Complete assembly in Ford Police Interceptor Sedan (top) and Utility (bottom). Keyboard and Console sold separately.
The OEM radio and optional SYNC are replaced by the ICS. The ICS cabling configuration is determined by whether or not the vehicle is equipped with SYNC.

For technical support, please contact Havis at 1-800-458-3410 or visit www.havis.com for additional product support and information.

**CAUTION**

- READ ALL INSTRUCTIONS THOROUGHLY BEFORE BEGINNING INSTALLATION.
- DO NOT OPERATE SYSTEM WHILE DRIVING YOUR VEHICLE.

**NOTICE**

- AFTER READING THE SYSTEM OVERVIEW SECTION OF THIS MANUAL (BEGINNING ON PAGE 9), DOWNLOAD THE MOST CURRENT SOFTWARE TO ENSURE SYSTEM OPTIONS ARE UP-TO-DATE.
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How the Integrated Control System Works

Video Integration

The ICS supports video inputs from a computer, camera, or digital video recorder (DVR). Video Display 1 mode is dedicated to display the ICS applications in the upper and lower portion of the screen. The camera and/or DVR can be displayed in Video Display 1. Video Display 2 mode acts as a secondary monitor of high-resolution video from a computer, laptop, or tablet in portrait orientation.

Audio Integration

The ICS will help simplify your vehicle speakers and audio devices. The four vehicle speakers will share audio inputs from your computer’s audio via the A/V Extender1, DVR audio via the A/V Extender 2 (optional), as well as inputs from the AM/FM Radio and, in systems with SYNC, the 3.5mm AUX audio jack in the dash.

The Embedded Processor connects to Ford wiring and replaces the OEM AM/FM Radio Module. A sophisticated audio management system prioritizes the use of the vehicle’s audio system so important communications are not missed.

The Touch Screen Display provides user control of all functions and settings in the Integrated Control System.

The A/V Extender 1 allows remote connectivity of an externally connected computer, laptop, or tablet.

The A/V Extender 2 allows remote connectivity of an externally connected digital video recorder (DVR).

A/V Extender 1 (AVX1)

A/V Extender 2 (AVX2) (optional)

VGA or HDMI

Vehicle Cabin  Vehicle Trunk

Camera

(VIDEO DISPLAY 1)

(VIDEO DISPLAY 2)
When viewing Video Display 1, the ICS Applications are split into top and bottom application sections. The top section supports a tab selection of multiple applications. The bottom section provides a single “always present” application. The system administrator can configure which applications are available in the top and bottom sections.

The diagram below shows the basic screen layout:

**NOTE:** This back function is used within some applications to back out of menus or dismiss popups. Since there is only one back button, it will operate either the top or bottom application. The Top/Bottom Application Indicator Tabs identify which application currently has “focus” by highlighting a blue tab up or down. When you interact with apps via the touch screen, the focus highlight automatically follows. The back button will always be sent to the highlighted (last used) application.
### HVAC Controls

<table>
<thead>
<tr>
<th>Button</th>
<th>Description</th>
</tr>
</thead>
</table>
| A. POWER | **Momentary press of the button:** Enter a “Lights Out” state where the Touch Screen Display lighting and USB keyboard power are disabled.  
**Second momentary press of the button:** Turns the display and keyboard back on again. The system remains Fully Operational from an audio perspective while in the “Lights Out” state.  
**Long press of the button (2-3 seconds, maximum):** Initiates a reset request (warm boot). A “Reset” window will appear. Select **OK** to reset, or **Cancel** to stop the operation.  
**Longer press of the button (minimum of 6 seconds):** Use only if the ICS becomes unresponsive. A continuous hold of the Power button for 6 seconds will force an immediate hard reset (cold boot) of the system without any further confirmation by the user. |
| B. ILLUMINATION INTENSITY | Select between 7 illumination levels with the press of this button. |
| C. MODE | Alternate between Video Display 1 and Video Display 2 with a single touch of this button. |
| D. VOLUME | Controls volume to the speakers.  
*(NOTE: On-board computer volume should be set to normalize the volume level with the AM/FM level)* |
| E. HVAC ON/OFF | Press to turn climate control on and off.  
*(NOTE: HVAC must be ON for various controls to work. HVAC ON is indicated by the LED to the right of the FAN ICON)* |
| F. FAN SPEED | Press Up or Down Arrow to control the volume of air circulated in your vehicle. |
| G. FRONT/REAR DEFROST | Press to defog and clear windshield or rear window.  
*(NOTE: Rear Defrost is only operational when engine is running)* |
| H. AIR DISTRIBUTION | Select to distribute air through windshield vents, instrument panel vents, or floor vents. |
| I. A/C | Press to turn on the Air Conditioning. |
| J. RECIRCULATE | Press to switch from outside air to in-vehicle recirculated air. |
| K. TEMPERATURE | Press Up or Down Arrow to control the temperature of the air being circulated in your vehicle. |
| L. HAZARD | Press to flash all front and rear direction signals. |
| M. AIRBAG INDICATOR | Indicator lights to inform vehicle occupants that the front passenger airbag is either engaged or disabled (ON = engaged, OFF = disabled). |

**Backlight Intensity follows Instrument Panel Intensity control.**

To adjust the volume level of the audible beep heard during a valid HVAC button press, perform the following steps:
1. Select the **Settings** icon from the “Tab Selection” area at the top of the screen.
2. Select **Sound**.
3. Select **Mixer**.
4. Adjust the slide next to ‘HVAC Beep’. Select **OK**.

**NOTE:** You will only have the ability to control rear vents if the vehicle was equipped with the option to control rear vents (see image). If vehicle was equipped with this option, settings for the front vents are mirrored to the rear vents by default.
For Model Year 2016 and later SUVs equipped with the Rear Climate Control, the Rear HVAC vents can be disabled. This is useful for vehicles equipped with dog cages in conditions where you may want heat blowing in the front cabin but not on the dogs in the back.

If the vehicle is equipped with Rear Climate control, a fan icon will appear at the bottom of the ICS display (Blue=On, Gray=Off).

Press the fan icon to open the notification window. Select the Rear Climate Control notification to access the application.

Press the Rear Climate control button to toggle the rear climate on/off. When the rear climate is on, it will mirror the front climate control settings.
**ICS Modes of Operation**

**Power Modes**

*Dark Mode:*
- When in Dark Mode, the ICS is at its lowest power state (combined battery load for all ICS components is less than 1 mA).
- Keyboard backlighting will turn off in Dark Mode. When you bring the screen back up, you must push the button on the keyboard to turn the backlighting on again.
- The ICS will transition from Dark Mode to Fully Operational when the vehicle key is turned to ACC or RUN positions. The transition from Dark Mode to Fully Operational takes less than a minute.
- If the vehicle key is rotated to the START position, the ICS will mute the audio amplifier and turn off the LCD for the duration of the engine crank.

*Fully Operational:*
- The ICS remains in Fully Operational mode while the vehicle key is at ACC or RUN.

*Standby:*
- When the vehicle key is turned to OFF and the driver side door is opened, the ICS enters a 48-hour Standby state where the operating system state is retained by the battery.
- During this 48-hour period, the system consumes more power than Dark Mode (approximately 30mA versus 1mA), but is able to wake up to Fully Operational within 3 seconds.
- After 48 hours of Standby, the ICS will transition to Dark Mode to minimize power consumption, and the next start up will require more time to boot.
Configuration and Setup

Overview

The Embedded Processor comes with the following standard software applications:

<table>
<thead>
<tr>
<th>Application</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>AM/FM/WB Radio</td>
<td>Tuning and controls for the AM/FM/WB radio</td>
</tr>
<tr>
<td>AUX Input</td>
<td>Control of the auxiliary audio input (mute or listen)</td>
</tr>
<tr>
<td>NTSC Camera</td>
<td>View the NTSC composite camera input</td>
</tr>
<tr>
<td>Backup Camera</td>
<td>The NTSC composite camera image will appear when in Reverse gear</td>
</tr>
<tr>
<td>System</td>
<td>Health and status indicators for system components</td>
</tr>
<tr>
<td>Image Viewer</td>
<td>Display a static image (used as optional screen filler)</td>
</tr>
<tr>
<td>Settings</td>
<td>Configuration of system options</td>
</tr>
<tr>
<td>Clock</td>
<td>Display Date and Time in application window</td>
</tr>
<tr>
<td>AVX Camera*</td>
<td>View the secondary AVX digital video input</td>
</tr>
<tr>
<td>Phone*</td>
<td>Allows Bluetooth Phone integration</td>
</tr>
</tbody>
</table>

* AVX Camera and Phone require additional equipment that can be purchased from Havis.

Settings Application

The Settings application allows the user to configure options for the ICS system.

Logging in or out as Administrator

The “Admin Ops” section is password protected to prevent unauthorized access to the system configurations settings.

To change System Settings perform the following steps:

1. Select the Settings icon from the “Tab Selection” area at the top of the screen.
2. Select Admin Ops.
4. Select Log in.
5. A “Login Required” window will appear. When asked for the Administrator password enter the following:
   a. Password: 0000 (Four Zeros)
   
   NOTE: This is the System Default Password, to Change Password see Page 10.
   b. Select Log in.

