VADDIO™ AUTOTRAK 2.0

Camera Tracking System

Featuring Automatic Pan/Tilt/Zoom Camera Tracking

Part Numbers:
AutoTrak 2.0
Camera Tracking System: North America
999-7250-000: AutoTrak 2.0-Dual HD-18 Kit with Quick-Connect DVI/HDMI Interface-North America
999-7260-000: AutoTrak 2.0-HD-18 & HD-20 Kit with Quick-Connect DVI/HDMI Interface-North America

AutoTrak 2.0
Camera Tracking System: International
999-7250-001: AutoTrak 2.0-Dual HD-18 Kit with Quick-Connect DVI/HDMI Interface-International
999-7260-001: AutoTrak 2.0-HD-18 & HD-20 Kit with Quick-Connect DVI/HDMI Interface-International

Optional:

EasyTalk AutoTrak 2.0 Wireless Audio Interface:
998-7230-000: EasyTalk AutoTrak 2.0 Wireless Audio Interface-North America
998-7230-001: EasyTalk AutoTrak 2.0 Wireless Audio Interface-International

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AutoTrak 2.0 System Overview

The AutoTrak 2.0 System is an IR tracking system that consists of an IR lanyard attached to a rechargeable belt pack that is worn by a presenter or instructor. Within the lanyard's cloth cover, there are fifteen (15) 850nm wavelength IR LEDs on a flat flex circuit that emit IR light that is tracked by an HD-18 PTZ IR Reference Camera with special IR filters. The IR position is relayed to the AutoTrak 2.0 CPU which in turn controls the HD-18 PTZ Tracking Camera and follows the presenter and keeps the presenter framed in the camera shot throughout the presentation environment. The Tracking Camera is based on the Vaddio high definition, HD-18 with 1/3-type, 1.3 mega pixel CCD image sensor which operates well in low light and reproduces color accurately with vibrant detail and clarity.

AutoTrak 2.0 999-7250-000
Dual HD-18 Cameras

Note: Add the two versions: two- HD-18 and one HD-18 and one HD-20
999-7250-000: AutoTrak 2.0-Dual HD-18 Kit with Quick-Connect DVI/HDMI Interface-North America
999-7260-000: AutoTrak 2.0-HD-18 & HD-20 Kit with Quick-Connect DVI/HDMI Interface-North America

AutoTrak 2.0 999-7260-000
HD-18 IR and HD-20
Tracking Camera

The AutoTrak 2.0 System is also available with the optional EasyTalk AutoTrak 2.0 Wireless Audio System.

The HD-18 cameras and HD-20 cameras use the Vaddio Cat-5e cabling systems for ease of set up and installation. The system can be permanently installed or configured as a cart system for portability and ease of positioning in the largest of lecture halls. Each system includes a dual camera mount which can be wall mounted or mounted on top of the Vaddio Edge series video carts.

The optimum operating range or the system (from the IR Lanyard to the IR Reference camera) is between 12' (3.65m) and up to 40' (12.2m). System positioning is critical for proper and consistent operation.

The AutoTrak 2.0 can be installed as a standalone system or can be used in conjunction with myriad Vaddio Presenter controlled solutions including AutoPresenter™, PresenterPOD™, ControlVIEW XHD™, TouchVIEW™, AutoVIEW™ IR, StepVIEW™ Mats, MicVIEW™ and the Vaddio Video Whiteboard. As an added benefit, once the AutoTrak 2.0 system is configured the Mouse, Keyboard and Monitor I/O devices can be removed from the system to ensure the system isn't subject to unauthorized modification.

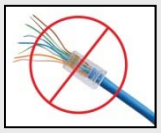
Intended Use:

Before operating the device, please read the entire manual thoroughly. The system was designed, built and tested for use indoors, and with the provided power supply and cabling. The use of a power supply other than the one provided or outdoor operation has not been tested and could damage the device and/or create a potentially unsafe operating condition.

Important Safeguards:

Read and understand all instructions before using. Do not operate any device if it has been dropped or damaged. In this case, a Vaddio technician must examine the product before operating. To reduce the risk of electric shock, do not immerse in water or other liquids and avoid extremely humid conditions.

