

Trooper® TL4 and TL2 Mobile DVR System Installation and Configuration Guide

The TL DVR is secured with a locking front cover and a cable cover. Two cable grommets (and two knockouts) on the cable cover allow for wiring to enter from the left side, right side, or back of the unit. The DVR can be installed in a horizontal or vertical installation.

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Tools and Equipment

Check that you have all the system components and inspect the units for any scratches or damage before installing.

Required installation tools:

- Drill with bit to cut 1 3/4" cabling hole
- Phillips bit # 2, for 6-32 x 3/16 screws

Keys included in package contents:

- DVR keys for securing the removable hard drive
- Front cover keys for securing the removable front cover

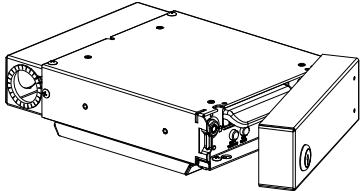
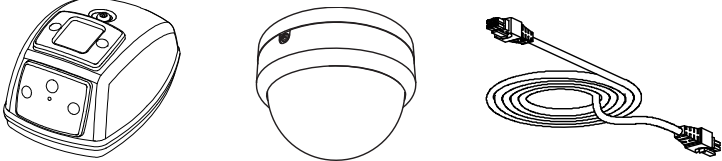

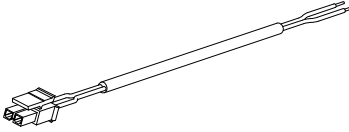
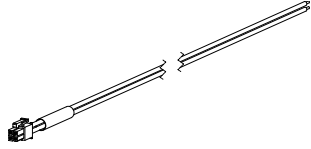
Configuration equipment:

- For on-screen configuration: LCD monitor and trackball mouse or remote control
- For vMax Web configuration: laptop and an Ethernet cable.



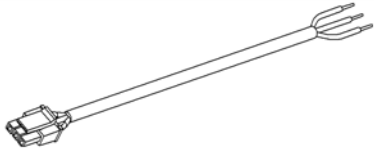
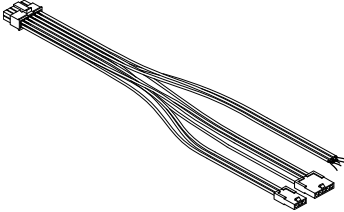
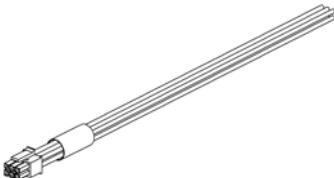
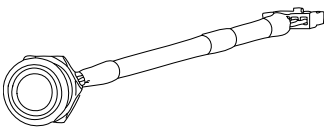
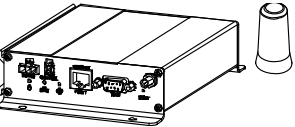
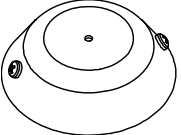
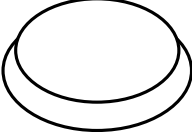
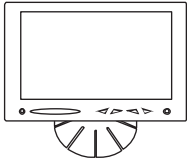
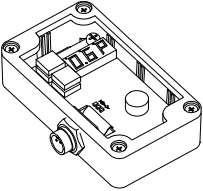
TL Basic System Package Contents (typical)

The contents of a typical basic installation package are shown below. The actual contents of your installation package may vary, depending on the options selected.

<p>Trooper TL DVR with drive, locking front cover, cable cover, and mounting plate</p> 	<p>Cameras (up to 4) and extension cables</p> 	
<p>Alarm Switch and cable</p> 	<p>Alarm input harness</p> 	<p>Ignition input harness</p> 

TL Plus System Package Contents (optional)

The additional items for a typical Plus installation package are shown below. The actual contents of your installation package may vary, depending on the options selected.

<p>Speed harness</p> 	<p>Adapter harness</p> 	<p>Signals harness</p> 
<p>Diagnostic Button (and extension cable, not shown)</p> 	<p>Smart-Reach™ Mobile</p> 	<p>Remote microphone</p> 
<p>GPS receiver</p> 	<p>LCD monitor</p> 	<p>Inertia sensor (optional)</p> 

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Installation Diagrams

To install the typical TL4 Basic DVR system, see Figure 1.

To install the typical TL2 Basic DVR system, see Figure 2.