You are now logged in as Administrator. To log out of Administrator, perform the steps above; however at Step 4, select Log out.

To confirm you are logged in as the Administrator, select the Notification area at the lower right-hand corner of the screen. You will see “Access Control – Currently logged in as Administrator”.

www.havis.com
1-800-458-3410
Changing the Administrator Password

1. Select the Settings icon from the “Tab Selection” area at the top of the screen.
2. Select Admin Ops.
4. Select Change Password.

5. Enter current password into Password field.
6. Enter in a new password into New Password and Confirm Password fields.
7. Select OK.

Your password is now changed.

Enable User Account Control (checkbox)

The ICS has the ability to limit the user’s access to modify system settings. By default the system is locked. To limit the user’s access system settings, perform the following steps:

1. Select the Settings icon from the “Tab Selection” area at the top of the screen.
2. Select Admin Ops.
4. Select Enable user access control.

If the box is checked (default state), the user will need to enter the administrative password to change settings. If the box is unchecked, then all operations are available without the administrative password.
Settings Application - Administrator Operations - File Export

Event Log Export

This setting allows you to send diagnostic data back to Havis. In the event of a system issue, please contact Havis Technical Support at 1-800-458-3410. If Havis requests an Event Log Export to assist with the support of your system, perform the following steps:

1. Insert a USB Memory Stick into the USB port found on the dash.
2. Select the Settings icon from the “Tab Selection” area at the top of the screen.
3. Select Admin Ops.
4. Select Event Log Export.
5. An “Event Log Export” window will appear, press OK to begin the export process, or press Cancel to stop the process.
6. The system will confirm when the export was successful. Select OK to complete the process.

On the USB Memory Stick, you will find the Event Log Export process has created an “Exports” folder containing a sub-folder named similar to “2015_01_01_at_08_05_30”. The entire sub-folder should be sent to Havis Technical Support for evaluation.

Settings Application - Administrator Operations - Personal Data

Factory data reset

This setting allows you to restore all system settings to the factory defaults. This will overwrite any existing preferences and user adjustments. This should not be done without specific direction from the Havis Technical Support Team.

To perform a Factory data reset perform the following steps:

1. Backup all system settings prior to performing this step.
   (refer to ICS Configuration > Export, Page 16, for directions)
2. Select the Settings icon from the “Tab Selection” area at the top of the screen.
3. Select Admin Ops.
4. Select Factory data reset.
5. Select the Reset device button.
6. A window will appear stating, “Erase all data? You can’t reverse this action.”
7. Select Erase Everything.

This process may take several minutes to complete.
Settings Application - Administrator Operations - Device

Apps
This setting provides a standard Android view of the running applications and processors. This section is normally only used for diagnostic purposes and should not be used without direction from the Havis Technical Support Team.

Audio Input Gains
This setting allows the system administrator to adjust the relative volume levels for the various inputs.

Audio Output Gains
This setting allows the system administrator to adjust the audio output volume levels.

NOTE: Hand-Held Microphone and Two Way Radio (optional)

NOTE: Two Way Radio and PA (optional)
Settings Application - Administrator Operations - Device (continued)

Discrete Outputs

This setting allows the system administrator to select the behavior of each discrete output (timed, toggle, or momentary).

Control Mappings

The ICS provides flexible control options for vehicle functions. The control logic can map steering wheel to output functions. The Ford steering wheel controls are supported as part of this logic.

Standard Ford Steering Wheel controls.

<table>
<thead>
<tr>
<th>Available Input Controls</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-Way Down</td>
</tr>
<tr>
<td>5-Way Left</td>
</tr>
<tr>
<td>5-Way Ok</td>
</tr>
<tr>
<td>5-Way Right</td>
</tr>
<tr>
<td>5-Way Up</td>
</tr>
<tr>
<td>Media</td>
</tr>
<tr>
<td>Mute</td>
</tr>
<tr>
<td>PPT</td>
</tr>
<tr>
<td>Phone</td>
</tr>
<tr>
<td>Phone Down</td>
</tr>
<tr>
<td>Phone Up</td>
</tr>
<tr>
<td>Seek Down</td>
</tr>
<tr>
<td>Seek Up</td>
</tr>
</tbody>
</table>

Special Ford Steering Wheel controls.

<table>
<thead>
<tr>
<th>Available Input Controls</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-Way Down</td>
</tr>
<tr>
<td>5-Way Up</td>
</tr>
<tr>
<td>5-Way Left</td>
</tr>
<tr>
<td>5-Way Right</td>
</tr>
<tr>
<td>5-Way Down</td>
</tr>
<tr>
<td>Volume Up</td>
</tr>
<tr>
<td>Volume Down</td>
</tr>
<tr>
<td>PTT</td>
</tr>
<tr>
<td>Seek Down</td>
</tr>
</tbody>
</table>

Model Year 2016-17 Utility Steering Wheel controls.

<table>
<thead>
<tr>
<th>Available Input Controls</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seek Down</td>
</tr>
<tr>
<td>Volume Up</td>
</tr>
<tr>
<td>Media</td>
</tr>
<tr>
<td>Not Supported</td>
</tr>
<tr>
<td>Not Supported</td>
</tr>
<tr>
<td>Not Supported</td>
</tr>
<tr>
<td>Not Supported</td>
</tr>
</tbody>
</table>

Available Output Functions

<table>
<thead>
<tr>
<th>Available Output Functions</th>
</tr>
</thead>
<tbody>
<tr>
<td>AM/FM Radio Band AM</td>
</tr>
<tr>
<td>AM/FM Radio Band FM</td>
</tr>
<tr>
<td>AM/FM Radio Band WB</td>
</tr>
<tr>
<td>AM/FM Radio Preset Down</td>
</tr>
<tr>
<td>AM/FM Radio Preset Up</td>
</tr>
<tr>
<td>AM/FM Radio Seek Down</td>
</tr>
<tr>
<td>AM/FM Radio Seek Up</td>
</tr>
<tr>
<td>AM/FM Radio Tune Down</td>
</tr>
<tr>
<td>AM/FM Radio Tune Up</td>
</tr>
<tr>
<td>Entertainment Audio Mute Toggle</td>
</tr>
<tr>
<td>Hands Free Mic</td>
</tr>
<tr>
<td>Phone Voice Toggle</td>
</tr>
<tr>
<td>System Brightness</td>
</tr>
<tr>
<td>System Mode</td>
</tr>
<tr>
<td>System Volume Down</td>
</tr>
<tr>
<td>System Volume Up</td>
</tr>
<tr>
<td>Output Relay 1-4*</td>
</tr>
</tbody>
</table>

* Output Relay 1-4 (optional)
Settings Application - Administrator Operations - Device (continued)

Control Mappings (continued)

This setting allows you to configure desired functions for the steering wheel controls.

To view the current control mappings perform the following steps:
1. Select the Settings icon from the “Tab Selection” area at the top of the screen.
2. Select Admin Ops.
3. Select Control Mappings.
4. A “Control Mappings” window will appear with a summary of the current mappings.

To edit the current mappings, perform the following steps:
1. Select the Edit button as seen above.
2. Select the item that you wish to edit, for example: 5-Way Left.
3. A window will appear; all active items will have a check mark located within the box to the right of the control.
4. Scroll to select your desired control.
5. Select your desired row, and the check mark will appear when the action has been assigned.
6. Select OK.
7. Select the next item you wish to edit, if desired. If complete, select OK.
8. The System will show you the updated Control Mappings Summary. If you are done with modifying your settings, select OK. If not, go back up to step 1 and repeat as necessary.
9. A window will appear stating “Control Mappings - Updating settings, this will take a few seconds.”
**Configuration and Setup (continued)**

**Settings Application - Administrator Operations - Device (continued)**

**System I/O**

This setting allows you to configure hardware characteristics for some of the device control pins. The correct settings depend on the specific system implementation. Please contact Havis Technical Support prior to changing any of these settings.

1. Select the **Settings** icon from the “Tab Selection” area at the top of the screen.
2. Select **Admin Ops.**
3. Select **System I/O.**
4. Select **Two way radio squelch input pull-up** if you do not have the two way radio option for the ICS.

This setting allows the AM/FM/WB Radio to utilize the in-vehicle speaker system.

**NOTE:** Contact Havis Technical Support prior to adjusting any other settings.

If you do not have the two way radio option for the ICS, then you will need to select the **Two way radio squelch input pull-up**, so a check mark is placed in the box. This will enable audio on the ICS.

