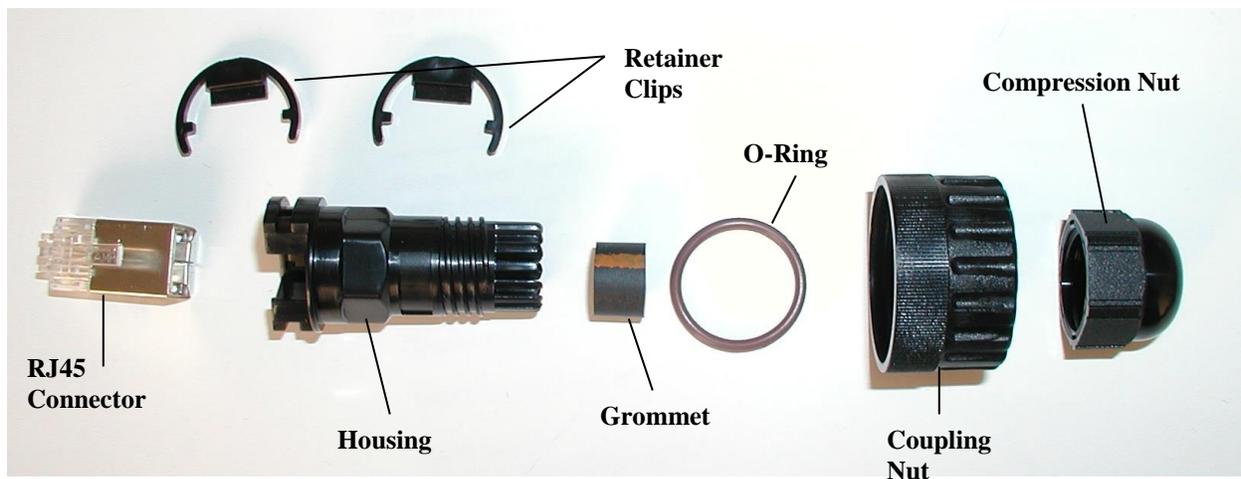


Figure 3 - RJ45 Field Connector Kit

Very Important

Even though only 2 RJ45 connectors are required per installation (both ends of the cat5 cable), Delphi supplies an additional 2 connectors as spares. These connectors are different from the “standard” RJ45 connectors in that it has a thin metal “shield” on it. Although Delphi does not utilize the shield for its intended qualities, this connector is a bit bigger in physical size due to the shield, and the receptacles on the V-Net Video Transmitter and display were designed to receive this bigger connector, so using a standard connector will result in a “loose” connection when plugged into the devices.

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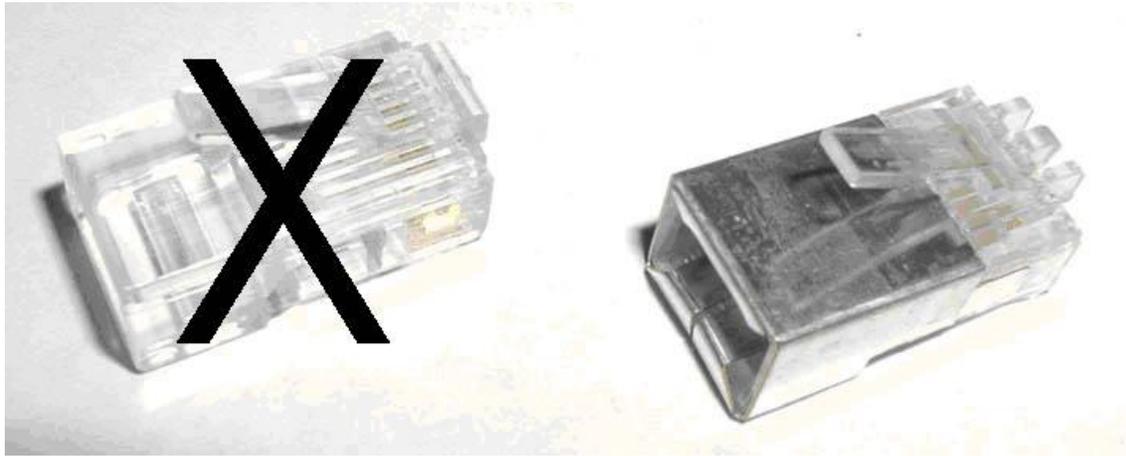