Trooper® TL4 Typical System Setup

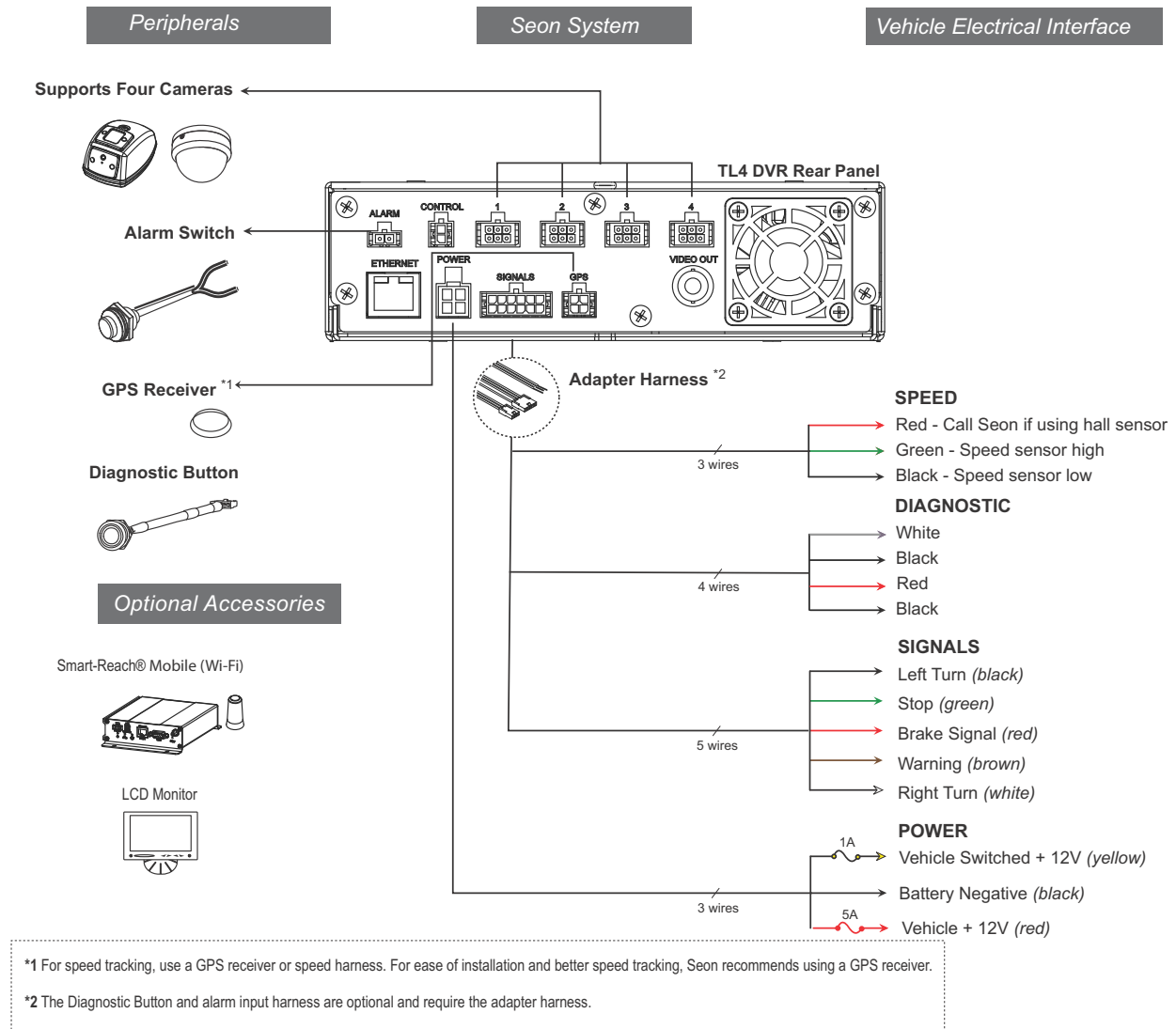


Figure 1 Typical TL4 System

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Trooper® TL2 Typical System Setup

