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## Touch-It Plus

3U Dual High-Resolution LCD Video  
Display Monitor and Router

User Guide

**Part Number 821036, Revision A**

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panorama®

the video division of  Wohler

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# Touch-It Plus User Guide

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## Introduction

### Overview

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The Touch-it Series from Wohler Technologies, offers a simple and easy way to monitor multi-channel video, provide routing, as well as an external screen output in a compact and versatile space saving 3RU. The touch screen video monitor is ideal for multicamera live shoots, machine rooms, and outside broadcasts.

### Topics

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Topics	Page
Introduction	1
Safety Instructions	2
Installation Recommendations	3
Features	4
Specifications	5
Front Panel Controls	6
Rear Panel Connectors	9
Technical Functional Overview	11

# Safety Instructions

1. Read, keep, and follow all of these instructions; heed all warnings.
2. Do not use this equipment near water or moisture.
3. Use only a dry cloth to clean the equipment.
4. Do not block any ventilation openings. Install only in accordance with the instructions in the section entitled, "[Installation Recommendations](#)" on [page 3](#).
5. Do not install near any heat source such as a radiator, heat register, amplifier, or stove.
6. Do not attempt to plug the unit into a two-blade outlet (with only two prongs of equal width).

**IMPORTANT:** By design, these monitors will only plug into a three-prong outlet for your safety. If the plug does not fit into your outlet, contact an electrician to replace the obsolete outlet.

7. Protect the power cord from being walked on or pinched, particularly at plug's source on the equipment and at the socket.
8. Use only the attachments/accessories specified by the manufacturer.
9. Unplug the equipment during lightning storms or when unused for long periods of time.
10. Refer all servicing to qualified service personnel. Servicing will be required under all of the following conditions:
  - The equipment has been damaged in any way, such as when the power-supply cord or plug is damaged.
  - Liquid had been spilled or objects have fallen onto the equipment.
  - The equipment has been exposed to rain or moisture.
  - The equipment does not operate normally.
  - The equipment has been dropped.

# Installation Recommendations

## Mounting

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The unit is designed to install into a standard 19" rack mounted at eye level for best visual observation of the monitor screens.

## Heat Dissipation

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The ambient temperature inside the mounting enclosure should not exceed 40° Celsius (104° Fahrenheit). Adjacent devices can be rack mounted (or stacked) in proximity to the unit if the above temperature is not exceeded. Allow a 1RU (1.75"/44.45mm) space above and below the unit for air circulation.

**Important:** The heat generated by the class D power amplifiers, power supplies, and other components is vented by slots in the side of the unit. Therefore, as a safety precaution, we advise you to be sure to allow proper ventilation on both sides of the unit.

## Power

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The unit comes with a standard 24VDC/3.0A internal power supply and connects an A/C mains power source (65W, 100 to 240 VAC, 50/60Hz) to the IEC connector provided on the rear panel of the unit.

## Cable Recommendations

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**Table 1–1 I/O Cable Recommendations**

Cable	Cable Type
Audio	Belden 9451 (or equivalent)
Video	Belden 8281 or Belden 1694A (or equivalent)

# Features

- Fits in a 3U standard 19" rack space with shallow depth for installation in tight spaces
- Dual 7" LCD high resolution color video monitors
- **Touchscreen** features twelve "thumbnail" images of available video channels for monitoring; touching a thumbnail image selects that channel for monitoring fullsize on the **Target** and for routing from the selected out connectors.
- Selectable 4:3 and 16:9 aspect ratio for **Target** display and 4:3 fixed aspect ratio for thumbnail displays
- Video display controls for the **Target** for brightness, contrast, tint, color; video controls are set and memorized for each of the twelve video inputs.
- Twelve CVBS video inputs on BNC connectors and twelve CVBS video active loop-through outputs on BNC connectors (active loop-through outputs do not require termination selection)
- Twelve stereo analog audio inputs on three DB-25 connectors, selected audio outputs on two XLR connectors, left/right internal speakers, and a headphone output; audio selection "follows" video selection.
- LCD display backlights may be turned off separately from main unit power.
- Low power consumption and minimal power dissipation for a low operating temperature
- External universal AC mains power supply plugs into industry standard DIN connector on rear panel