Figure 4 - Detail of Shielded RJ45 Connector

Delphi utilizes the standard 568B wiring pin-out for all RJ45 terminations. Refer to the figure below for the details

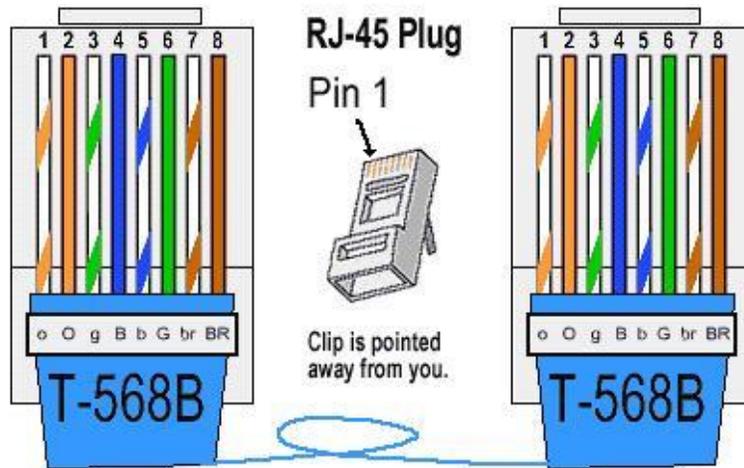


Figure 5 - Standard 568B Pinout Detail

To begin the process of assembling the Field Connector kit for connection to the back of the display; First, place the compression nut, the grommet, the compression nut, the O-ring and the housing on the cable as seen in the figure below.



Figure 6 – Field Connector Assembly Step 1

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Next, strip the jacket from the end of the Cat5e cable, and put the parts together loosely (do not tighten) as shown below.

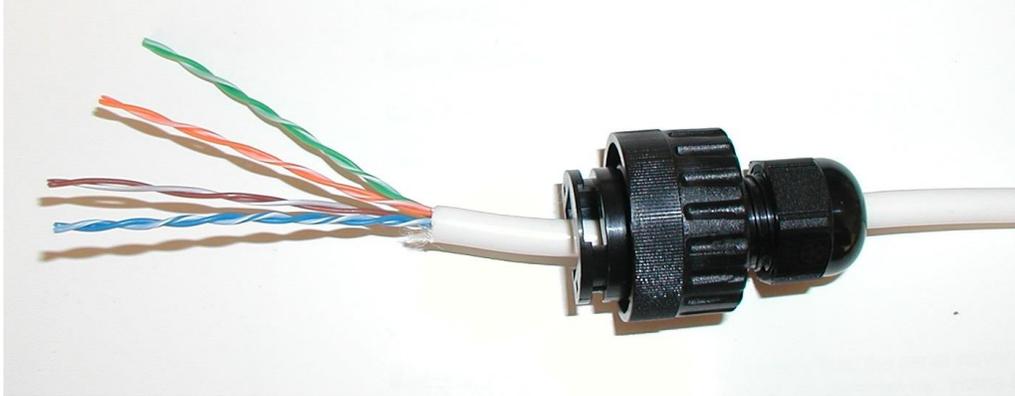


Figure 7 - Field Connector Assembly Step 2

Next, untwist the wires and place them into the correct order for **568B** termination. Cut the length of the wires down to approx 1" (25mm), then terminate the cable with the supplied shielded RJ45 connector as shown below.