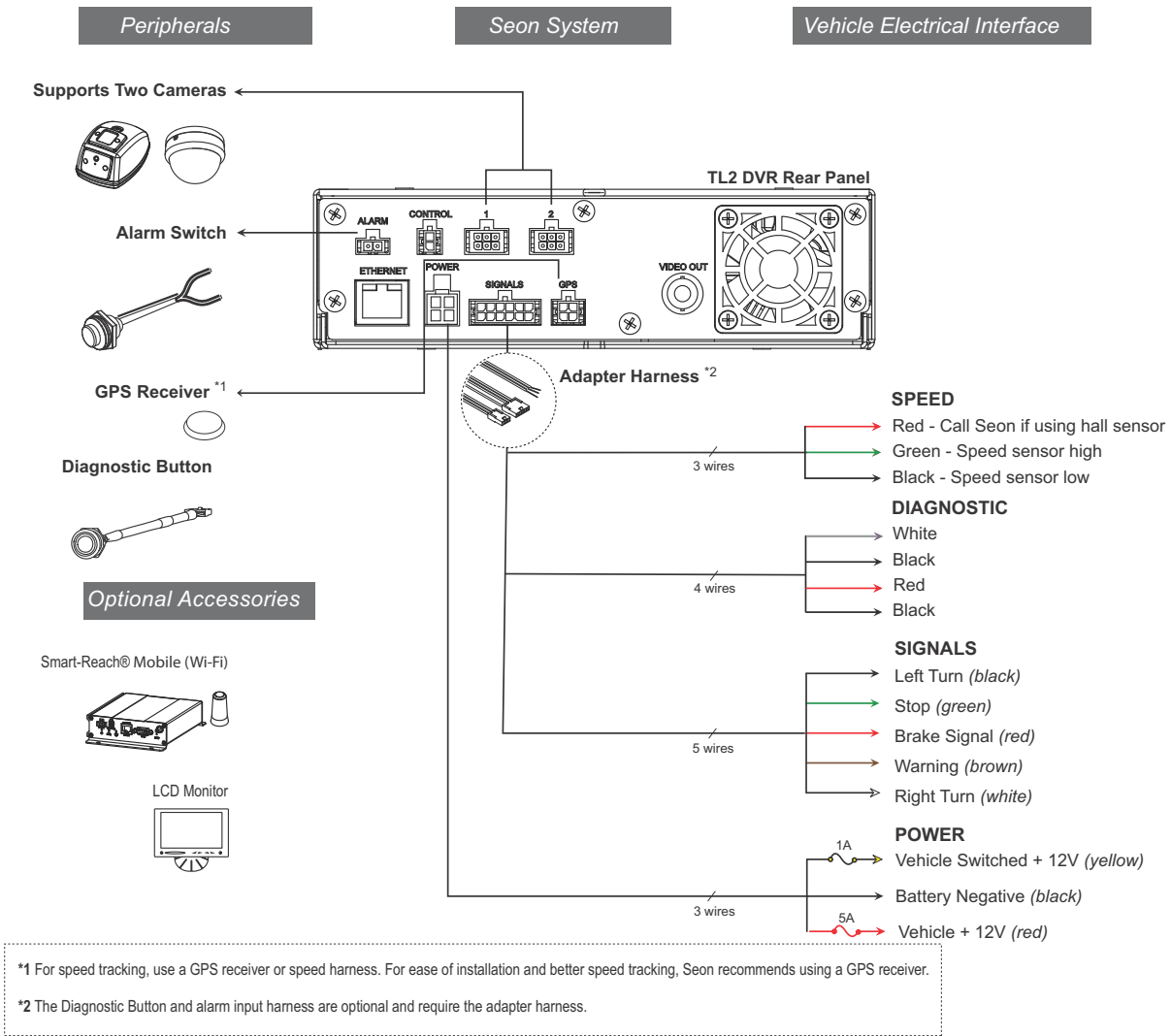


Figure 2 Typical TL2 System

Installation Best Practices



CAUTION

- Do not install the DVR in a location where the unit is exposed to extreme heat. Installation close to extreme heat will void the product warranty.
- Route the wiring and cables away from sharp edges that might damage the insulation. Avoid sharp bends in the cable.
- Contact Seon before attaching the DVR to other equipment in the vehicle.

The TL DVR is secured with a security front cover and a cable cover. Two cable grommets (and two knockouts) on the cable cover allow wiring to enter from the left side, right side, or back of the unit.

The DVR can be installed horizontally or vertically.

Before installing the TL DVR, keep in mind that a well-ventilated location and sufficient clearance around the unit are key factors in performance and maintenance. See Table 1 for information on installation requirements.

Table 1 Choosing a Location and Other Installation Requirements

Ventilated location	Install the DVR away from any sort of heat outlet, heater, or AC blower. Do not operate the DVR in a closed-in area or restrict ventilation in any way. The DVR requires air circulation to maintain optimum operating temperature and provide best performance.
Mount to secure surfaces only	Do not mount the DVR to a plastic panel or other surface that is subject to constant vibration.
Mounting orientation	Mount the DVR in either a horizontal or vertical orientation.
Clearance around the DVR	Allow sufficient clearance of at least six (6) inches in front of the DVR and two (2) inches on each side for removal of the security front cover and easy access to the hard drives and USB ports. Allow sufficient clearance behind the DVR for camera cables, mounting cables, Ethernet cables, and power cables.
Mounting cables	The radius for the mounting cables will be dictated by the cable cover. The rearmost surface of the cable cover will be about 3 inches from the back of the DVR to allow camera cables to bend over each other.
Ethernet cables	Avoid right angle bends in the Ethernet cables.
Power cables	Provide enough slack on the power cable to prevent any force from being exerted on the connectors. A single 4-inch diameter loop is sufficient.

Installation

DVR Installation

The DVR typically ships with the locking front cover on and the mounting plate and cable cover off.

To install the TL DVR:

- 1 Select an appropriate mounting location and orientation, horizontal or vertical. For the dimensions and location of the mounting holes, see Figure 14, “Trooper TL Dimensions” on page 17.
- 2 Unlock the door lock and remove the front cover from the unit to access the front panel. Verify there is a drive inside the DVR.
- 3 Determine where the wiring and camera cables will enter the unit: on the left side, right side or back.
- 4 Remove the necessary knockout (s) and insert plugs and cable grommets.