---

**Voltage Configuration**

This setting allows you to modify the default setting for the vehicle's battery voltage, which is displayed at all times in the lower right-hand corner of the Touch Screen Display. If your vehicle is operating above the **Low Battery Warning** level; the voltage will be displayed in Blue text. If your vehicle is operating below the **Low Battery Warning**, the voltage will appear in red, and a system notification will appear. By default, the **Low Battery Warning** is set at 11.500V. If you desire to change the **Voltage Configuration** default setting, perform the following steps:

1. Select the **Settings** icon from the “Tab Selection” area at the top of the screen.
2. Select **Admin Ops.**
3. Select **Voltage configuration.**

4. Adjust the **Volt** and **Millivolts** to your desired setting (11.000 - 13.000V) by using the **Up** or **Down** icons or by swiping your finger over the **Volts** or **Millivolts** numbers.
5. Select **OK.**

*The ICS has an automatic shutdown procedure, which is fixed at 10.5V.*
Configuration and Setup (continued)

Settings Application - Administrator Operations - Device (continued)

ICS Configuration
This setting allows you to Export, Import and Reset all system configuration settings. This will allow administrators to configure their ICS and save them to a USB Memory Stick. By doing this, the administrator can then Import the settings across their entire fleet without having to go through each step on each vehicle. The export file can serve as a backup file for the configuration settings chosen.

To Export your System Configuration Settings, perform the following steps:
1. Insert a USB Memory Stick into the USB port found on the dash.
2. Select the Settings icon from the “Tab Selection” area at the top of the screen.
3. Select Admin Ops.
4. Select ICS Configuration.
5. Select Export.
6. A window will appear “Export Completed Successfully.”
7. Select OK.

To Import your System Configuration Settings, perform the following steps:
1. Insert a USB Memory Stick that has the saved ICS Configuration into the USB port found on the dash.
2. Select the Settings icon from the “Tab Selection” area at the top of the screen.
3. Select Admin Ops.
4. Select ICS Configuration.
5. Select Import.
6. A window will appear “Import in progress, press the back button to cancel.”
   This process may take a minute.
7. When the process is complete, you will return to the main Video Display.

To Reset your System Configuration Settings, perform the following steps:
1. Select the Settings icon from the “Tab Selection” area at the top of the screen.
2. Select Admin Ops.
3. Select ICS Configuration.
4. Select Reset.
5. A window will appear “Are you sure you want to reset the ICS Configuration to the factory defaults? This operation cannot be undone.”
6. Select OK.
   This process may take a minute to complete.
## Settings Application - Administrator Operations - Device (continued)

### ICS Configuration (continued)

<table>
<thead>
<tr>
<th>Settings Path</th>
<th>Setting Saved</th>
<th>Factory Default</th>
</tr>
</thead>
<tbody>
<tr>
<td>Settings &gt; Sound &gt; Mixer</td>
<td>OS Sounds</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>AM/FM Radio</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>AUX Input</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>Bluetooth Phone (Optional)</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>Two-Way Radio (Optional)</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>PC</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>HVAC Beep</td>
<td>50%</td>
</tr>
<tr>
<td>Settings &gt; Admin Ops &gt; Audio Input Gains</td>
<td>Hand-Held Microphone (Optional)</td>
<td>500%</td>
</tr>
<tr>
<td></td>
<td>AUX Input</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>Two Way Radio (Optional)</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>PA (Optional)</td>
<td>100%</td>
</tr>
<tr>
<td>Settings &gt; Admin Ops &gt; Audio Output Gains</td>
<td>Outputs 1 – 4 (Optional)</td>
<td>Toggle</td>
</tr>
<tr>
<td>Settings &gt; Admin Ops &gt; Command Routings</td>
<td>5-Way Left</td>
<td>AM/FM Radio Seek Down</td>
</tr>
<tr>
<td></td>
<td>5-Way Up</td>
<td>System Volume Up</td>
</tr>
<tr>
<td></td>
<td>5-Way Right</td>
<td>AM/FM Radio Seek Up</td>
</tr>
<tr>
<td></td>
<td>5-Way Down</td>
<td>System Volume Down</td>
</tr>
<tr>
<td></td>
<td>5-Way OK</td>
<td>System Mode</td>
</tr>
<tr>
<td></td>
<td>Phone (Media)</td>
<td>Hands-Free Microphone</td>
</tr>
<tr>
<td></td>
<td>PPT (Mute)</td>
<td>Entertainment Audio Mute Toggle</td>
</tr>
<tr>
<td></td>
<td>Seek Down</td>
<td>AM/FM Seek Down</td>
</tr>
<tr>
<td></td>
<td>Seek Up</td>
<td>AM/FM Seek Up</td>
</tr>
<tr>
<td></td>
<td>Volume Down</td>
<td>System Vol. Down</td>
</tr>
<tr>
<td></td>
<td>Volume Up</td>
<td>System Vol. Up</td>
</tr>
<tr>
<td>Settings &gt; Admin Ops &gt; System I/O</td>
<td>Aux Ignition Output (Future)</td>
<td>Float</td>
</tr>
<tr>
<td></td>
<td>Two Way Radio Ignition Output (Future)</td>
<td>Float</td>
</tr>
<tr>
<td></td>
<td>Two Way Radio Ignition Squelch Input Pull-Up</td>
<td>Checked</td>
</tr>
<tr>
<td></td>
<td>PA mode Input Pull-Up (Optional)</td>
<td>Unchecked</td>
</tr>
<tr>
<td></td>
<td>Failsafe Mic Gain (Optional)</td>
<td>0</td>
</tr>
<tr>
<td>Settings &gt; Admin Ops &gt; Voltage Configuration</td>
<td>Low Battery Warning</td>
<td>11.5V</td>
</tr>
<tr>
<td>Settings &gt; Admin Ops &gt; App Configuration</td>
<td>Top Apps</td>
<td>AM/FM, System, Settings</td>
</tr>
<tr>
<td></td>
<td>Bottom Apps</td>
<td>Image Viewer</td>
</tr>
<tr>
<td>Settings &gt; Admin Ops &gt; PC Audio/Video Configuration</td>
<td>PC Video Alignment</td>
<td>PC performs automatic alignment (most)</td>
</tr>
<tr>
<td></td>
<td>PC Audio Interface</td>
<td>USB</td>
</tr>
<tr>
<td>Settings &gt; Admin Ops &gt; Stay on after ignition</td>
<td>Stay on after ignition</td>
<td>Off</td>
</tr>
<tr>
<td></td>
<td>Stay on</td>
<td>30 min.</td>
</tr>
<tr>
<td></td>
<td>Default action</td>
<td>Stay on</td>
</tr>
<tr>
<td></td>
<td>Take default action after</td>
<td>30 sec.</td>
</tr>
<tr>
<td>Image Viewer App</td>
<td>Image Viewer Image</td>
<td>No Image</td>
</tr>
</tbody>
</table>

---

www.havis.com
1-800-458-3410
Configuration and Setup (continued)

Settings Application - Administrator Operations - Device (continued)

App Configuration
This setting allows you to customize the view of your Video Display 1 and control which applications appear on the Top and Bottom window.

1. Select the Settings icon from the “Tab Selection” area at the top of the screen.
2. Select Admin Ops.
4. The Available applications are listed on the left, and the Configured applications are listed on the right. Use the left and right arrows to move applications between Available/Configured.
5. The Configured applications are split between a single, always-present application in the Bottom Window, and multiple applications that are placed in the Tab Selection area at the top of the screen. Use the up and down arrows to move applications between the Top/Bottom window and to change the order in which the icons appear at the top of the screen.
6. Select OK.
7. A window will appear “Changes will now be applied. This will result in all apps being closed.”
8. Select OK.

This process may take a minute.

The AM/FM audio will be muted, and you will need to unmute on the AM/FM screen.

NOTE: You cannot configure both the NTSC Camera and the Backup Camera at the same time.

PC Audio/Video Configuration
This setting allows you to configure audio/video control for the Computer, Laptop or Tablet that is remotely connected to the ICS via an A/V Extender. Most remotely connected computers will automatically align video to the ICS Touch Screen Display; however, some devices will not automatically align video to the ICS Display. If you need to adjust the video alignment on the Touch Screen Display, perform the following steps:

1. Select the Settings icon from the “Tab Selection” area at the top of the screen.
2. Select Admin Ops.
3. Select PC audio/video configuration.
4. Select PC video alignment.
5. A window will appear “PC video alignment.” Select PC does not perform automatic alignment (some tablet docks).

To change the setting back, perform the above steps, but on step 4, select PC performs automatic alignment (most).
Settings Application - Administrator Operations - Device (continued)

PC Audio Interface

This setting configures the PC audio over either a USB port or Analog audio cable. Havis recommends using PC Audio over USB. Audio over USB does not require an Analog audio cable, but will still work if the Analog audio cable is attached between the A/V Extender and PC. The ICS will use Audio over USB as the default setting.

If you want to change to use the Analog audio cable, make sure the audio cable is installed and perform the following steps:

1. Select the Settings icon ...
2. Select Admin Ops
3. Select PC audio/video configuration
4. Select PC audio interface
5. A window will appear “PC audio interface”. Select Analog.

To change the setting back, perform the above steps, but on Step 5, select USB.
**Configuration and Setup (continued)**

**Settings Application - Administrator Operations - Device (continued)**

**Stay On After Ignition Off**

By default, this setting is disabled, and when ignition is OFF, the ICS will enter Standby after 10 minutes (unless the door is opened beforehand). This setting allows you to configure the ICS to stay on for 15 to 90 minutes, configure the default action, and set a timer to take this default action.

Once the key is in the OFF position, a pop-up window will appear allowing you to override your default action (Stay on or Standby). If an override is not selected, then the default action occurs. If the ICS is in Video Display 2 mode, the pop-up window will not appear after ignition off and the default action will occur.

