**Overview**

The TPT650™ is an in-wall LCD touchscreen providing the ultimate in custom home control. It features a very high quality color 6.5" VGA touch panel with a wide viewing angle. The TPT650 gives the user an elegant option for enhanced control of all types of audio, video, lighting and more.

The completely new TPT650 uses an Intel® X-Scale processor and runs on a Linux® operating system, which ensures system reliability and enhanced user experience. The Touchscreen connects to the InFusion System using *Ethernet* by way of Design Center's Ethernet Bus.

As an additional benefit, the TPT650 has four composite TV or security camera video source inputs with stereo audio. These four video/audio inputs are located on the back of the TPT650 using standard RJ-45 connectors.

InFusion Design Center's *Touchscreen Designer™* software is used to program the TPT650. Touchscreen Designer used in conjunction with Vantage's Patent-Pending *InFusion Media™* software allow drop-in components for *complete* touchscreen programming in as little as five minutes. The TPT650 supports most InFusion Media drop-in components including Lighting, Music, Photo Albums, Intranet IP Cameras and Weather Components. Please see HELP in Design Center for more information on Touchscreen Designer and InFusion Media.

Two hard buttons are centrally located on the front of the touchscreen for common usage programs, e.g., one could be programmed as a HOME button and the other as an AWAY button.



*Shown with Pearl Black bezel (faceplate)*

TPT650 supports status objects allowing display of date, time, thermostat information, load status, custom messages via text widgets and most InFusion Media components. Using state tracking icons it can visually track individual loads. The backlight "On Time" may be adjusted from as little as 5 seconds to thousands of seconds. The backlight levels for ON and OFF states may also be adjusted. A built-in light sensor may be set to automatically adjust the brightness of the screen's ON level depending on the amount of ambient light in the room. Vantage's TPT650 color Touchscreen has, by far, the sharpest display ever. The TPT650 is small enough to keep any area from

feeling cluttered but versatile enough to fulfill the needs of almost any application. A proximity detector senses movement and activates the backlight, illuminating extremely sharp text and graphics. The user can easily navigate through pages making it an ideal central control point. TPT Touchscreens are often used in Offices, Board Rooms, Entries, Home Theaters, Kitchens, etc. giving remote access to all of the Vantage System's controls from one location.

**Features**

- Available bezel colors: Pearl Black, Silver, Arctic White and Custom - PLEASE NOTE: Order Bezels separately
- Fast IP downloads and firmware updates
- TPT650 – digital 640x480 wide viewing angle 6.5" LCD
- Senses interaction with a proximity detector and activates the backlight
- Built-in light sensor provides step-less control of backlight to match ambient lighting
- Built-in IR receiver for use with Vantage IR
- SD Card expansion slot for nearly unlimited graphics
- Four (4) Audio/Video feed connections via RJ45 connectors
- Features status buttons to display date, time, thermostat information, load status, custom messages, most InFusion Media Components and more
- *Alpha Blending* graphics allow transparency for a modern interface, look and feel

**Specifications of the TPT650 Touchscreen**

| Description | Specification |
|---|---|
| Dimensions, HWD without Faceplate | 6.5" x 7.6" x 1.75" 16.5cm x 19.3cm x 4.4cm |
| Bezel (faceplate) Dimensions HWD - Finished | 6.9" x 8.0" x 0.25" 17.53cm x 20.32cm x 0.6cm |
| Weight | 1.75lbs – 790g |
| Display | Active Matrix Color LCD |
| Display Size | 6.5" diagonal |
| Display Colors | 262144 plus dithering |
| Display Resolution | 640 x 480 pixels |
| Viewing Angle | 140° horizontal, 120° vertical |
| Luminance | 400 cd/m2 ● Dual CCFL |
| Contrast Ratio | 500 |
| Video Input | NTSC; PAL; SECAM; with custom scalable window on screen |
| Audio Speakers | Built-in Stereo Speakers ● 1.25W times 2 |
| Connectors | 1x RJ-45 10/100 Mbps Ethernet with auto switching 4x input sources for composite video and stereo audio 1x Power connection; 2.1mm barrel plug |
| Memory | 16mb Flash; 64mb SDRAM; optional SD card slot |
| Expansion Slot | SD Card Slot for permanent memory expansion |
| Types of Objects | Bitmap, text, lines, sliders, navigation, status, programmed buttons, combination navigation/program buttons and most InFusion Media Components |
| Bitmaps | .png (buttons/sliders), jpg and bmp up to 640x480 pixels |
| Fonts | Any Windows font |
| AC Adapter Power Supply | 100–240V AC, 47-63Hz, / 12V DC 2A  24W power supply 1 to 1 ratio (see *TPT650-INSTALL-16* install sheet) |
| Ambient Temperature | 10°C ~ 40°C (50°F ~ 104°F) |
| Ambient Humidity | 10% ~ 90% RH (no condensation) |