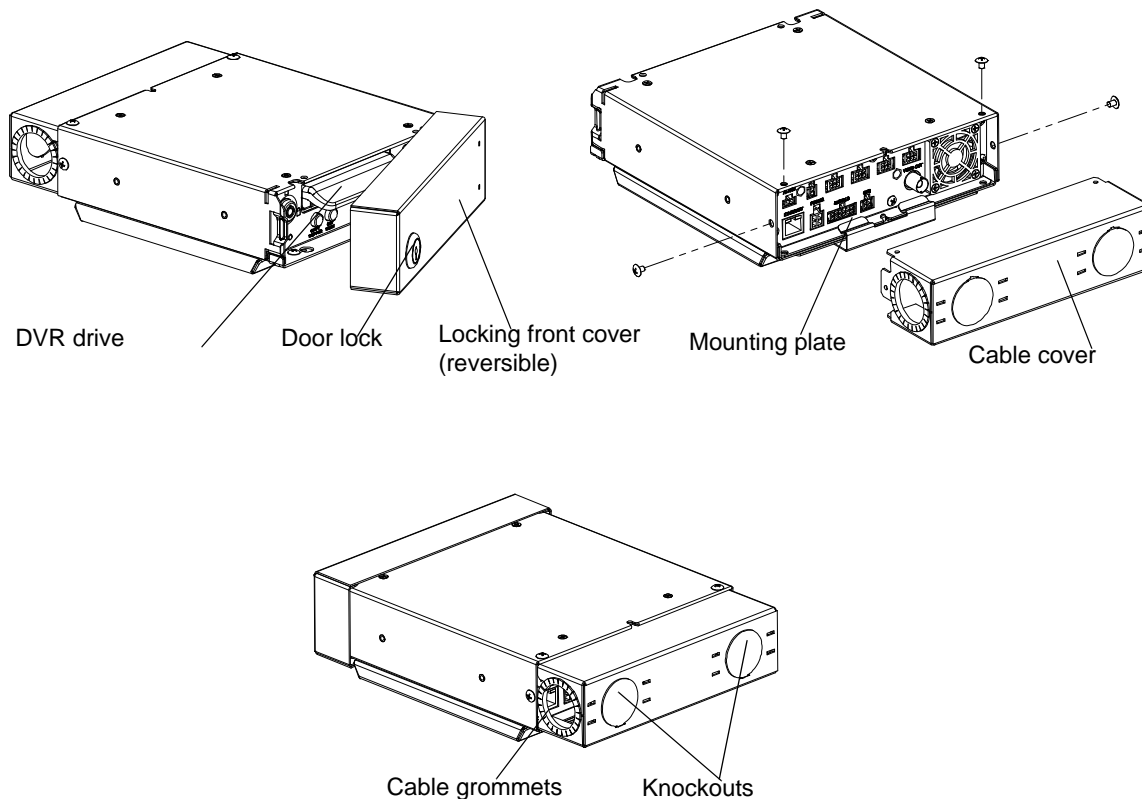


Figure 3 Trooper TL Components

- 5 Use the mounting plate to mark the desired position of the DVR and drill the four mounting holes. The flange secures to the front of the DVR, the tray spring tab attaches to rear.
- 6 Fasten the mounting plate to the mounting surface with the four #10 × 3/4 sheet metal screws or #10 × 1" self-drilling screws.
- 7 Secure the DVR to the mounting plate with the two screws.
- 8 Connect the necessary components.

Camera Installation

Install the cameras according to the product documentation that is included with the camera.



CAUTION

Route the wiring and cables away from sharp edges that might damage the insulation. Avoid sharp bends in the cable.

Feed the cable through the large cable grommets one at a time, or cut a space from the edge of the cable cover to the grommet and slide the cables into the grommet.

Adapter Harness Installation

To install the adapter harness for signals and speed:

- 1 Connect the 12-pin connector to the SIGNALS socket on the DVR.
- 2 Connect the 3-pin speed harness and 6-pin Signals harness to the Adapter harness. Connect the wires as shown in Figure 1, “Typical TL4 System” on page 3.

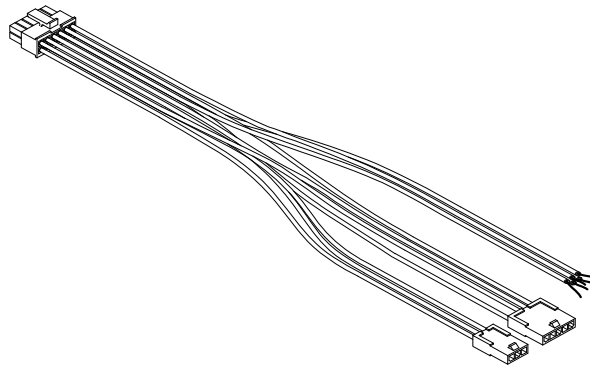


Figure 4 Adapter Harness

Alarm Button Installation

To install the alarm button:

- 1 Mount the Alarm Switch into a 1/2" hole, and attach to the alarm input harness using the micro-fit connectors.
- 2 Attach the black wire of the Alarm Switch to the black wire of the Alarm Input harness. See Figure 5.
- 3 Attach the red wire of the alarm button to the red wire in the Alarm Input harness.
- 4 Connect the Alarm Input harness connector to the ALARM socket on the DVR.

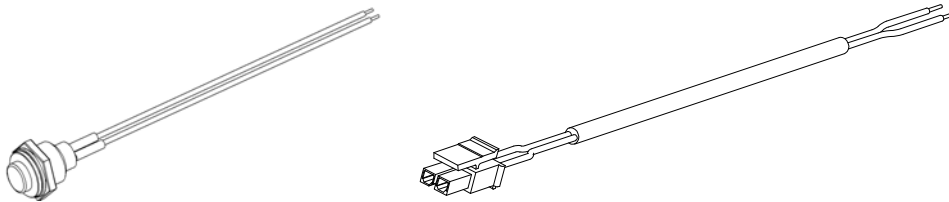


Figure 5 Alarm Button and Alarm Input Harness

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Wake on Alarm Feature Wiring

When enabled, this feature causes the system to power up and start recording when Alarm 1 is triggered. The system takes about one minute to power up and start recording, depending on environment conditions.

To wire the Wake on Alarm feature:

- 1 Connect the DVR's back panel alarm input harness connection (2 pin) so that pin 1 (red wire) is toggled to a 12 VDC to 24 VDC source to trigger power.
- 2 Connect or remove the black wire of the alarm input harness.

To wire the Wake on Alarm feature with a Diagnostic Button:

Important: If you are using the Diagnostic Button and cable, and require the Wake on Alarm feature, the Diagnostic Button cable must be rewired as shown in Figure 6.

- 1 On the Diagnostic Button cable, cut the green wire just before it enters the socket. See Figure 6.
- 2 Extend and connect the green wire to an input wire on the Signals harness.