A Stay on icon will appear in the notification status bar when active (orange stop watch).

Pressing the Stay on icon will open the notification window and list the time remaining in Stay on.

Pressing the Stay on icon in the notification window will open another pop-up window allowing you to continue to Stay on or enter Standby.

During Stay on, only the top row of the HVAC buttons will be operational (POWER, ILLUMINATION, MODE, VOLUME).

The key must be in ACC or ON positions to modify the Stay on feature.

1. Select the **Settings** icon from the “Tab Selection” area at the top of the screen.
2. Select **Admin Ops**.
3. Select **Stay on after ignition off**.
4. A window will appear. Check the box for **Stay on after ignition off**. This will allow the Stay on settings to be modified.
5. Select **Stay on** to adjust from 15, 30, 45, 60, or 90 minutes. Select **OK**.
6. Select **Default action**, then select **Stay on** or **Standby**.
7. Select **Take default action after** to adjust from 0 to 60 seconds. Select **OK**.

[![Stay on settings window](image)]
Software Update

To check your current Firmware version, perform the following steps:

1. Select the **Settings** icon from the “Tab Selection” area at the top of the screen.
2. Select **About Device**.
3. Build number = P3.x.x indicates the firmware revision.

4. The Havis website will always contain the most recent software version and the corresponding Release Notes. Registered users will be notified by email of software revision updates.

If your system is not using the most recent software revision, perform the steps below:

5. Download the latest software revision from the www.havis.com, and save the file to a USB Memory Stick. (NOTE: Do not unzip or rename the file)
   
   5A. Go to www.havis.com.
   
   5B. Click on the **Support** tab.
   
   5C. Under **Helpful Links > Product Support**, click on **Integrated Control System (ICS)**. Under **Technical Support & Downloads**, click on **Download the Latest Software**.
   
   5D. Enter a password into the text field. For the correct password, contact Havis Technical Support (1-800-458-3410). Then click **Submit**.
   
   5E. The Latest Software Revision will be listed (P8500-dcm-Lectronix-P3.x.x), click the link to download.
   
   5F. Copy the latest software file, P8500-dcm-Lectronix-P3.x.x, from your computer onto a USB memory stick.
Settings Application - Administrator Operations - Device (continued)

Software Update (continued)

6. Confirm the ICS System is turned on, then insert the USB Memory Stick that has the saved firmware into the USB port found on the dash.
7. Select the Notification Bar on the Touch Screen Display.
8. Select USB firmware update.
9. A message will appear in the “Top Window” of the Touch Screen Display, showing the current firmware version and the firmware version on the USB Memory Stick.

![USB System Updater]

A firmware update was found on the USB media
Current version: P3.4.12
Update version: P3.4.15

10. Select Install.
11. A window will appear:

![Copying firmware update from USB media]

12. After the firmware had been copied to the ICS, the following message will appear:

![USB firmware update]
The system must now reboot to install firmware update
Reboot

13. Select Reboot.
This may take several minutes. Do not remove power or otherwise disturb the device during the firmware update process.

NOTES: • Only one software update file should be placed on the USB memory stick. If you have both previous and latest software files on the USB Memory Stick, the ICS will give you an error message.
• Do not rename the software update file.
• The software update file should be in the top level directory of the USB Memory Stick (i.e. Do not place in sub-folder).

Software Update via Attached Laptop, Computer or Tablet
You can update your fleet of vehicles by sending a Windows executable file to each vehicle. When the file named ICSUpdate<version>.exe is run from the attached laptop, computer or tablet, it transfers the firmware update to the ICS, performs the update and reboots the ICS. You can confirm the update to the new firmware in Settings > About Device > Build Number = P3.x.x. To support this feature, the ICS creates a mass storage device “ICS_EP” of 320MB on the attached laptop, computer or tablet. The storage device, ICS_EP, can only be used for the ICS update process.
Configuration and Setup (continued)

Sound
- OS Volumes (control volume level for Media, Notifications and Alarms)
- Mixer (OS Sounds, AM/FM Radio, Aux Input, Bluetooth Phone, PC, HVAC Beep)
- Tone (Bass & Treble)
- Balance/Fade (Left, Right, Front, Back)
- Speed Controlled Volume (High, Medium, Low, Off)
- Default Notifications (list of possible notification sounds)
- Touch Sounds (check box)

Language & Input
- Language (English (United States) and English (Canada)). Changing Language to English (Canada) will change outside temperature to Celsius.
- Spelling correction (check box)
- Personal Dictionary (ability to add words to dictionary)
- Default Keyboard (English only currently)
- System Keyboard (Auto-Capitalization, Sound on keypress, Popup on keypress, show settings key, Voice input key)
- Physical Keyboard (Auto-replace, Auto-capitalization, Auto-punctuate)
- Mouse/Trackpad (pointer speed)

Date & Time
1. Select Set Date
2. Change Month, Date, and Year by pressing the Up or Down Arrows or by Scrolling with finger swipe
3. Select OK
4. Select Set Time
5. Change Hour, Minute, and AM/PM by pressing the Up or Down Arrows or by Scrolling with finger swipe
6. Select OK

About Device (for diagnostics and troubleshooting)
- Model Number
- OS Version
- Build Number (lists the software version of the ICS)
- Serial Number (Embedded Processor)
- Touch Screen Display serial number
- Audio/Video Extender 1 serial number / Audio/Video Extender 2 serial number
- Embedded Processor application version / bootloader version
- HVAC and Touch Screen Display Controls application version / bootloader version
**AM/FM/WB Radio Application**

This application allows tuning and control of the vehicle radio.

**Button Description**

<table>
<thead>
<tr>
<th>Button</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. MUTE</td>
<td>Press to completely disable AM/FM/WB audio. A blue line under the icon will be present when the system is not muted.</td>
</tr>
</tbody>
</table>
| B. SEEK / SCAN | **SEEK:** Press and release Up or Down arrows to go to the next or previous preset radio station.  
**SCAN:** Press and hold Up or Down arrows to search for the next or previous strong radio station frequency. |
| C. PRESET | To set the Preset buttons:  
1. Tune to a radio station then press and hold one of the Preset buttons.  
2. Repeat until all desired presets are stored.  
(Additional presets are available by touching the FM1/FM2 button (far right), which toggles between two sets of Presets) |
| D. BAND | Three buttons to choose a radio frequency band (FM, AM, or WB).  
(The Weather Band (WB) consists of 7 channels. You should tune between these 7 channels to find a weather channel that services your area.) |
| E. TUNE | Press Up or Down arrows to manually search the frequency band. |

**AUX Input Application**

This application allows you to connect an external audio source through a 3.5mm Audio Jack in the dash panel on vehicles equipped with SYNC. The application allows simple muting or unmuting of the auxiliary audio source.

*If your AUX Input application is not available, please refer to App Configuration on Page 18*
NTSC Camera Application
This application allows you to stream live video footage to the Touch Screen Display. The application accepts NTSC Video Format (RCA Jack or Plug); however, does not provide outgoing touch screen control or recording capabilities.
This application is mutually exclusive with the Backup Camera application so only one of the other can be selected at a time.
*If your NTSC Camera application is not available, please refer to App Configuration on Page 18*

Backup Camera Application
When the Backup Camera application is configured in the top window, it will pop-up and stream live video while the vehicle is in Reverse gear. When the vehicle exits the Reverse gear, the previous application will be shown in the top window. If the Backup Camera is configured in the bottom window, it will always be present.
This application will only be shown in Video Display 1 mode. If the ICS is in Video Display 2 or Lights Out mode, the Backup Camera application will not pop-up when entering Reverse gear.
This application is mutually exclusive with the NTSC Camera application so only one or the other can be selected at a time.
*If your Backup Camera application is not available, please refer to App Configuration on Page 18*

AUX Camera Application
This application allows you to stream video from an externally connected digital video recorder (DVR).
This option requires an optional A/V Extender 2 component.
*If your AUX Camera application is not available, please refer to App Configuration on Page 18*
Phone Application

The Bluetooth Phone feature is optional and requires the purchase of Havis P/N ICS-A-0013 for a cable and antenna kit. Once this kit is installed, you will need to add the Phone application (refer to App Configuration on page 18).

1. Select the Phone application.
2. Select the Bluetooth Settings icon.
3. Press the OFF/ON button to turn Bluetooth off/on.

When Bluetooth is enabled, an icon is shown at the bottom of the display to the left of the temperature reading. When Bluetooth ON but not connected to a phone, icon is Gray.

When Bluetooth ON and connected to a phone, the icon is Blue and the phone battery level and signal level indicators appear.
Phone Application (continued)

4. Press “SEARCH FOR DEVICES” to see devices that are available for pairing. If you do not see your device listed under AVAILABLE DEVICES, you need to go to your Phone’s Settings, select Bluetooth, and make your phone visible to other devices.