**Software/Firmware**

This station is compatible with InFusion Design Center software 2.2 and Controller firmware 2.2 or higher. Additionally the TPT650's firmware should be kept current for optimum performance and functionality. For new projects it is recommended that firmware and software be kept to the most current release.

## Installation

Installation of Vantage products should be performed or supervised by a *Certified Vantage Installer.* Installation requires the ***650 ROUGH IN ASSEMBLY — TPT650-INSTALL-16*** installation instructions. The recommended wall mounting height is 6" above that of a typical keypad station or approximately 50" to 58" from the bottom to the floor. However, it may be installed at any height fitting *your* installation requirements. The LCD TouchScreen is mounted in the wall using a metal mounting box. After connecting the power, network bus and other input cables and confirming proper communication, tighten the screws snugly but do not over tighten. The bezel (faceplate) snaps securely onto the station after the installation is complete.
**NOTE:** *Only use one power supply for each TPT650.*

## Software, Firmware and Configuring

1. Add the TPT650 in Design Center and program.
2. Remember to **configure** the TPT650 to Design Center by entering the serial number manually or by tapping the screen with Design Center in configure stations mode and the TPT650 selected (highlighted) in Design Center. When Design Center is in Configuration Mode the TPT650 says *Configuration Mode* at the top with a darkened screen.
3. Touch *Configuration Mode* may be disabled in Design Center under Settings | System Preferences.

Firmware is updatable from Design Center by clicking on *System | Update TPT Firmware*. You must enter the IP address of the TPT650 to update the firmware.

## Exporting or Downloading Screen Designs

Connecting a computer to each touchscreen, one at a time, in order to download the program is no longer necessary. As long as the TPT650 is on the network the screen design can be exported from Touchscreen Designer using the TPT650's IP address.

## TPT650 Hardware Setup (Configuring) Screens

The TPT650 has on-board programmed screens allowing access to the following *localized* information and settings.
 ●System  ●Brightness  ●Network  ●Sound
Simply draw a large imaginary "C" on the Touchscreen to navigate to the hardware setup screens.

Draw a "C" for Configuration Screens



## TPT650 System Screen

After drawing the imaginary "C" on the screen, the first screen showing is *System*, showing the date, time and firmware version. From this screen it is possible to navigate to the Calibrate or Erase screens.
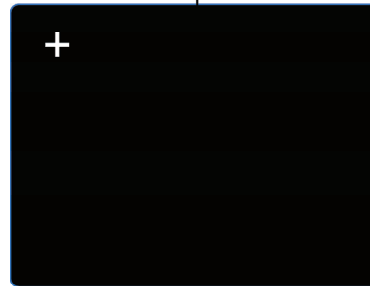
### *Calibrate*

The touchscreen calibration utility draws crosses on the screen. To calibrate tap the center of each cross as it appears until the process is finished. If calibration is necessary, it is recommended that a fine tool be used, i.e., a Touchscreen stylus.
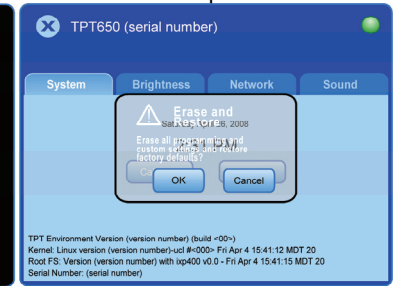
### *Erase*

The Erase screen allows the TPT650 to be returned to the state it was shipped in. This does not affect Firmware, only application

programming and other user settings, e.g., motion settings, backlight settings, sound settings, etc. Please use caution if you erase the screen, remember all Touchscreen Designs **will be erased**.