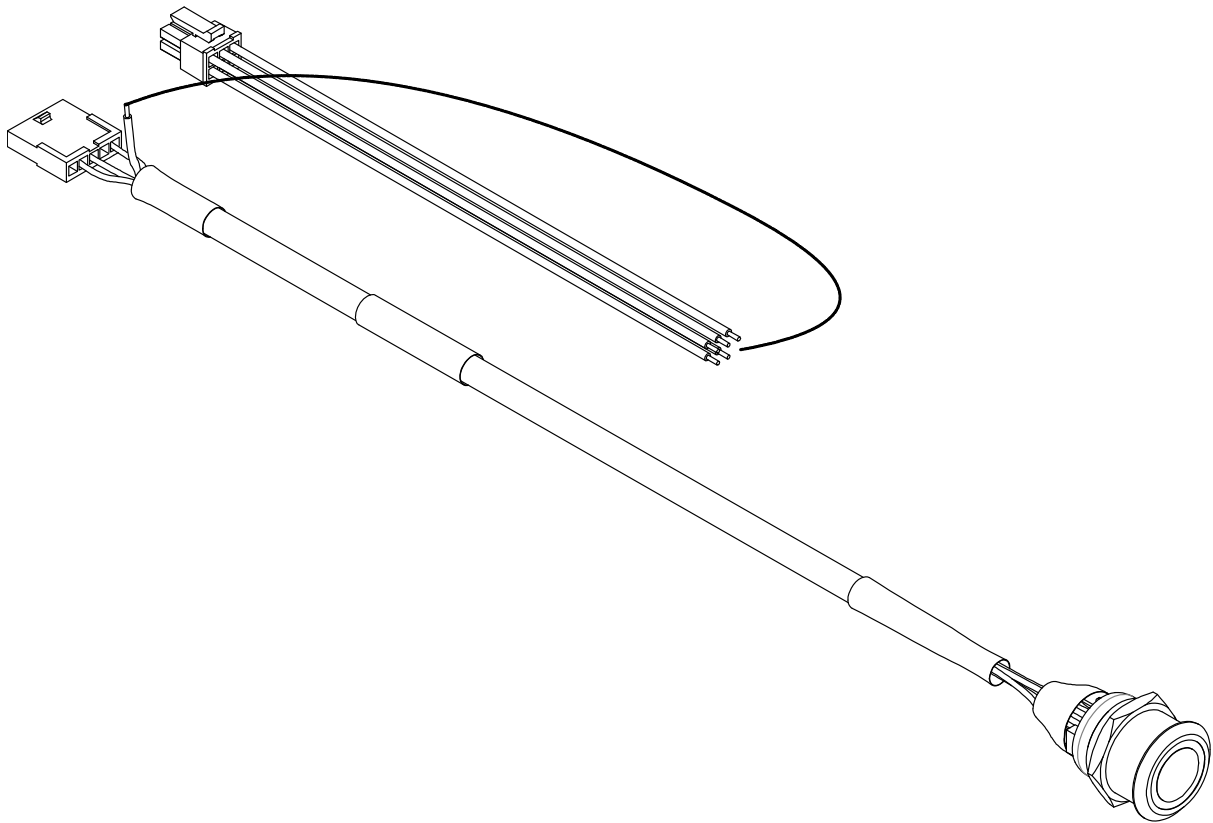


Figure 6 Wiring Alarm Button and Signal harnesses for Wake on Alarm

Diagnostic Button Installation (optional)

When installed, press the Diagnostic Button to cause an alarm event to be recorded by the DVR.

To install the Diagnostic Button:

- 1 Determine proper location before drilling mounting holes.
- 2 Drill a 3/4" hole in the desired location. Ensure that the area behind the hole is clear of obstructions before drilling.
- 3 Remove the mounting nut from the Diagnostic Button.
- 4 Feed the connector and cable through the mounting hole and reattach the nut.
- 5 Connect the Diagnostic Button 5-pin connector to the 5-pin connector on the adapter harness.
The indicator ring shows the DVR status. See Table 2.

Table 2 Diagnostic Button ring color

Ring Color	Function
No green light	No power to the DVR, or ignition is not on.
Flashing green	The DVR is powered up, but not recording.
Solid green	The DVR is powered up and recording.

Accessories

- GPS Receiver Installation – for more information, see the product documentation.
- Inertia Sensor – for more information, see the product documentation.
- LCD Monitor – for more information, see the product documentation.
- Smart-Reach Wireless Network – contact your sales representative at Seon Design for wireless network options.

Hardware Installation Final Checklist

✓	Harnesses (camera, recorder, and accessories)
	Check that the cables and the harnesses are properly secured.
	Check that sharp metal edges are not touching the cables or harnesses.
	Check that the connections are solid (no shorts).
✓	Cameras
	Check for tight mount.
	Check the internal harness connections.
	Check that the lid is properly seated on the gasket and secured tightly.
	Check camera(s) field of view.
✓	DVR
	Check for tight mounting of hardware.
	Confirm that the cable grommet is properly installed.
	Check that all connections are tight.
✓	System
	Install the fuses.
	Plug the LCD video monitor into the DVR.
	Switch to temporary power by pressing the DVR front panel STOP/TEMP POWER button with the vehicle ignition turned OFF.
	Configure the DVR to required specifications locally using the remote control or the trackball mouse, or remotely by accessing vMax Web over the internet using a PC. See Figure 13, “Configuration Main Menu for On Screen Display and Web Browser” on page 15.
	Confirm the LAN, HDD, and PWR status indicators on the DVR front panel work properly:
	Confirm that all the cameras and audio sources are operating properly.
	Test audio/video record and test audio/video playback.
	Reformat the hard drives by navigating to Main Menu > Configuration > System > Program Update > Format. A warning message appears, “Formatting the Hard Drive will erase all data. Do you wish to continue?” Click Yes . Once formatting of the hard drive is completed, a confirmation message appears, “Hard drive format completed. Click OK .” Exit the configuration setting menu and system setup is complete.
	Fasten and lock the front cover. Secure the cable cover on the DVR using the screws provided.

Configuration

The TL can be configured in two ways:

- **On Screen Display (OSD) Configuration and Playback**
Connect to the DVR's front panel VIDEO OUT jack with an LCD monitor. Use the trackball pointing device or the remote control to set the configuration settings. For OSD configuration with the DVR, the default password setting is Off. The password setting can be changed in the System Settings Menu.
- **Web Browser Configuration and Playback**
Configure the network connection on the computer, then connect the DVR to a computer using an RJ-45 cross-over Ethernet cable. (All newer laptops do not require a cross-over cable.) Configure the DVR via the vMax Web browser user interface. See page 11.

See also "Default Settings for Record, Camera, and Timer" on page 16.