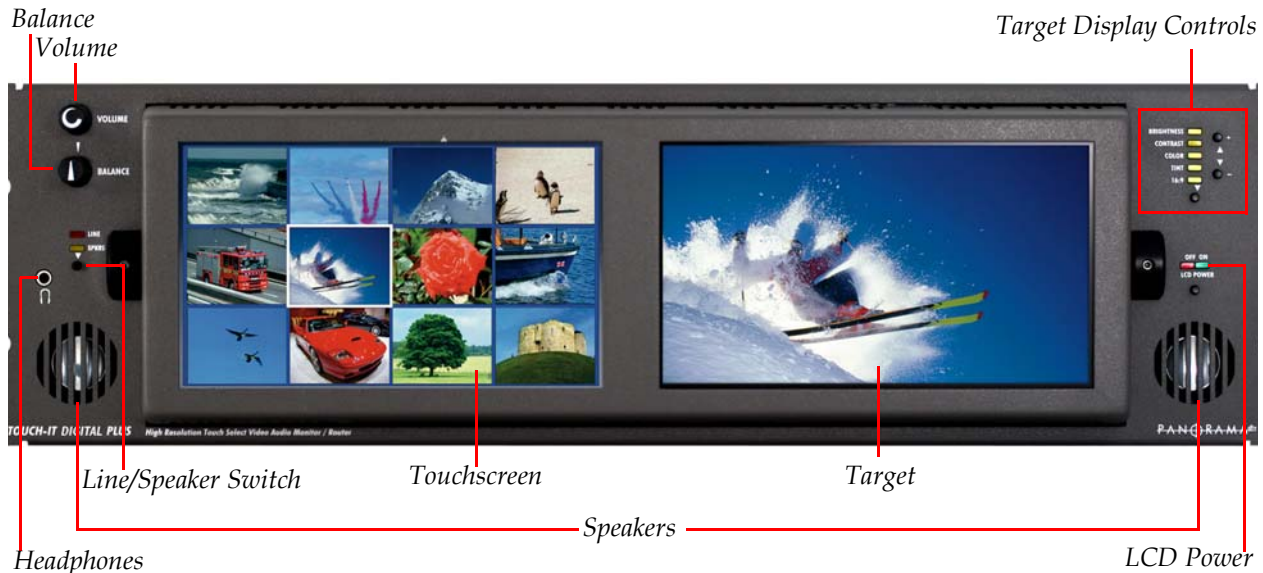
# Specifications

**Table 1–2 Touch-It Plus Specifications**

Specification	Value
Display Size (diagonal):	2 x 7.0" (17.8 cm)
Display Type	High-resolution TFT LCD , Transmissive
Video Formats	NTSC/PAL autosensing
Signal Input Conn/Type	75 ohm BNC / CVBS (NTSC or PAL)
Display Image Controls	Brightness, contrast, color, tint, aspect ratio (Target only)
Aspect Ratio	Target Display = 16:9 or 4:3 Thumbnail Displays (x12) = 4:3 each
Active Area (HxV)	155.00 x 87.12 (mm)
Resolution (dots x lines)	854 Pixels X 3 (RGB Dots) X 480 Lines (1.2M "Megadots")
Dot Pitch (HxV)	0.0605 x 0.1815 (mm)
Pixel response Time	7 ms rising (typ.); 18 ms falling (typ.)
Color Configuration	RGB Stripe
Color Numbers	262,000
Viewing Angle	top=50°, bottom=60°, left=65°, right=65°
Contrast Ratio	450 (typ.)
Brightness	400 (typ.) NITs (cd/m <sup>2</sup> )
LCD Lamp Life	15,000 hours (avg.). to specified reduction
Power Consumption	40W
Power Supply	100 to 240VAC, 47 to 63Hz, universal input, external, CE & UL approved
Chassis Type	3U, 19" rack mounting (EIA-310D)
Dimensions (HxWxD)	5.25" x 19" x 4.25" (excluding connectors)
Weight	9.5 lbs. (excluding external power supply)