Configuration Screen System



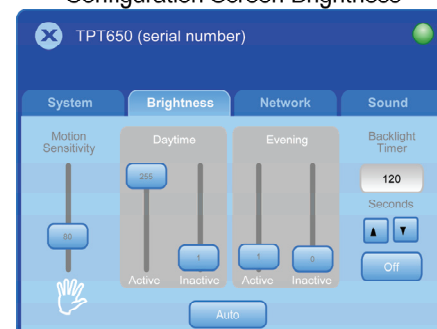Calibration Screen                              Erase Screen

## Brightness

The Brightness screen allows fine tuning of:
- Motion Sensitivity for backlight activation
  - The "hand" icon image flashes as motion is seen. Use this to help determine the sensitive level of the motion/proximity sensor
- Daytime and Evening, Active and Inactive light levels
  - Auto – with Auto selected Daytime and Evening settings are ignored. The built-in ambient light sensor sets the backlight intensity, smoothly adjusting the brightness as the ambient light changes. If the Backlight Timer is enabled the screen backlight turns to the Inactive level when the timer expires.
  - Manual – with Auto not selected the Daytime and Evening settings are used. Switching between Daytime and Evening settings is controlled by Design Center programming (a night/day button or time-of-day event) using *Advanced | Stations | Set Mode.* Mode 1 is Evening and Mode 0 is Daytime. Using *Set Mode* this way **does not** require an LED Style.
- Backlight Timer adjustment in seconds
  - Enabled or Off
  - When Off, the screen uses the Active or Auto brightness level
  - When On, the screen switches to the Inactive brightness level when the timer expires

Configuration Screen Brightness

**Network**

The Network screen allows setting the screen name and setup of an IP address for the TPT650. As with most IP based products the TPT650 may obtain an IP address automatically using the DHCP setting. It is also possible to assign a Static IP address which may be more desirable for most applications. The current IP address, DHCP or Static, is displayed on this screen.

*Device Name*

The "Device Name" is the name that will identify the TPT650 in Design Center for exporting. It may be changed from "TPT650 (serial number)" to whatever is desired. It is recommended that the name match the name used in Design Center.

- To enter the name, simply touch the Device Name section of the table to open the soft keyboard screen then enter the name and touch Save.
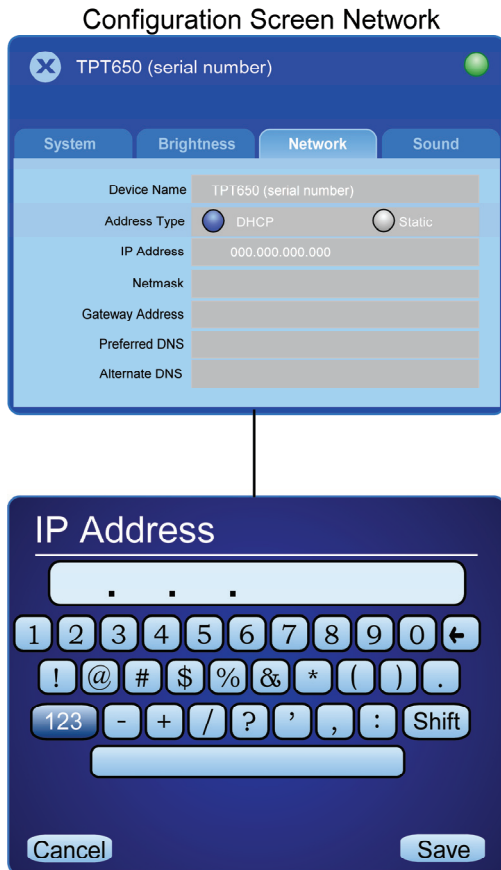
*DHCP*

- To set a DHCP address, simply click the DHCP button and then click the X to exit the configuration screen.