Use only the power supply provided with the system. Use of any unauthorized power supply will void any and all warranties.



Please do not use "pass-thru" type RJ-45 connectors. These pass-thru type connectors do not work well for professional installations and can be the cause of intermittent connections which can result in the RS-232 control line failing and locking up, and/or compromising the HSDS™ signals. For best results please use standard RJ-45 connectors and test all cables for proper pin-outs prior to use and connection to Vaddio product.

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Save These Instructions:

The information contained in this manual will help you install and operate your product. If these instructions are misplaced, Vaddio keeps copies of Specifications, Installation and User Guides and most pertinent product drawings for the Vaddio product line on the Vaddio website. These documents can be downloaded from www.vaddio.com free of charge.

UNPACKING:

Carefully remove all of the parts for the AutoTrak 2.0 999-7250-000 Dual HD-18 Kit with Quick Connect DVI/HDMI Interface (North America Only) packaging:

- One (1) AutoTrak 2.0 CPU (closed system preloaded with AutoTrak 2.0 software and video card)
- One (1) AC Cord Set for AutoTrak 2.0 CPU
- One (1) PS/2 Keyboard
- One (1) PS/2 Mouse
- One (1) IR and Audio Lanyard with attached 32" cable with 5-pin mini XLR connector
- One (1) Belt Pack Unit "BPU" with 1" RP-SMA straight antenna and attached belt clip with rechargeable lithium-ion battery pack and USB charging power supply
- One (1) Vaddio PowerRite 12 VDC, 1A Switching Power Supply
- One (1) AC Cord Set - North America

AutoTrak 2.0-Dual HD-18 Kit:

- One (1) *HD-18 PTZ Camera with AutoTrak 2.0 Software preloaded - Tracking Camera
- One (1) Quick-Connect SR Interface (998-1105-016) for Tracking Camera
- One (1) 24VDC, 2A, 100-240V, 50/60Hz 110-240V Switching Power Supply
- One (1) *HD-18 PTZ Camera with AutoTrak 2.0 Software preloaded – IR Reference Camera
- One (1) 37mm female lens ring adapter for HD-18 attached to HD-18 Camera
- One (1) 37mm to 58mm adapter ring
- One (1) 58mm polarizing filter
- One (1) 58mm band-pass IR filter
- One (1) AutoTrak 2.0 Quick-Connect Box (998-1105-020)
- One (1) Standard Quick-Connect Box (998-1105-001)
- One (1) 24VDC, 2A, 50/60Hz 110-240V Switching Power Supply (451-2000-0024)
- One (1) 18"/45.8cm Video Cable (BNC to RCA)
- One (1) 12"/30.48cm Cat 5e Patch Cable
- One (1) 998-2100-000 - Vaddio IR Remote & Manual (2-AAA batteries not included)
- One (1) **535-2000-233 Stacked Gusseted Mount for two (2) HD-18 and Mounting Hardware
- Three (3) 998-1001-232 Control Adapters
- One (1) 998-7200-232 Control Adapter for use with the AutoPresenter - (Only needed when used with the AutoPresenter for Tracking Camera PTZ Presets)
- Documentation and Manuals (Document Number (342-0382)

For the 999-7260-000 System - Start with the 999-7250-000 System
Remove: One (1) *HD-18 PTZ Camera with AutoTrak 2.0 Software preloaded - Tracking Camera
Add: One (1) *HD-20 PTZ Camera with AutoTrak 2.0 Software preloaded - Tracking Camera

UNPACKING:

Carefully remove all of the parts for the AutoTrak 2.0 999-7250-001 Dual HD-18 Kit with Quick Connect DVI/HDMI Interface (International Only) packaging:

- One (1) AutoTrak 2.0 CPU (closed system preloaded with AutoTrak 2.0 software and video card)
- One (1) Euro Power Cord for AutoTrak 2.0 CPU
- One (1) UK Power Cord for AutoTrak 2.0 CPU
- One (1) PS/2 Keyboard
- One (1) PS/2 Mouse
- One (1) IR and Audio Lanyard with attached 32" cable with 5-pin mini XLR connector
- One (1) Belt Pack Unit "BPU" with 1" RP-SMA straight antenna and attached belt clip with rechargeable lithium ion battery pack and USB charging power supply. International USB charging supply includes both EU and UK plug interfaces.
- One (1) Vaddio PowerRite 12 VDC, 1A Switching Power Supply
- One (1) Euro Power Cord
- One (1) UK Power Cord