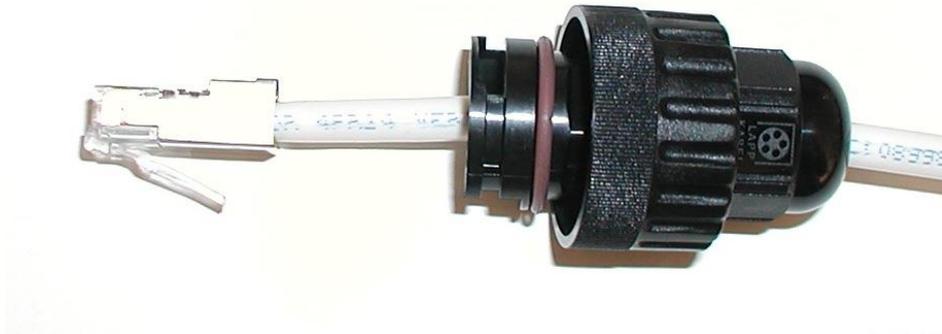


Figure 8 - Field Connector Assembly Step 3

Slide the housing up the cable until the RJ45 connector is seated into the housing. Place one of the two supplied retainer clips (the other one is a spare) into the slot and ensure it is clipped into place as shown below.

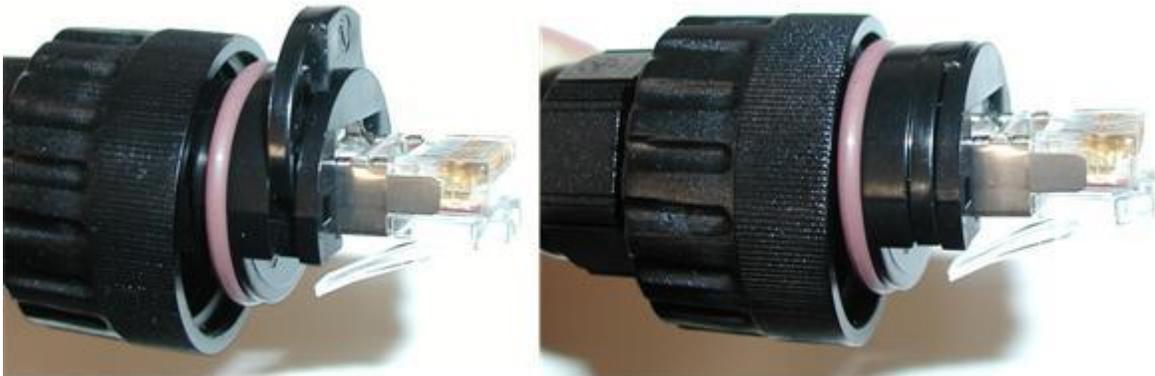


Figure 9 - Field Connector Assembly Step 4

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Lastly, tighten the compression nut and the assembly is complete. The completed connector should look like the one pictured in the figure below:



Figure 10 - Field Connector Assembly Step 5

The water-proof connector is now ready for connection to the display. Plug the connector to the back of the display at the RJ45 receptacle. Once connected, screw the “Connector Nut” into the back of the display until it is tight. Refer to the figure below for an example of a proper connection.



Figure 11 - Properly Connected Cat5 cable

4.2 Connecting the Data Cable Inside the Store to the VX Video Encoder

Route the cat5 cable inside the store to the office or wherever the server will be located that will supply the Delphi VX Video Encoder with the signal for the COD. The Delphi VX Video Encoder will need to be mounted (installed) next to that server by whatever means is appropriate for the customer. The VX Video Encoder should be within 1 meter of the server. Terminate the end of the Cat5e cable with an RJ45 connector wired exactly the same way as the outside end was done.

4.2.1 VX Video Encoder

Once properly terminated, the CAT5 cable will plug into the VX Video Encoder. The figure below shows the Delphi VX Video Encoder detailing its connectors and indicators.