Important: The default network settings allow for connection to a laptop computer for configuration of the DVR only. For remote network access, consult with your IT staff or Seon Design to configure the DVR to be on the same subnet as the laptop.

vMax Web Configuration and Playback

The TL4/2 DVR can be managed via the vMax Web internet portal. Microsoft® Internet Explorer® 7.0 or higher version is required. Make sure the DVR and other system components are already installed and configured in order to access the DVR via vMax Web. Connect the laptop to the DVR using an RJ-45 Ethernet cable.

To configure your laptop:

Configure your laptop to obtain IP addresses automatically, using DHCP (Dynamic Host Configuration Protocol). If it is not configured to DHCP, or you need to verify the setting, then follow these steps to configure your laptop.

- 1 Navigate to Windows Local Area Connection properties in Windows 7 or XP as follows:

Windows 7: click **Start** > Control Panel > Network and Internet > Network and Sharing > Local Area Connection.

Windows XP: click **Start** > Control Panel > Network Connections > Local Area Connection.

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The Local Area Connection Status window appears.

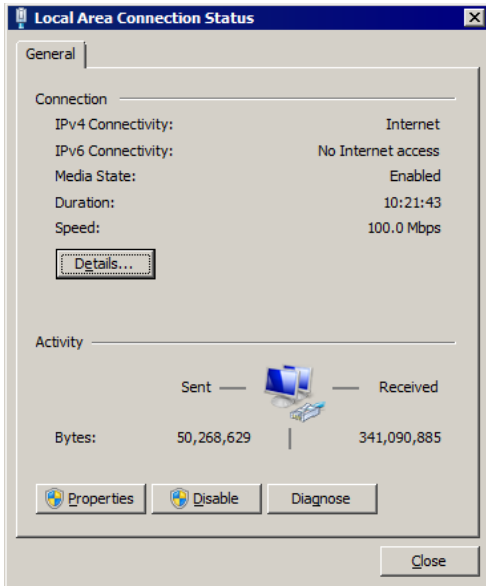


Figure 7 Local Area Connection Properties window

- 2 In the Local Area Connection Status window, click on Properties.
The Local Area Connection Properties window appears.

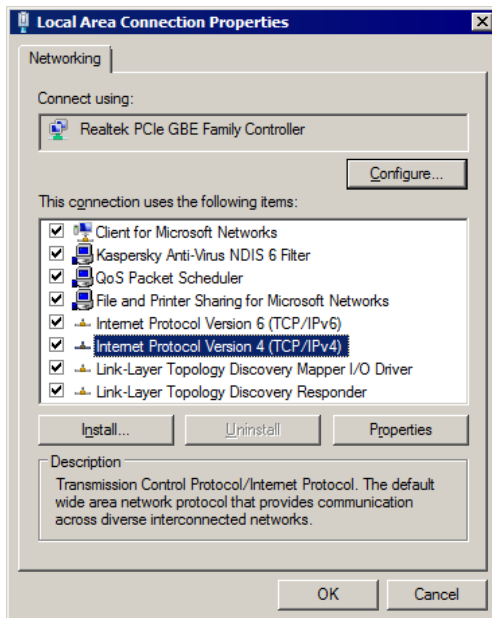


Figure 8 Local Area Connection Properties window

- 3 In the Local Area Connection Properties window, select the click to highlight the current **Internet Protocol Version**, (in Windows XP select **Internet Protocol (TCP/IPvN)**), and then click **Properties**.

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The Internet Protocol Version Properties window appears

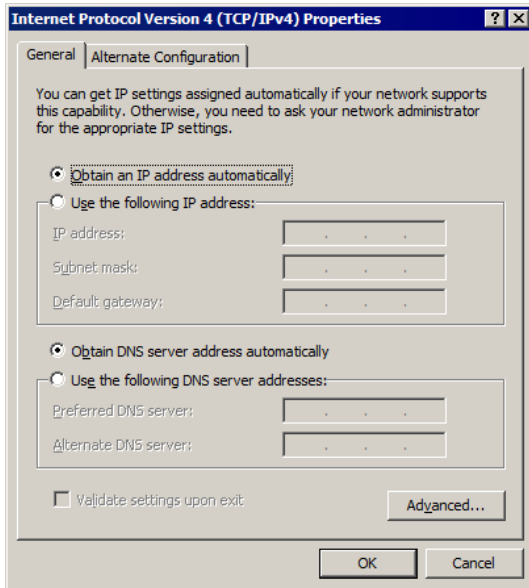


Figure 9 Internet Protocol Properties window

4 In the Internet Protocol Properties window, select **Obtain an IP Address Automatically**.

Connecting the DVR to the Laptop

To connect the DVR to the laptop:

- 1 Connect one end of the Ethernet cable to a network port on the laptop. Connect the other end to a network port on the DVR.
- 2 The laptop uses Automatic Private IP Addressing (APIPA)¹ to select an IP address. This process may take up to 90 seconds.
- 3 Once connected, the laptop Local Area Connection should report limited connectivity using an Automatic Private IP Address. Confirm by opening your network connections as shown in Figure 10.

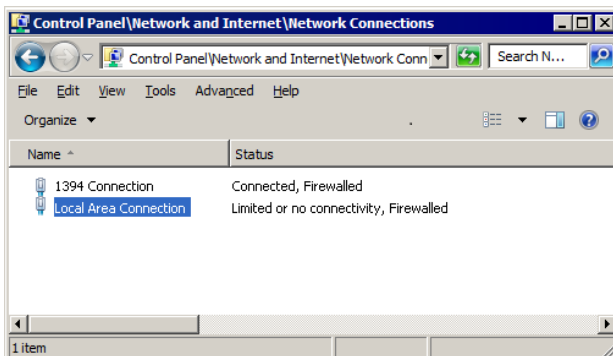


Figure 10 Limited Connectivity

1.APIPA is a feature available since Windows 98 that allows for devices to provide their own IP address when there is no DHCP server present.