5. Press a device in the list of AVAILABLE DEVICES to initiate pairing.


Also, you must press OK on your phone to accept the ICS pairing. Once paired, you will see a display similar to below:

7. Select the 3 stacked dots to the right of SEARCH FOR DEVICES to adjust the Visibility timeout or to Rename the ICS (default name). The Visibility timeout is how long the ICS remains visible to nearby devices and can be adjusted from 2 minutes, 5 minutes, 1 hour or Never time out.
8. Once the phone is paired with the ICS, selecting the **Phone** application will bring up the phone keypad.

9. Enter the phone number on the keypad and press the phone button to the right of the keypad to initiate the call.

10. The device can be unpaired by pressing “**Unpair**”.

11. The device can remain paired but unusable for phone operation by unchecking the “**Phone audio**” checkbox.

12. You can also turn Bluetooth on/off from the Settings application.
System Application
This application provides system diagnostic information for the ICS components.

### Power Status
- **GREEN**: Indicates the component is connected properly to vehicle power.
- **RED**: Indicates the component is not connected properly to vehicle power or a low voltage warning is present. See Wiring Diagram on page 41.

### Link Status
- **GREEN**: Indicates the component is communicating appropriately.
- **RED**: Indicates the component is not communicating properly. The Embedded Processor Link may turn Red in Stay On mode. See Wiring Diagram on page 41 to make sure ICS is connected properly. A Red Link for Audio/Visual Extender 1 indicates an issue with the Red CAT6A cable. A Red Link for Touch Screen Display indicates an issue with the Blue CAT6A cable.
- **GRAY**: Indicates no power. See Wiring Diagram on page 41.

### Video Status
- **GREEN**: Indicates the ICS is receiving proper video from the A/V Extender.
- **RED**: Indicates the ICS is not receiving proper video from the A/V Extender. Confirm resolution is set to either 800x1280, 1024x1280 or 1024x1600, portrait orientation, and driving a second monitor (Duplicate, Display only on 2 or Extended Mode). See Wiring Diagram on page 41.
- **GRAY**: Indicates no power or no connection. Confirm computer, laptop or tablet is powered on. See Wiring Diagram on page 41.

### Temp Status
- **GREEN**: Indicates the component is operating within desired temperature ranges.
- **RED**: Indicates the component is not operating within desired temperature ranges. Contact Havis Technical Support at 1-800-458-3410.

*Gray generally indicates an unknown or unused status on all measures*
Image Viewer
This application is intended to give the user the ability to display an image on the Touch Screen Display. Activate the Image Viewer application by selecting either the Image icon from the “Tab Selection” area in the top window, or by selecting Image Viewer if configured in the bottom window. If the “IMAGE” application is not shown as an option, you must first add it to the configurable application list (see App Configuration on page 18).

To import an image, perform the following steps:
1. Save your desired image onto a USB Memory Stick with a file name “image.png” formatted to 800 x 480 resolution.
2. Insert a USB Memory Stick that has the saved image into the USB port found on the dash.
3. Touch anywhere in the Image Viewer window to make it active.
4. A title bar will appear. Select the three stacked dots.
5. Select Import Image.
Configure Computer, Laptop, or Tablet

Using the ICS Touch Screen Display as a Secondary Monitor (Video Display Mode 2)

Setting up your Computer, Laptop or Tablet to use the ICS Touch Screen Display as a Secondary Display may vary depending on your operating system and video driver that is installed on your device. The below section will walk you through how to make the necessary changes on most devices.

ICS Touch Screen Display Settings

Optimal Resolution: 800 x 1280  (With an updated A/V Extender and the latest software, 1024x1280 and 1024x1600 resolutions are available)

Screen Orientation: Portrait

NOTE: 768 x 1024 resolution is also supported, but the image will not fill the ICS display as indicated by the ½” blank band at the top and bottom of the display. The ICS touchscreen is only aligned to a full screen image. The touchscreen will be off when displaying a 768 x 1024 resolution.

Most laptops have keyboard shortcuts to enable external video displays (see Keyboard Shortcuts below). In the event your device doesn’t have this functionality or the setting is disabled, follow Operating System Control Panel Instructions below.

Keyboard Shortcuts to active External Monitor

To use keyboard shortcuts to change the display settings, each device’s specific key sequence will vary. Typically it is either: Fn + F3, F4, F5, F8, or F9. For example the Panasonic CF-19 Mark IV, you need to press and hold Fn + F3 at the same time, which will switch between Computer Only, Duplicate, Extend and Projector Only display modes. Select the Projector Only mode. The appropriate “F” Key will be labeled as CRT/LCD or have a picture of a monitor on the key or close to the key. If this combination is unsuccessful, contact your System Administrator.

<table>
<thead>
<tr>
<th>Display</th>
<th>Resolution</th>
<th>Orientation</th>
<th>Multiple Displays</th>
<th>New AVX Required</th>
<th>Refresh Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICS Display</td>
<td>800x1280</td>
<td>Portrait</td>
<td>Show desktop only on 2</td>
<td>No</td>
<td>60Hz</td>
</tr>
<tr>
<td>ICS Display</td>
<td>1024x1280</td>
<td>Portrait</td>
<td>Show desktop only on 2</td>
<td>Yes</td>
<td>47Hz</td>
</tr>
<tr>
<td>ICS Display</td>
<td>1024x1600</td>
<td>Portrait</td>
<td>Show desktop only on 2</td>
<td>Yes</td>
<td>45Hz</td>
</tr>
</tbody>
</table>
Configure Computer, Laptop, or Tablet (continued)

Control Panel Instructions to active External Monitor

Windows XP
1. Open Display in Control Panel.
2. On the Settings tab.
3. Click the Identify button to see which screen you are adjusting
4. Be sure the Integrated Control System Touch Screen Display is marked as “Use this device as the primary monitor.”
5. Be sure “Extend my Windows Desktop onto this monitor” is not selected.
6. Select the ICS Touch Screen Display and adjust resolution to 800 x 1280.
7. Click Apply and Click OK.

NOTE: If the “Use this device as the primary monitor” option is grayed out, your video driver has taken over the standard windows functions. Some drivers allow you to right click on the desktop, select “Graphics Options”, “Output To” and then select “Monitor”.

![Display Properties](image)
Configure Computer, Laptop, or Tablet (continued)

Control Panel Instructions to activate External Monitor

**Windows 7**

Project to ICS Touch Screen Display
1. Press the **Windows Key + P**.
2. The below screen will appear, select “**Projector only**.”

![External Monitor Options](image)

**Change Screen Resolution**
1. Right Click on **Desktop** and select **Screen Resolution**.
2. Adjust resolution to **800 x 1280**.
3. Adjust orientation to Portrait.

**Windows 8 & Windows 10**

Project to ICS Touch Screen Display
1. Go to the Start Screen.
2. Search for “**Project to a second screen**.”
3. Select “**Second screen only**.”

![External Monitor Options](image)

**Change Screen Resolution:**
1. Go to the Start Screen.
2. Search for “**Change Screen Resolution**.”
3. Adjust resolution to **800 x 1280**.
4. Adjust orientation to Portrait.
Configure Computer, Laptop, or Tablet (continued)

Computer Setup Example

Panasonic Toughbook CF-31 Computer Setup Example:
CF-31A (Mark1 Perf/Std)
Windows 7 (64-bit)
HDMI video cable

In this example, the CF-31 will be set to have a blank display and project its contents onto the ICS Display.

1. Right-Click on Desktop and select Screen Resolution.
2. Enter the values for Display, Resolution, Orientation and Multiple Displays as shown in figure below and click Apply.

3. Press the MODE button on the HVAC control panel to view Video Display 2 mode.
4. If the ICS is not displaying properly, follow the steps below.
5. In the Screen Resolution window, select Advanced Settings.
7. Click on Graphic Properties.
8. Select **Display > General Settings**.
9. Enter the values for General Settings as shown below.

![General Settings](image1)

10. Select **Display > Multiple Displays**.
11. Enter the values for Multiple Displays as shown below.

![Multiple Displays](image2)

12. If “ICS Display” or “PCIM” is not shown as a Display option, try rebooting the CF-31 computer and/or the ICS.
13. Try other Multiple Display settings (Extended Desktop or Clone Displays).
14. Confirm you are using the latest Graphics driver from Panasonic’s website.
Configure Computer, Laptop, or Tablet (continued)

Setting your device’s appropriate Power Management Settings

Configure your device to turn on when you turn the vehicle on

1. Turn on the computer and press the appropriate key(s) to enter the BIOS setup (Typically, F2 or DEL keys)
2. Find the “POWER ON AC” or “AC INITIATION” setting and select “ENABLE.”
3. Save Settings and restart the computer.

Configure your device to remain on while docked

1. Click the Start button
2. Select Control Panel
3. Select Power Options
4. On the left hand side of the window, select “Choose when the computer sleeps”
5. Select “Never” for all options under “Plugged In”
6. Select Save changes
7. On the left hand side of the window, select “Choose what closing the lid does”
8. Select “Do Nothing” for both “Battery” and “Plugged In”
9. Select Save changes
10. Select Change plan settings
11. Select Change advanced power settings
12. Locate the USB settings
13. Under USB selective suspend settings, set to DISABLE for both “Battery” and “Plugged In”
14. Select Apply
15. Select the speaker icon in lower right corner of display. Set the volume level to 90%

Configure your Touch settings:

1. Click the Start button and enter “run” in the box to search programs and files
2. Enter “regedit” and select OK
3. Click HKEY_CURRENT_USER, then click Control Panel and then click Mouse
4. On the right hand side of the window, double-click to open DoubleClickHeight. Change from 4 to 64 and select OK
5. On the right hand side of the window, double-click to open DoubleClickSpeed. Change from 500 to 900 and select OK
6. On the right hand side of the window, double-click to open DoubleClickWidth. Change from 4 to 64 and select OK
7. Reboot your laptop for these changes to take effect.