*Static*

- To set a Static IP address, simply click the Static button and then click on the IP Address section of the table.
- A soft keyboard is opened allowing the static IP address to be entered.
- Click Save when finished
- Additional IP settings are also available for more advanced network configurations
    o Netmask
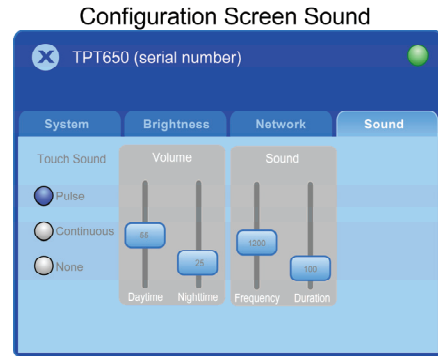    o Gateway Address
    o Preferred DNS
    o Alternate DNS

Most "home" networks will only need a DHCP or Static IP address as long as the TPT650 is on the same network as the InFusion Controller.

**Configuration Screen Network**



**Soft Keyboard Screen**

**Sound**

The Sound configuration screen allows the Volume, Frequency and Duration of the sound when buttons are touched. Experiment with settings on this screen to obtain a desired sound for buttons.

**Configuration Screen Sound**



**Front Of TPT650**

On the front of the TPT650 are two hard buttons that may be assigned to any task in Design Center like a keypad button. There is also a built-in Light sensor and Motion sensor, behind the translucent diffuser in the front, bottom center of the screen, for the screens operation (see *Setup Screens* above). The two very small holes on each side of the Sensor lens balance the design. The left hole contains a Reset button.

Note: the Reset button requires a long - 1¼" – straight piece of wire, e.g., a straightened paper clip would be ideal. The hole contains a plastic tube to guide the wire preventing it from wandering when inserted to reset the station.

**Video/Audio Connections**

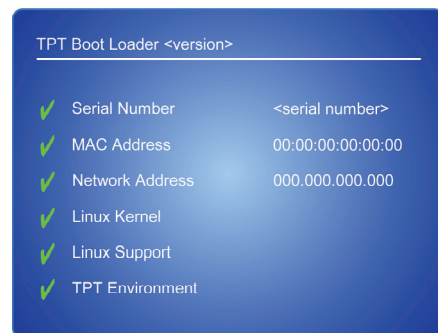A/V connector cables are available from Vantage, part number VDA-0176.

To build your own A/V connector cables please study drawings below. CAT-5 wire should be used when building A/V cables. Note: A/V cables should not exceed 200ft.

**Reset**

To reset the TPT650 to *Boot Loader Screen* (below) while holding in hard buttons 1 and 2, press and release the Reset button in the left hole. Do this if the screen is in an unstable mode and communication cannot be established. When the screen boots to the *Boot Loader Screen* communication should be possible again allowing firmware updates. Pressing Reset without holding buttons 1 and 2 simply resets the screen.

*Boot Loader*

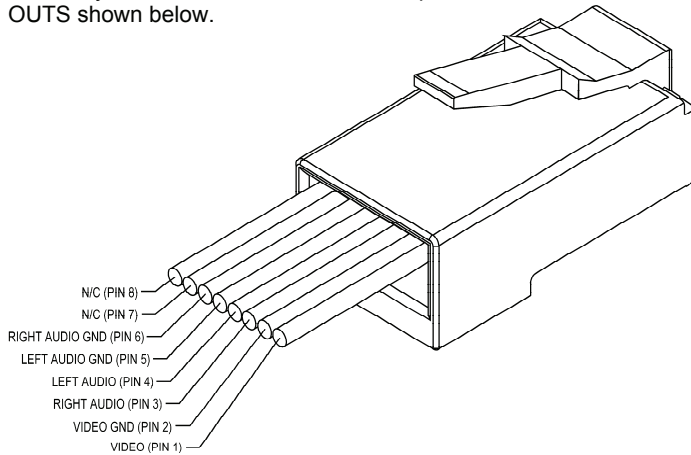The Boot Loader screen is a root level boot screen and may be used when simply communicating with the screen at a rudimentary level (Touchscreen Designer Exports are not possible while in this mode). It also displays a green checkmark or red X for each section of the TouchScreen's operational status. This is valuable for troubleshooting. Reset the screen to exit the Boot Loader Screen.