# Front Panel Controls

Figure 1-1 Touch-It Plus Front Panel



- **Headphone Jack:** The Touch-it Plus model (only) features this jack, which accepts a standard 1/8" mini stereo phone type stereo plug. Select the headphone audio sources as you would for the internal speakers. When you plug in headphones the internal speakers will mute, but all other audio outputs continue to function as selected.
- **Internal Speakers:** The Touch-it Plus model (only) features these two mid-range speakers (left and right) to accommodate the two audio channels that may be monitored from the selected input.
- **Line/Speaker Switch:** This Line/Speaker Switch is used to route the audio to either the line out, internal speakers, or both. The selection is modified by the setting of the rear panel Line Output Status Switch. See below for settings:
  - **Speakers (Amber LED):** Selected audio signals are routed to the internal speakers (or connected headphones) and signals to the **Selected Line Out XLR** connectors are muted. However, if the **Line Output Status** switch is set to **Always On**, then the audio is routed to both the internal speakers (or connected headphones) and the **Selected Line Out XLR** connectors.

- **Line (Red LED):** Audio signals are routed only to the two **Selected Line Out XLR** connectors and signals to the two internal speakers (or connected headphones) are muted.
- **Touchscreen:** This high-resolution 7" LCD video screen displays thumbnail images of the twelve input video channels. One of twelve input video channels is selected by lightly touching the "thumbnail" image with a fingertip, thus routing it for full size monitoring from the **Target** and for output from the rear panel **Selected Video Output BNC** connectors. The border around the thumbnail image will highlight red to indicate it is selected. Note that overall display parameters are not adjustable, however each thumbnail image will be adjusted together with the **Target** for each selected input. Channel designations for each of the twelve thumbnail displays are listed in [Table 1-3 on page 7](#).

**Note:** The last selected input channel will be written to memory following a 10 second timeout. This allows the last selection to be restored following a power cycle or failure.

**Table 1-3 Touch Screen Number Designations**

Up to 12 Inputs			
1	2	3	4
5	6	7	8
9	10	11	12

- **Target:** This high-resolution 7" LCD video screen displays the **Target** image as selected from the **Touchscreen**. When a thumbnail display is selected by touching it, that image is routed for full resolution display from this LCD while at the same time routing the selected video to the **Selected Out** BNC connectors on the rear panel. Controls for adjusting brightness, contrast, color, tint and aspect ratio (4:3 or 16:9) are to the right of the screen. Video controls are set and memorized for each of the twelve inputs. Note that the audio follows the selected video. In other words, audio is monitored from the particular audio input connector which corresponds to the currently selected video source shown in the **Target** (Channels 1 through 8). If a different video source is selected, then the Audio Input connector corresponding to the new video selection will be selected for monitoring.
- **LCD Power Switch and LED:** This switch turns both of the video display backlights on or off. The LED above the switch glows green to indicate backlight power is on and glows red to indicate backlight power is off. This switch affects only LCD backlight operation; the unit continues to be powered with all routing functions in full