To Increase text size:

1. Click the Start button
2. Select Control Panel
3. Select Ease of Access Center
4. Select Make the computer easier to see
5. Select Change the size of the text and icons
6. Select Medium 125% (or Large - 150%) and click Apply
Configure Computer, Laptop, or Tablet (continued)

Setting your device’s appropriate Power Management Settings (continued)

Configure your USB Audio:

1. Confirm USB cable (GSM70087) is plugged in between AVX and your dock or PC.
2. Open Control Panel, select Hardware and Sound, select Sound.
3. On the Playback tab, select Speakers for ICS Audio, then select Set Default.

Configuration Check

The embedded processor, cable and vehicle architecture are evaluated for compatibility by the software. If you receive a warning message for an incompatible embedded processor or HVAC cable, you should contact Havis Technical Support at 1-800-458-3410 for further instructions.
**Touch Screen Display**

- 12.1” ultra-durable portrait display
- The Projected Capacitive Multi-Touch Screen uses chemically strengthened glass (*use glass cleaner to clean screen*)
- Optimized screen allows for use with wet hands and/or gloves
- Power and video from a single cable from Embedded Processor
- Internal heater automatically activated below -20°C, ensuring the display remains at proper operating temperature
- When the display temperature is below minus 20°C (-4°F), a message will be played over the vehicle speakers: “Display warming up. Please wait.”

<table>
<thead>
<tr>
<th>Resolution</th>
<th>800 x 1280, 1024x1280, 1024x1600</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brightness</td>
<td>1200 NIT Daylight Readable</td>
</tr>
<tr>
<td>Viewing Angle</td>
<td>88° from all angles</td>
</tr>
<tr>
<td>Environmental</td>
<td>-20°C to +70°C (-4°F to +158°F)</td>
</tr>
</tbody>
</table>

**HVAC Controls**

- Replaces factory HVAC (climate) controls, hazards and airbag indication
- Optimal cockpit placement and compatible with OEM factory wiring
- Use one touch MODE button to easily alternate between the two displays
- Convenient Buttons for control of Touch Screen Display: volume, display brightness and blackout
- Fan speed, Temperature, and Volume are displayed on Touch Screen Display when changed
- An audible beep can be heard from system speakers to indicate valid HVAC button press

<table>
<thead>
<tr>
<th>Touch Technology</th>
<th>Cap-Sense touch pad controls</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buttons</td>
<td>16 controls with LED backlighting and status indication</td>
</tr>
<tr>
<td>Environmental</td>
<td>-40°C to +85°C (-40°F to +185°F)</td>
</tr>
</tbody>
</table>
**Component Specifications (continued)**

**Embedded Processor**
- Mounts in place of OEM AM/FM radio module
- Controls AM/FM Radio, A/V Extender and HVAC Controller
- Steering wheel control functionality is highly customizable to provide “one push” operation of critical functions

<table>
<thead>
<tr>
<th>I/O</th>
<th>CAN, USB, RS232, Ethernet, Audio, Video</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amplifier</td>
<td>4 x 20W speakers</td>
</tr>
<tr>
<td>Radio</td>
<td>AM/FM/WB tuner</td>
</tr>
<tr>
<td>Application Framework</td>
<td>Android 4.1</td>
</tr>
<tr>
<td>Environmental</td>
<td>-40°C to +85°C (-40°F to +185°F)</td>
</tr>
</tbody>
</table>

**Port Identification**

- **Ford Radio Connector** (PWR, GND, CAN, SPKRS)
- **Hand-Held Mic** (optional)
- **Police Radio/Emergency Warning Lights/Public Address** (optional)
- **For Future Use**
- **Bluetooth Antenna** (optional)
- **AM / FM Antenna**

*If an external keyboard is connected, the keyboard can be used to input text or operate the mouse on the Touch Screen Display. If no keyboard is installed, use the touch screen to operate control. If text is required, press the text field, and an on-screen keyboard will appear.*
A/V Extender

- Ability to remotely connect an external audio/video source to the Touch Screen Display such as PC, laptop, or tablet
- Connects VGA or HDMI, micro-USB*, and Analog Audio to Embedded Processor with a single shielded CAT6A cable, which is designed for an automotive environment

<table>
<thead>
<tr>
<th>Inputs from PC</th>
<th>VGA, HDMI, micro-USB*, Audio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Connection</td>
<td>No separate power required</td>
</tr>
<tr>
<td>Environmental</td>
<td>-40°C to +85°C (-40°F to +185°F)</td>
</tr>
</tbody>
</table>

* micro-USB only allows for the input of External Keyboard, Mouse, and touchscreen feedback

The A/V Extender’s interfaces for connecting to the laptop or similar computer device include:

- VGA or HDMI video (HDMI supports video only, separate audio cable required).
  If the external connected device only has DVI video output, a DVI-to-HDMI (active or passive) adapter should be purchased. If the external connected device only has a DP video output, a DP-to-HDMI (active only) adapter should be purchased.
- Audio (from computer, goes to vehicle speakers)
  NOTE: The Audio cable is not required if the PC audio interface is set to USB (refer to page 19).
- USB (Keyboard, Mouse, and Touch Screen Display feedback to on-board computer)

Port Identification

VGA | HDMI | Audio | USB | LINK

NOTICE
HDMI SUPPORTS VIDEO ONLY.

To Docking Station, PC, Laptop, or Tablet
To Embedded Processor

CAUTION
A/V EXTENDER MUST BE PROPERLY CONNECTED TO CHASSIS GROUND
The ICS has the following cables available. The cable set provided is specific to your order.

1) GSM70096: CAT6A (15 Ft. RED) – Embedded Processor to A/V Extender
2) GSM70085: CAT6A (3 Ft. BLUE) – Embedded Processor to Touch Screen Display
3) GSM70076 or GSM70111: Harness (16 pin) – Embedded Processor to:
   a. HVAC Controller: HVAC Controller (8 Pin)
   b. NTSC Video Input: RCA Jack (GSM70076) or RCA Plug (GSM70111)
   c. OEM HVAC Control: OEM Vehicle HVAC Control Harness (6 pin)
4) GSM70086: USB (3 Ft.) – Embedded Processor to Vehicle USB Panel Mount (Vehicles without SYNC only)
5) GSM70094: USB (6 Ft.) – Embedded Processor to Vehicle Console
6) GSM70091: USB (6 In.) – Embedded Processor to Vehicle USB Panel Mount Harness (Vehicles with SYNC only)
7) GSM70073: VGA – A/V Extender to Computer (PC, Laptop or Tablet)
8) GSM70089: HDMI – A/V Extender to Computer
9) GSM70074: Audio – A/V Extender to Computer
10) GSM70087: USB – A/V Extender to Computer
11) GSM70097: Sedan only – Splice Cable between Humidity Sensor and Console/Bracket.

Must be removed for model year 2016-2017 Utility.

Please see the included Wiring Diagram for proper wiring installation.
# Troubleshooting

The **Havis ICS Support and Repair Policy** can be found on the Integrated Control System FAQ webpage. 