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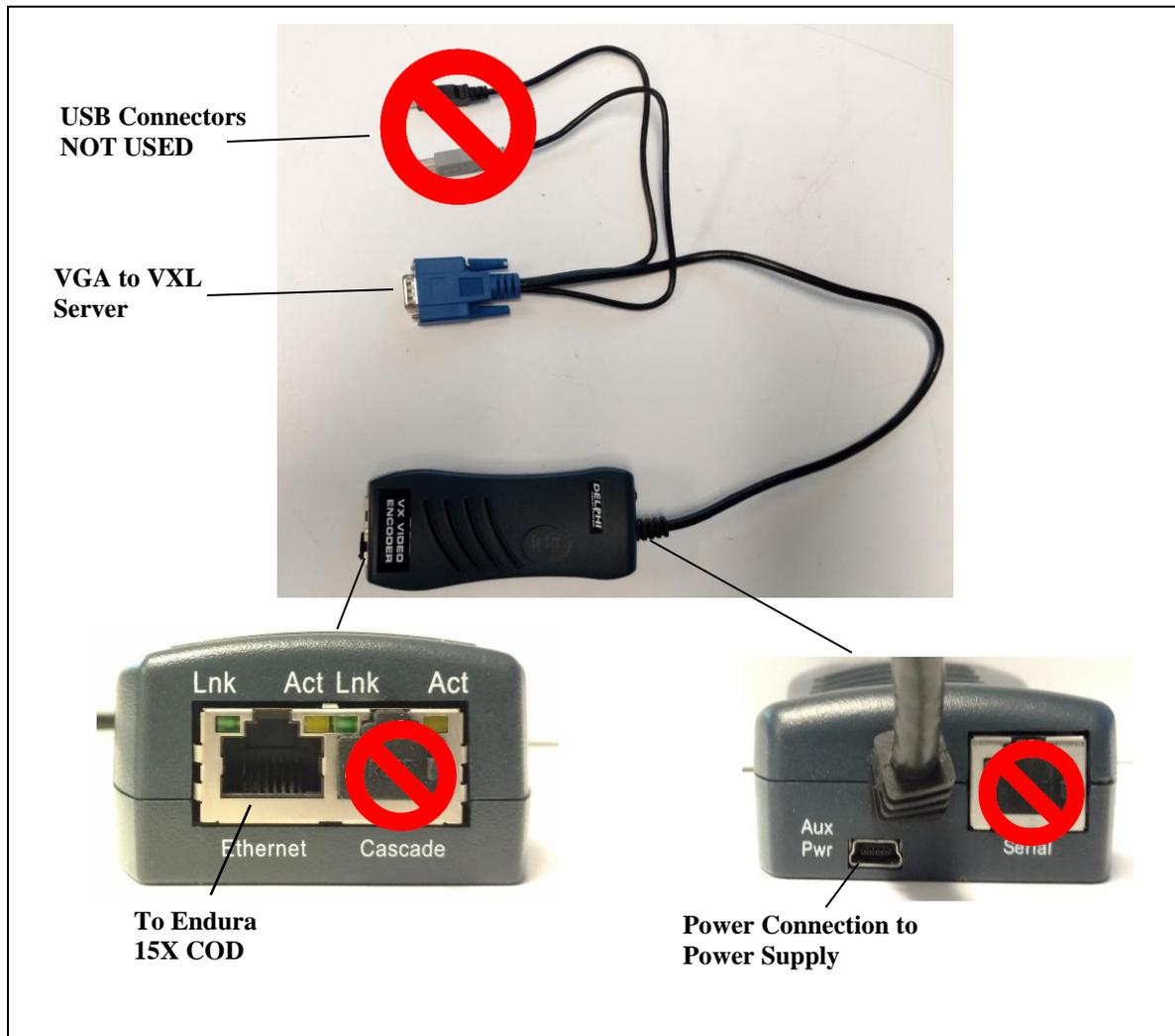


Figure 12 - Delphi VX Video Encoder Detail

CAT5 Cable Connection

Plug the terminated CAT5 cable into the “Ethernet” port on the Delphi VX Video Encoder.

Power

The VX Video Encoder will receive its power signal from the universal power supply packaged with the VX Video Encoder. Plug the universal power supply’s Mini-B USB connector into the power input of the VX Video Encoder.

VGA Connection

The VX Video Encoder has an integrated VGA cable and connector. Attach this VGA connector to the VGA output of the VXL server supplying the signal.

4.3 Connecting the COD Power Cable

Locate the Power Cable and connect to the rear of the COD Display Module.

*****WARNING*****

Do not apply power to the display until both ends of the Cat5 cable have been terminated and connected. Any shorting of the cat5 wires while the unit is powered up could result in a terminal failure.