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In very rare instances, the laptop may select the same IP address, **http://169.254.1.1**, used by the DVR and cause a conflict. If this is the case, manually set the laptop IP address to **http://169.254.1.2**, as shown in Figure 11.

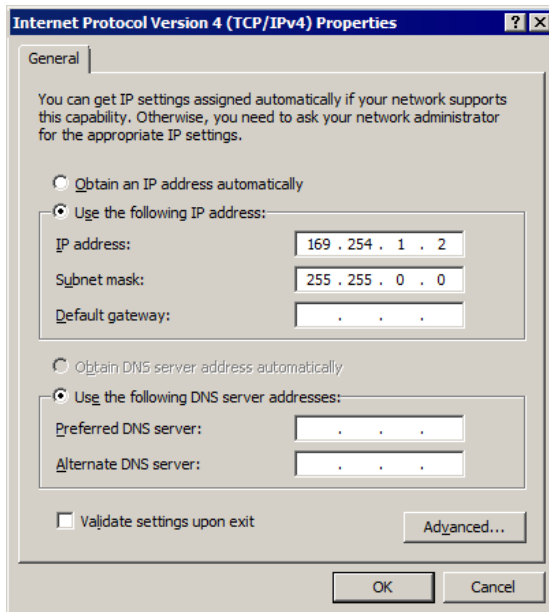


Figure 11 Default IP Address

- 4 Open Internet Explorer, and in the address bar, type in the DVR default IP address: **http://169.254.1.1**.
- 5 Press **Enter**.

The Login Screen appears as shown in Figure 12.

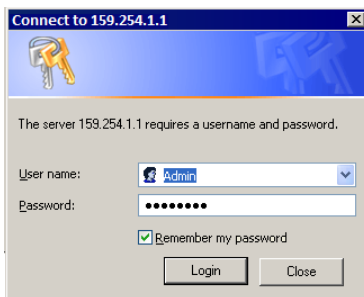


Figure 12 Login Screen

- 6 At the login prompt, enter the following credentials to access the internet browser user interface. The user name is case sensitive.

Default User name: **Admin**

Default Password: **11111111**

- 7 Click **OK** or press enter on the keyboard to display the vMax Web interface live view screen.

The following Configuration Menu Trees show how the main menu and sub menu items are organized.

Configuration Menu Tree

The TL Configuration Main Menu shown in Figure 13 applies to the on screen display configuration and to the Web browser configuration.