## ICS Issues

<table>
<thead>
<tr>
<th>ISSUE</th>
<th>POSSIBLE CAUSE(S)</th>
<th>POSSIBLE SOLUTION(S)</th>
</tr>
</thead>
<tbody>
<tr>
<td>When I follow the <strong>Software Update</strong> section of the manual, the ICS doesn’t perform the update procedure.</td>
<td>Your USB Memory stick may not be setup/configured properly.</td>
<td>Confirm the vehicle key is in the <strong>ACC</strong> or <strong>RUN</strong> position to turn system power on.  &lt;br&gt;Confirm the firmware file you downloaded is not placed in a sub-folder. The system will only recognize files saved at the top level.  &lt;br&gt;Confirm there is only (1) downloaded firmware version saved on the USB Memory Stick.  &lt;br&gt;Do NOT unzip the <strong>P8500-dcm-Lectronix-P3.x.x.zip</strong> file.  &lt;br&gt;Confirm the firmware file was not renamed and follows the format: <strong>P8500-dcm-Lectronix-P3.x.x.zip</strong>.  &lt;br&gt;Confirm the USB Memory stick is working by plugging it into an external device, such as a laptop or tablet.  &lt;br&gt;Reset the ICS by holding the power button for more than (6) seconds.  &lt;br&gt;Your USB stick may not be formatted correctly. Check on PC to ensure the USB stick is formatted as FAT 32.  &lt;br&gt;Not all USB sticks will be supported. Try a different USB stick.</td>
</tr>
<tr>
<td>HVAC Control Buttons don’t appear to be working.</td>
<td>Vehicle Power may not be on.</td>
<td>Confirm the vehicle key is in the <strong>RUN</strong> position to turn the HVAC system on. If the Vehicle key is in <strong>ACC</strong> mode, the ICS will power the <strong>Touch Screen Display Controls</strong> buttons only. <strong>HVAC Control</strong> will not operate unless vehicle key is in the <strong>RUN</strong> position.  &lt;br&gt;Your HVAC System may not be on.  &lt;br&gt;Fan Speed and Temperature Buttons will not turn the HVAC system on. Click on the Fan icon or any other HVAC button to turn the HVAC system on.  &lt;br&gt;Need to reset the ICS.  &lt;br&gt;HVAC not at latest firmware revision.  &lt;br&gt;Update the ICS to latest firmware revision. Follow instructions under <strong>Software Update</strong>.</td>
</tr>
<tr>
<td>I cannot control the rear vents with the HVAC Controls.</td>
<td>HVAC not at latest firmware revision.</td>
<td>Update the ICS to latest firmware revision. Follow instructions under <strong>Software Update</strong>.  &lt;br&gt;Vehicle was not equipped with rear vent control option.  &lt;br&gt;Rear Climate Control not enabled.  &lt;br&gt;See <strong>HVAC Controls Overview</strong> on page 6 for details.</td>
</tr>
<tr>
<td>I see a “No Video” message displayed when running the <strong>NTSC Camera Application</strong>.</td>
<td>Your NTSC Camera may not be setup properly.</td>
<td>Confirm the NTSC Camera is connected to the RCA Jack on the Vehicle wire harness (GSM70076 or GSM70111).  &lt;br&gt;See <strong>Wiring Diagram</strong> for more details.  &lt;br&gt;Check to ensure the NTSC camera installed has the proper power.</td>
</tr>
<tr>
<td>The ICS is frozen or locks up during operation.</td>
<td>Your system may need to be restarted.</td>
<td>Reset the ICS by holding the power button for more than (6) seconds.  &lt;br&gt;Disconnect the Vehicle Battery for more than (5) minutes.  &lt;br&gt;Update the ICS to the latest firmware revision. Follow instructions under <strong>Software Update</strong>.  &lt;br&gt;Perform a Factory data reset. See page 11 for instructions.</td>
</tr>
<tr>
<td>ICS lost the Date and Time.</td>
<td>Vehicle power may have been absent for over (30) days.</td>
<td>The Date and Time will need to be reset. See page 23 for instructions.</td>
</tr>
</tbody>
</table>

For latest troubleshooting information, contact Havis Technical Support at 1-800-458-3410
### Troubleshooting

**ICS Issues (continued)**

<table>
<thead>
<tr>
<th>ISSUE</th>
<th>POSSIBLE CAUSE(S)</th>
<th>POSSIBLE SOLUTION(S)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Event Log Export fails during processing.</td>
<td>Event Log Export fails during processing.</td>
<td>Verify the USB stick is formatted to FAT 32. Verify the USB stick has at least 100 MB of available space. Try a different USB stick.</td>
</tr>
<tr>
<td>My laptop displays a pop-up window for a new Drive (E:)</td>
<td>The ICS software creates this drive to allow software updates via the laptop instead of a USB stick (see page 21).</td>
<td>Disable “Autoplay” on your laptop’s operating system.</td>
</tr>
<tr>
<td>Incompatible HVAC Cable warning message</td>
<td>The HVAC Cable is not compatible with this revision Embedded Processor in this vehicle.</td>
<td>Capture an event log (see page 11 for details) and email the log files to <a href="mailto:RMA@havis.com">RMA@havis.com</a>.</td>
</tr>
<tr>
<td>Incompatible Embedded Processor warning message</td>
<td>This revision Embedded Processor is not compatible with this vehicle.</td>
<td>Capture an event log (see page 11 for details) and email the log files to <a href="mailto:RMA@havis.com">RMA@havis.com</a>.</td>
</tr>
</tbody>
</table>

### Audio Issues

<table>
<thead>
<tr>
<th>ISSUE</th>
<th>POSSIBLE CAUSE(S)</th>
<th>POSSIBLE SOLUTION(S)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AM/FM/WB Radio Volume may be too high.</td>
<td>The PC Audio Input Gain is set too low.</td>
<td>Check the MUTE button on the AM/FM/WB Radio Application. A gray line under the icon will be present when the system is muted. Lower the volume of the AM/FM/WB Radio Application</td>
</tr>
<tr>
<td>Increase the PC Audio Input Gain: 1. Select the Settings icon from the “Tab Selection” area at the top of the screen when using the Video Display Mode 1 displaying the ICS Applications. 2. Select Audio Input Gain 3. Select PC 4. Use the screen to increase the PC Audio Input Gain</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GSM70074: The PC audio interface is set to USB Audio by default (no audio cable required). If the audio is not working properly, you can change the PC audio interface to Analog. See page 19 for details.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Confirm the audio cable (GSM70074) is connected to your device and the A/V Extender. See Wiring Diagram on page 41 for details.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NOTE: The ICS A/V Extender HDMI port does not support audio.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Your externally connected device’s audio may not be setup/configured correctly.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Increase the audio level on your device: 1. Open Audio in Control Panel. 2. Adjust the audio level as needed.</td>
<td>While the computer is docked, ensure the correct playback device is configured/enabled on the computer. Control Panel &gt; Device Manager &gt; Audio Outputs &gt; High Definition Audio Device (or similar)</td>
<td>Restart your externally connected computer, laptop, or tablet.</td>
</tr>
<tr>
<td>ISSUE</td>
<td>POSSIBLE CAUSE(S)</td>
<td>POSSIBLE SOLUTION(S)</td>
</tr>
<tr>
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<td>----------------------</td>
</tr>
<tr>
<td>Audio Issues (continued)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I hear my externally connected computer, laptop, or tablet and either the AM/FM/WB audio or the AUX INPUT audio simultaneously.</td>
<td>By design, the externally connected computer, laptop, or tablet’s audio is mixed with either the AM/FM/WB or the AUX INPUT.</td>
<td>MUTE the AM/FM/WB Application or the AUX INPUT. Adjust the volume control found on the externally connected computer, laptop, or tablet. Adjust the mixer settings: 1. Select <strong>Settings</strong> from the “Tab Selection” area at the top of the screen when using the Video Display Mode 1 displaying the ICS Applications. 2. Select <strong>Sound</strong> 3. Select <strong>Mixer</strong> 4. Adjust the PC, AM/FM Radio and Aux Input relative audio levels.</td>
</tr>
<tr>
<td>I cannot hear the AM/FM/WB Audio through the vehicle speakers.</td>
<td>Your <strong>AM/FM/WB Radio Application</strong> may be muted.</td>
<td>Check the <strong>MUTE</strong> button on the <strong>AM/FM/WB Radio Application</strong>. A blue line under the icon will be present when the system is not muted. 1. Select the <strong>Settings</strong> icon from the “Tab Selection” area at the top of the screen when using the Video Display Mode 1 displaying the ICS Applications. 2. Select <strong>Admin Ops</strong> 3. Select <strong>System I/O</strong> 4. Select <strong>Two way radio squelch input pull-up</strong> if you do not have the two way radio option for the ICS. This setting allows the AM/FM/WB Radio to utilize the in-vehicle speaker system. <strong>NOTE:</strong> Depending on your ICS Settings, you may need to log on as the Administrator to perform the above steps. See page 9 for these instructions.</td>
</tr>
<tr>
<td>Externally connected computer, laptop, or tablet’s audio is distorted through the vehicle speakers.</td>
<td>Th PC Audio Input Gain is set too high.</td>
<td>Decrease the PC Audio Input Gain: 1. Select the <strong>Settings</strong> icon from the “Tab Selection” area at the top of the screen when using the Video Display Mode 1 displaying the ICS Applications. 2. Select <strong>Audio Input Gain</strong> 3. Select <strong>PC</strong> 4. Use the screen to decrease the PC Audio Input Gain <strong>NOTE:</strong> Depending on your ICS Settings, you may need to log on as the Administrator to perform the above steps. See page 9 for these instructions.</td>
</tr>
<tr>
<td>ISSUE</td>
<td>POSSIBLE CAUSE(S)</td>
<td>POSSIBLE SOLUTION(S)</td>
</tr>
<tr>
<td>-------</td>
<td>------------------</td>
<td>----------------------</td>
</tr>
<tr>
<td>Video Issues</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ICS Touch Screen Display does not come on after turning the vehicle key to the RUN position.</td>
<td>Need to reset the ICS.</td>
<td>Press and hold the Power button on the HVAC Control panel for 7 seconds. If problem persists, disconnect the vehicle battery for 2 minutes.</td>
</tr>
<tr>
<td>Brightness too low.</td>
<td></td>
<td>Press the Illumination Intensity button on the HVAC Control panel to increase brightness.</td>
</tr>
<tr>
<td>The ambient temperature of the cabin may be too cold.</td>
<td></td>
<td>When the ambient temperature of the cabin is below -20C, the ICS Touch Screen Display heater is activated and will take up to 2 minutes before the screen is turned on. When the heater is activated, an audible message will be played over the system speakers, “Display warming up, please wait”.</td>
</tr>
<tr>
<td>ICS Touch Screen Display is cut off on the left side.</td>
<td>Your externally connected device doesn’t perform automatic video alignment.</td>
<td>1. Select the Settings icon from the “Tab Selection” area at the top of the screen when using the Video Display Mode 1 displaying the ICS Applications. 2. Select Admin Ops 3. Select PC video alignment 4. A window will appear “PC video alignment.” Select PC does not perform automatic alignment (some tablet docks).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NOTE: Depending on your ICS Settings, you may need to log on as the Administrator to perform the above steps. See page 9 for these instructions.</td>
</tr>
</tbody>
</table>