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5 Power-On Sequence and System Test

The VX Video Encoder and Endura 15X V-Net system require that power be applied in a particular sequence. Apply power in the following order:

1. Turn on the VX L server
2. Plug the Mini-B USB power input into the VX Video Encoder
3. Turn on the power circuit breaker for the Endura 15X COD

There are two important indicator lights on the VX Video Encoder, that tell the status of the VX Video Encoder:



Figure 13: Indicator Lights

Sys OK Light	Video Light	Status	Meaning
Off	Off	No Power	No power – check mini-B USB power input
Flashing Green	Off or On	Initializing	VX Video Encoder is initializing (90 seconds)
Solid Green	Off	Operation – No Video	No VGA input video signal – check cable and VXL Server
	Solid Green	Operation – Video	VGA input video signal detected

Table 1: Indicator Light Indicators

The Endura 15X COD will take approximately 4 minutes to initialize. Once it has initialized, you should see the VXL Server video reproduced on the 15X COD display.

If you see a “No Video” message on the COD display, check the Video light on the VX Video Encoder. If the Video light is ON, check the cabling between the Endura 15X COD and the VX Video Encoder.

If you see an “Incompatible Signal” message on the COD display, check the display output resolution of the VXL server. The VXL server must be configured to output a resolution of 1024x768. If a resolution higher than this is selected, the VX Video Encoder “Video” light will be ON, but the Endura 15X COD will indicate “Incompatible Signal”.

Note: The power sequence above must be followed. If the components are turned on in an incorrect sequence, the Endura 15X COD may display a black screen or “No Video” message.

6 Specifications

6.1 Electrical Specs

AC wiring from COD (Live wire, Neutral and Ground) should go directly to the circuit breaker panel, without being connected to anything else. Server, POS and COD need to be powered from the same IG circuit breaker (distribution) panel.

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6.2 VX Video Encoder Specs

Feature	Specification
Input Video Signal	1.2V p-p
Connectors	One male VGA input, one RJ45, one USB type-Mini-B power connector, two USB type-A connectors (not used)
Temperature	Operating: 0 to 45 C Storage: -20 to 70 C Humidity: up to 95%
Status	Power LEDs, Video Active LED
Dimensions	13.2cm H x 5.8cm W x 3.1cm D
Power Consumption	5 VDC @ 0.8A max
Enclosure	Plastic

Table 2: Encoder Specifications

6.3 Display Specs

It is imperative that the video being supplied to the Delphi COD fits within the following specs. If these properties are not set correctly on the computer supplying the video signal, the Delphi COD may not function properly.

Display Properties – Settings - Monitor Settings – Refresh Frequency – **60Hz - 75Hz.**

Display Properties – Settings – Screen Area – **1024 by 768 pixels**

Feature	Requirement
Display	Sunlight Readable
LCD Type	TFT active matrix
Display Size	15.0 inch diagonal
Input Signal	1 Channel LVDS interface compatible
Aspect Ratio	4:3
Resolution	1024 x 768, XGA 75Hz max
Display Color	16.2 M
Brightness	>1500 cd/m2
Contrast Ratio	>400:1
Viewing Angle	> 70 / 70 / 70 / 70 (L / R / U / D)
Video	
Input Connectors	Sealed RJ45
Input Signal Format	RGB, VS, HS (VGA)
Electrical	
AC Input	110V ~ 220V AC Input
AC Power	<30W
Input Connectors	Sealed RJ45 for video
Environmental	
Operating Temperature	-40°F to +154°F
Humidity (operating)	0 to 100%
Enclosure	Sealed, Against All Weather Rugged sealed metal construction Reflection Reduction
Vandal protection	Tempered safety glass
Light Filtering	Inside safety glass to protect from UV light and heat caused by infrared light
Dimensions	15½” w x 12¾” h x 6½” d.
Functional	
Backlight Brightness Control	Automatic backlight brightness adjustment depending on the outside ambient light level.
Safety Approval	UL, FCC (USA) CSA (Canada)
MTBF	63,000 hours

Table 3: Features

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7 Change History

Change	Version	Date	Author
Initial Release	A	5.15.2017	B. Medvitz

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