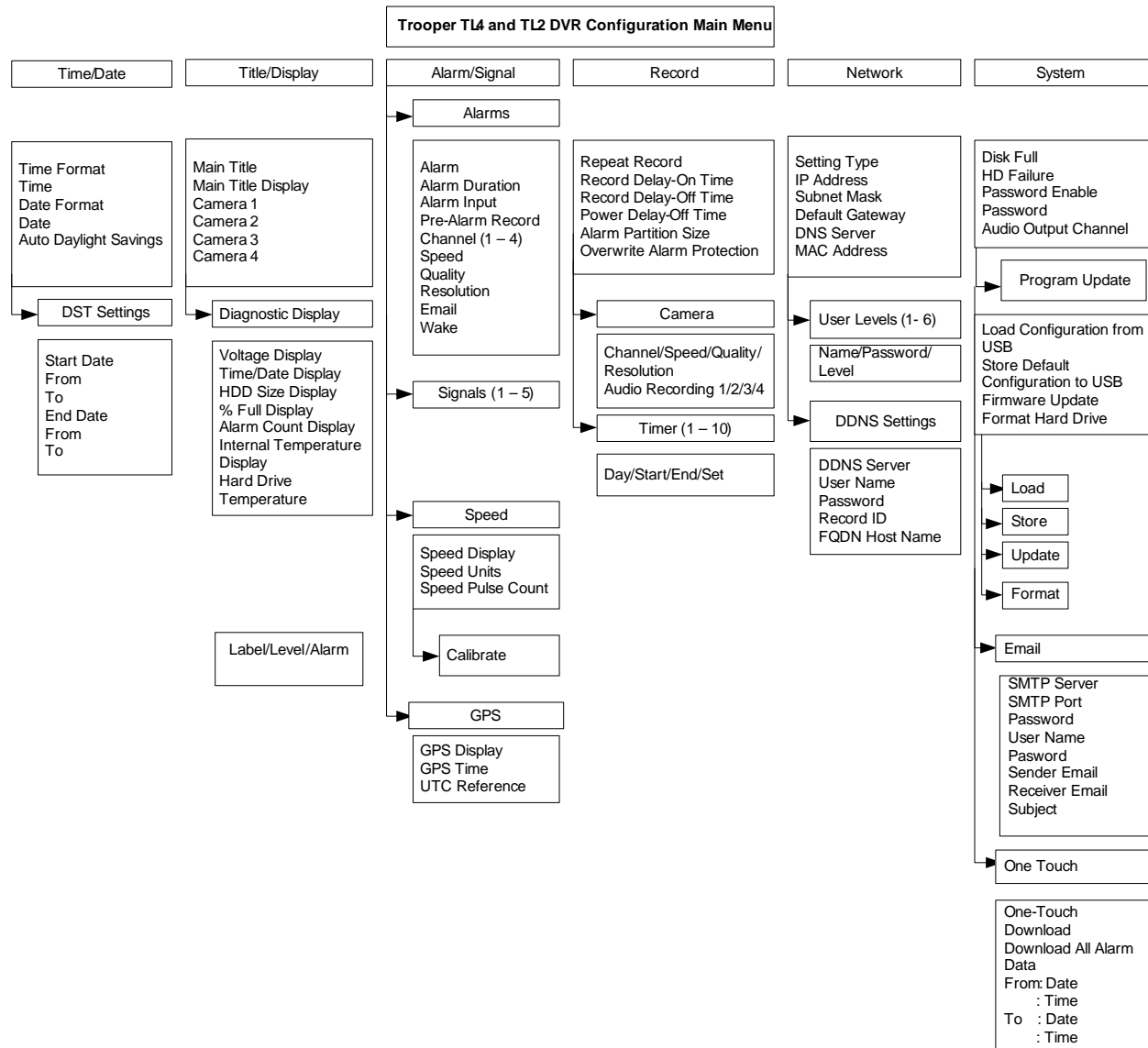


Figure 13 Configuration Main Menu for On Screen Display and Web Browser

Default Settings for Record, Camera, and Timer

Table 3 Default Record Settings

Record Settings	
Repeat Record	On
Record Delay-On Time	30 sec.
Record Delay-Off Time	15 sec.
Power Delay-Off Time	15 sec.
Alarm Partition Size	Off
Overwrite Alarm Partition	Off
Watermarking	Off

Table 4 Default Camera Settings (per camera row)

Camera Settings (per camera row)	
Speed	15 FPS
Resolution	720x480
Quality	3
Audio	On

Table 5 Default Timer Settings

Timer Settings		
Enable Timers: (per timer row)	Off	
	Day	WDY
	Start	12:00 AM
	End	12:00 AM
	Set	Off

Dimensions

Important: Specifications are subject to change without notice.

- Weight: 5.3 lb (2.4 kg) including lockbox
- Material: steel, powder coated black paint

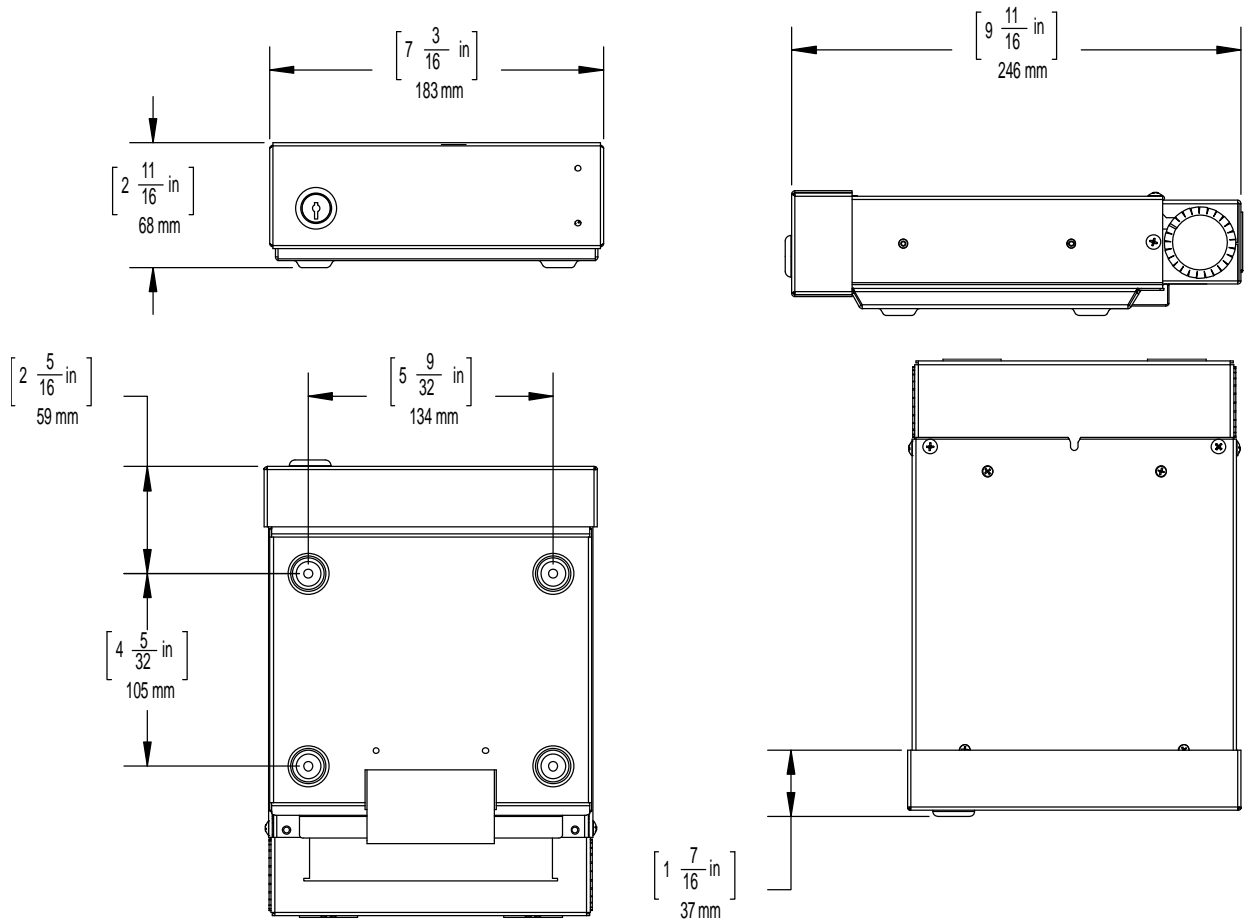


Figure 14 Trooper TL Dimensions

Related Documents

For more information, see the following user guides:

- *Trooper TL4 and TL2 Mobile DVR User Guide*, document number 700-0098

Customer Service Contact Information

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