Audio Issues (continued)

<table>
<thead>
<tr>
<th>ISSUE</th>
<th>POSSIBLE CAUSE(S)</th>
<th>POSSIBLE SOLUTION(S)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I cannot hear the Aux Audio through the vehicle speakers.</td>
<td>Your Aux Audio may be muted.</td>
<td>Check the MUTE button on the AM/FM/WB Radio Application. A blue line under the icon will be present when the system is not muted.</td>
</tr>
<tr>
<td></td>
<td>The Aux Audio player level may need to be adjusted.</td>
<td>Adjust the volume on the device connected to the Aux port.</td>
</tr>
<tr>
<td></td>
<td>Aux Input Audio Input Gain is set too low.</td>
<td>Increase the Aux Input Audio Input Gain: 1. Select the Settings icon from the “Tab Selection” area at the top of the screen when using the Video Display Mode 1 displaying the ICS Applications. 2. Select Audio Input Gain 3. Select Aux Input 4. Use the screen to increase the Aux Input Audio Input Gain</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NOTE: Depending on your ICS Settings, you may need to log on as the Administrator to perform the above steps. See page 9 for these instructions.</td>
</tr>
<tr>
<td>ISSUE</td>
<td>POSSIBLE CAUSE(S)</td>
<td>POSSIBLE SOLUTION(S)</td>
</tr>
<tr>
<td>-------</td>
<td>-------------------</td>
<td>----------------------</td>
</tr>
<tr>
<td><strong>ICS Touch Screen Display does not show my externally connected device.</strong></td>
<td>Your externally connected device’s video may not be setup/configured correctly.</td>
<td>Confirm the vehicle key is in the <strong>ACC</strong> or <strong>RUN</strong> position to turn system power on. Select <strong>SYSTEM</strong> application at top of ICS display and confirm the Audio/Video Extender 1 has a green oval for <strong>LINK</strong>. See <strong>System Application</strong> on page 29. Confirm the video cable is connected to your device and the A/V Extender. See <strong>Wiring Diagram</strong> on page 41 for details. Confirm your externally connected device is powered on. See <strong>Configure Computer, Laptop or Tablet</strong> on page 31 for detailed instructions on how to configure your device. Reboot your externally connected device and then reboot the ICS by pressing and holding the Power button on the HVAC Control panel for 7 seconds or until the display goes blank. Certain externally connected devices don’t retain video settings when they are removed from docking stations. In the event the device is re-docked and the settings are lost, see <strong>Keyboard Shortcuts to activate External Monitor</strong> section of the <strong>Configure Computer, Laptop or Tablet</strong>.</td>
</tr>
</tbody>
</table>
| **My externally connected device’s image is upside-down on the ICS Touch Screen Display.** | Your externally connected device’s video orientation may not be setup/configured correctly. | Certain Video Cards have keyboard shortcuts to rotate the screen: 1. While holding down **<Ctrl> & <Alt>** press the **<Up Arrow>** to rotate your screen to the (0) Degree setting. 2. While holding down **<Ctrl> & <Alt>** press the **<Left Arrow>** to rotate your screen to the (90) Degree setting. 3. While holding down **<Ctrl> & <Alt>** press the **<Down Arrow>** to rotate your screen to the (180) Degree setting. 4. While holding down **<Ctrl> & <Alt>** press the **<Right Arrow>** to rotate your screen to the (270) Degree setting.
Certain Video Cards have specific Display Settings to rotate the screen that are accessible through Windows: 1. Right click on the desktop and select **Graphic Options**. 2. Then select **Rotation**. Certain Devices have specific Display Rotation Buttons physically on the device: 1. Press the **Screen Rotation** button on the device until the desired screen orientation has been met. |
| **My externally connected device doesn’t fill the entire ICS Touch Screen Display.** | Your externally connected device’s screen resolution may not be setup/configured properly. | Your ICS Touch Screen Display optimal resolution is 800 x 1280. See **Configure Computer, Laptop or Tablet** section for detailed instructions on how to configure your device. |
| **The ICS Touch Screen Display doesn’t wake up my externally connected device.** | Your externally connected device power settings may not be setup/configured properly. | See **Configure Computer, Laptop or Tablet** section for detailed instructions on how to configure the power settings of your device. |

*For latest troubleshooting information, contact Havis Technical Support at 1-800-458-3410*
### Video Issues (continued)

<table>
<thead>
<tr>
<th>ISSUE</th>
<th>POSSIBLE CAUSE(S)</th>
<th>POSSIBLE SOLUTION(S)</th>
</tr>
</thead>
</table>
| The ICS Touch Screen Display's touch feature isn't performing well with my externally connected device. | Your externally connected device's touch screen settings may not be setup/configured properly. | Confirm the USB cable (GSM70087) is connected to your device and the A/V Extender. See Wiring Diagram on page 41 for details.

Touch Screen Settings for the laptop can be edited through the Windows Registry. Please contact your System Administrator prior to making any Windows Registry changes.
1. Go to Start and select Run.
2. Type in `regedit` and press enter.
3. Click HKEY_CURRENT_USER, then click Control Panel and then click Mouse.
4. On the right hand side of the window you will see the following settings:
   a. DoubleClickHeight
   b. DoubleClickWidth
   c. DoubleClickSpeed
5. The default setting for `DoubleClickHeight` & `DoubleClickWidth` is (4). We recommend a setting of (64) for both of these settings, which provides a touch area of roughly 1/2” margin between successive touches.
6. The default setting for `DoubleClickSpeed` is (500ms). We recommend a setting of (900ms), which provides more time between double clicks.
7. Reboot your externally connected device for these changes to take effect.
   See Configure your Touch Settings on page 36 for details. |
| My externally connected device's image has vertical black lines or other video disturbances. | Your externally connected device’s video adapter could be causing video sync issues. | Havis recommends an active adapter for mini-DP to HDMI adapters (similar to Star Tech’s MDP2HD4KS). DVI to HDMI adapters can be passive or active. |
| | The ICS CAT6A cable between the Embedded Processor and A/V Extender may be damaged. | Select SYSTEM application at top of ICS Display and confirm the Audio/Video Extender 1 has a green oval for LINK. If this LINK has a red oval, then the red CAT6A cable must be replaced via the Havis RMA process. |
### Troubleshooting (continued)

<table>
<thead>
<tr>
<th>ISSUE</th>
<th>POSSIBLE CAUSE(S)</th>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>Keyboard Issues</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My Bluetooth keyboard won’t connect with the ICS Applications.</td>
<td>N/A</td>
<td>A Bluetooth keyboard will not control the ICS applications, but can connect and control your laptop applications.</td>
</tr>
<tr>
<td>My externally mounted USB keyboard is not working.</td>
<td>Your keyboard may not be connected properly.</td>
<td>Confirm the vehicle key is in the <strong>ACC</strong> or <strong>RUN</strong> position to turn system power on. Select <strong>SYSTEM</strong> application at top of ICS display and confirm the Audio/Video Extender 1 has a green oval for <strong>LINK</strong>. Note: A Keyboard ICON will appear on the Status and Notification Bar of the ICS Application if the keyboard is securely connected. Confirm the USB Cable is connected between your externally mounted computer, laptop or tablet and the A/V Extender. Confirm your externally connected device is powered on. PS2 keyboards are not supported. Use a USB keyboard.</td>
</tr>
<tr>
<td>My externally mounted keyboard remains illuminated when putting the ICS into “Lights Out” state.</td>
<td>Your keyboard may not be connected to the appropriate USB port on the Embedded Processor.</td>
<td>Connect the externally mounted keyboard to the appropriate Keyboard Port. See Wiring Diagram on page 41.</td>
</tr>
<tr>
<td>Keyboard, Mouse or Touch not working.</td>
<td>The ICS may not be connected properly.</td>
<td>Select the <strong>SYSTEM</strong> application at top of ICS Display and confirm all the ovals are green. If not, contact Havis Technical Support.</td>
</tr>
<tr>
<td></td>
<td>Your externally connected device may need to be reset.</td>
<td>Reboot your externally connected device.</td>
</tr>
<tr>
<td></td>
<td>The ICS may need to be reset.</td>
<td>Press and hold the Power button on the HVAC Control panel for 7 seconds or until the display goes blank.</td>
</tr>
<tr>
<td></td>
<td>Your power settings may need to be changed.</td>
<td>See page 36, <strong>Configure your device to remain on while docked</strong> and follow steps 1-15.</td>
</tr>
</tbody>
</table>