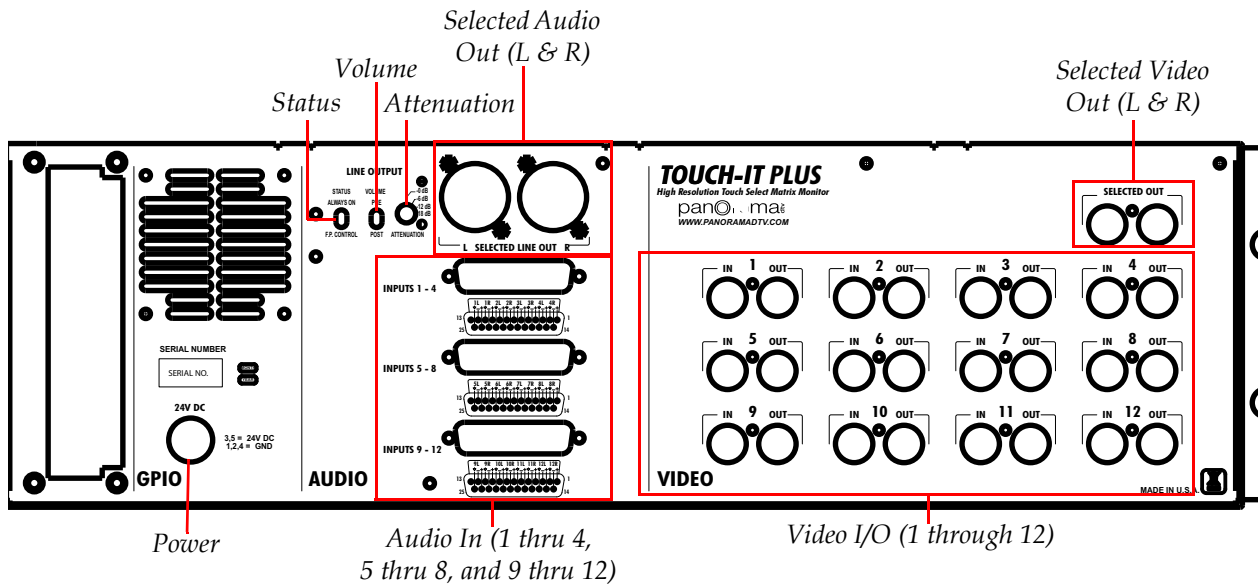
operation regardless of this switch setting, as long as the unit is connected to active mains power. Note that the **Touchscreen** is disabled when the LCD backlight power is turned off, though the channel loops and last routed selection remains active at the BNC outputs (and audio XLR outputs on Touch-It Plus).

- **Balance:** This control changes the audio volume balance between the left and right speaker channels.
- **Volume:** This controls the volume loudness of the audio reproduced by the left and right speaker channels.
- **Target Display Controls:** The **Target** may be adjusted for brightness, contrast, color, tint and aspect ratio (4:3 or 16:9) using these controls. Repeated pressing of the parameter select button (beneath the parameter LEDs) cycles through each parameter (LEDs glow amber to indicate selected parameter). When desired parameter is selected, use the + and - buttons to adjust the parameter as required. Each parameter can be reset to the default value by simultaneously pressing the + and - buttons. All parameters for a given channel can be reset to default by pressing all three buttons ( +, -, and parameter select) simultaneously.

The new values for adjusted parameters will be written to EEPROM memory following a 10 second time-out or upon selection of another input channel. This allows for multiple parameter changes to be made prior to writing values to memory.