**Boot Loader Screen**

## RJ45 Connector for Audio/Video

To build your own A/V RJ45 connectors, please follow the PIN-OUTS shown below.

N/C (PIN 8)
N/C (PIN 7)
RIGHT AUDIO GND (PIN 6)
LEFT AUDIO GND (PIN 5)
LEFT AUDIO (PIN 4)
RIGHT AUDIO (PIN 3)
VIDEO GND (PIN 2)
VIDEO (PIN 1)

*NOTE:* TPT650 Wiring

- CAT5e network cable with RJ45 connectors.
- Romex or equivalent 120-220VAC power supply*
- Each TPT650 may also have up to four A/V cables using CAT5e with RJ45 connectors and an A/V Connector Cable – part number VDA-0176 shown above – on the A/V end.

*See the **TPT650-INSTALL-16** sheet

## VDA-0176 A/V Connector Cable

The **TPT650-INSTALL-16** kit ships with one VDA-0176 A/V connector cable. Additional cables may be purchased from Vantage Controls. This cable connector is designed to connect directly to the A/V equipment using the RCA connectors. Use a straight through RJ45 (female) coupler allowing the installer to run longer CAT5e wire runs with male, RJ45 type connectors to the TPT650 and the VDA-0176 connector cable. A/V wire runs should not exceed 200ft. Please see the **TPT650-INSTALL-16** install sheet for details.
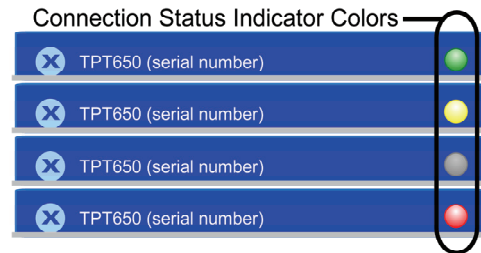
## SD Memory Card

For most applications the built-in memory will be sufficient. However, the TPT650 allows an SD Memory card to be inserted if it is anticipated that the design will require more than the default memory.
NOTE: *To avoid possible configuration issues, power down the TPT650 when inserting or removing the SD Memory Card.* Reprogram the TPT650 after inserting an SD Memory card.

## Connection Status Indicator

In the Configuration screens mentioned earlier, notice the round highlighted indicator in the upper right hand corner. This indicator changes appearance to indicate the connection status of the TPT650. Use this indicator to help trouble shoot issues if the screen appears to have connection issues. The indicator changes colors as indicated below.

Connection Status Indicator Colors

| ⊗ TPT650 (serial number) | 🟢 |
| ⊗ TPT650 (serial number) | 🟡 |
| ⊗ TPT650 (serial number) | ⚪ |
| ⊗ TPT650 (serial number) | 🔴 |

| Indicator Color | Connection Status |
|---|---|
| Green | Connected and properly configured |
| Yellow | Connected to controller but not properly configured on the controller |
| Grey | Not connected to a controller |
| Red | Ethernet disconnected |

▼ TOP ▼

SD Memory Card Slot
*To avoid configuration issues, power down the TPT650 when inserting or removing the SD Card.*

7.6" (19.3cm)

6.5" (16.5cm)

1.75" (4.4cm)
1.45" (3.7cm)

6.75" (17.1cm)

5.65" (14.4cm)

TPT650

10/100 ETHERNET   A/V-1  A/V-2  A/V-3  A/V-4   POWER +12VDC 2A

*Ethernet Connection*
*Audio/Video RJ45 Connections*
*Power Connection*

▽ VANTAGE

This device complies with Part 15 of the FCC Rules
Operation is subject to the following two conditions
1) This device may not cause harmful interference
2) This device must accept any interference received
   including interference that may cause undesired
   operation.

▽ VANTAGE      00-14-F9-00-16-70
TPT650         SN: 03275918

FC  CE

▲ RIGHT SIDE ▲

▲ BACK ▲

*Light/Motion Sensors*
*Reset*
*Hard Buttons*

▲ LEFT SIDE ▲

▲ FRONT ▲

▲ BOTTOM ▲