# Rear Panel Connectors

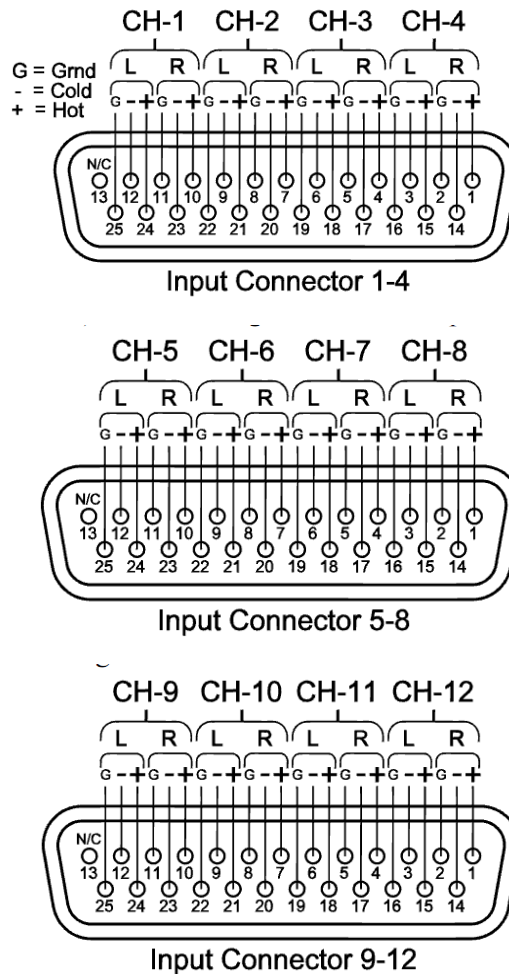
Figure 1–2 Touch-It Plus Rear Panel



- **Power:** Attach the included power cord between this connector and the DIN plug output of the provided 24 volt external power supply. The LEDs for the **LCD Backlight** and **Line Speaker** switches on the front panel will glow to indicate operating voltages.
- **Audio Line Output Status Switch:** When this switch is set to **Always**, then the **Selected Audio Line Out** connectors will always output the selected audio line out signals. If set to **F.P. Control**, then the **Line/Speaker** switch on the front panel is used to determine if signals are sent to the **Selected Audio Line Out** connectors or to the speakers.
- **Audio Line Output Volume Switch:** When this switch is set to **Post**, the front panel volume and balance settings are applied to the signals at the **Selected Audio Line Out** connectors. When this switch is set to **PRE**, then the volume control and balance settings are not applied, in which case the signals are sent to the line out connectors at unity gain with the audio input signals.
- **Audio Line Output Attenuation Switch:** Each of the positions of this switch determines the attenuation of the selected audio signal applied to the **Selected Audio Line Out** connectors. Selections include 0 dB, -6 dB, -12 dB, or -18 dB.

- Audio Input Connectors:** Each of these three DB-25 connectors accept eight channels (four stereo pairs) of analog audio for a total of twelve stereo channels. Channel designations are silk-screened to the left of each connector and correspond to the video input channels. Note that when a video channel is selected for monitoring, the corresponding audio channel is automatically selected for monitoring (audio follows video). See Figure 1-3 below for pinout designations for these connectors.

Figure 1-3 Audio Inputs 1 through 12



- Video In and Loop-Out:** The twelve video IN BNC input connectors are terminated at 75 ohms and will accept CVBS video signals in either NTSC or PAL formats. However only one of these two formats can be accepted for all inputs at one time. The default setting of all twelve inputs is for NTSC formatted signals. But if a PAL formatted signal is connected to the Channel 1 input, the unit will auto-detect it and re-configure all twelve inputs for PAL

formatted signals. Additionally, all signal switching and routing is timed to occur based on the VBI (Vertical Blanking Interval) of the input signal applied to the Channel 1 input, therefore it is recommended to always apply an input signal to Channel 1 for clean switching transitions of synchronous signals.

Signal-through connections to downstream equipment are supplied by the twelve video out BNC connectors. These are active loop-through outputs and so there is no need for termination selection.

Each **In/Out** pair of connectors is identified with a channel number, which is silk-screened above it. In Plus models, these channel numbers correspond to the channel numbers associated with the Audio Input Connectors.

- **Selected Video Out:** Each of these two BNC connectors output the video signal as selected from the front panel **Video Thumbnail Display** and displayed on the **Target**. It is by using this function that the Touch-it unit may be used as a router. Note that in the Plus model, the audio source channel associated with the selected video source channel is also output from the two Selected **Audio Line Output** connectors. Note that the selected video output is directly switched from the video inputs and does not have video display control parameters applied or any processing delay.
- **Selected Audio Line Out:** These two 3-pin male XLR connectors (left and right) output the stereo audio source channel associated with the selected video source channel. See Items B, C, and D for a description of the switches which modify how the signal is output from these connectors. Pinouts for this connector are: Pin-1 = Ground (Shield), Pin-2 = Hi +), Pin-3 = Low (-).

## Technical Functional Overview

Figure 1-4 below illustrates the overall functionality of the Touch-It Plus.

**Touch-It Plus User Guide**  
**Technical Functional Overview**

**Figure 1-4 Touch-It Plus Block Diagram**