AutoTrak 2.0-Dual HD-18 Kit:

- One (1) *HD-18 PTZ Camera with AutoTrak 2.0 Software preloaded - Tracking Camera
- One (1) Quick-Connect SR Interface (998-1105-016) for Tracking Camera
- One (1) 24VDC, 2A, 100-240V, 50/60Hz 110-240V Switching Power Supply
- One (1) Euro Power Cord
- One (1) UK Power Cord
- One (1) *HD-18 PTZ Camera with AutoTrak 2.0 Software preloaded – IR Reference Camera
- One (1) 37mm female lens ring adapter for HD-18 attached to HD-18 Camera

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- One (1) 37mm to 58mm adapter ring
- One (1) 58mm polarizing filter
- One (1) 58mm band-pass IR filter
- One (1) AutoTrak 2.0 Quick-Connect Box (998-1105-020)
- One (1) Standard Quick-Connect Box (998-1105-001)
- One (1) 24VDC, 2A, 50/60Hz 110-240V Switching Power Supply (451-2000-0024)
- One (1) Euro Power Cord
- One (1) UK Power Cord
- One (1) 18"/45.8cm Video Cable (BNC to RCA)
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- One (1) 998-2100-000 - Vaddio IR Remote & Manual (2-AAA batteries not included)
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- Three (3) 998-1001-232 Control Adapters
- One (1) 998-7200-232 Control Adapter for use with the AutoPresenter - (Only needed when used with the AutoPresenter for Tracking Camera PTZ Presets)
- Documentation and Manuals (Document Number (342-0382)

For the 999-7260-001 System - Start with the 999-7250-001 System
Remove: One (1) *HD-18 PTZ Camera with AutoTrak 2.0 Software preloaded - Tracking Camera
Add: One (1) *HD-20 PTZ Camera with AutoTrak 2.0 Software preloaded - Tracking Camera

***Note 1:** The Vaddio HD-18 and HD-20 cameras are preloaded with AutoTrak 2.0 control protocols which differ from the "VISCA" type control normally used in the stock HD-18 PTZ Camera. The HD-18 cameras will work with the Vaddio IR Remote but is recommended that the PTZ positions of the camera be set with the AutoTrak 2.0 Software. The HD-18 AutoTrak 2.0 cameras will not work with any other controller besides AutoTrak 2.0 at this time.
****Note 2:** The stacked camera arrangement is required for the AutoTrak 2.0 software to track properly.

AutoTrak 2.0 Components:
AutoTrak 2.0 CPU
Note: The AutoTrak 2.0 CPU may be subject to change in cosmetics due to the turbulent nature of the PC industry, parts availability and model year upgrades. If changes are made, Vaddio will be certain to make changes in the documentation accordingly. The AutoTrak 2.0 CPU is a 1-RU rack mount computer that will come preloaded with the AutoTrak 2.0 software. The exact specifications are subject to change and any changes that will be made will be in the spirit of product improvement only. The AutoTrak 2.0 CPU uses an Intel® Atom™ Dual Core Processor, Intel Graphics Media Accelerator, 1GB DDR2 Memory, four (4) RS-232 Ports, six (6) USB 2.0 ports, two (2) PS/2 interfaces for keyboard/mouse, 16GB Compact Flash and Video capture card.

An important feature: After the AutoTrak 2.0 CPU and software is configured using the mouse, keyboard and monitor, these I/O devices can be removed to prevent any unauthorized access to the system. To reattach the mouse and keyboard, the system will need to be rebooted to recognize these devices.

- **Front Panel Controls of AutoTrak 2.0 Worldwide CPU:**

1) **Power Indicator:** Illuminates when power in on
2) **Hard Drive Activity Indicator:** Indicates when hard drive is active
3) **Recessed Reset Switch:** Resets the system without removing power to the CPU
4) **USB Ports:** Two (2) Front Panel USB Ports

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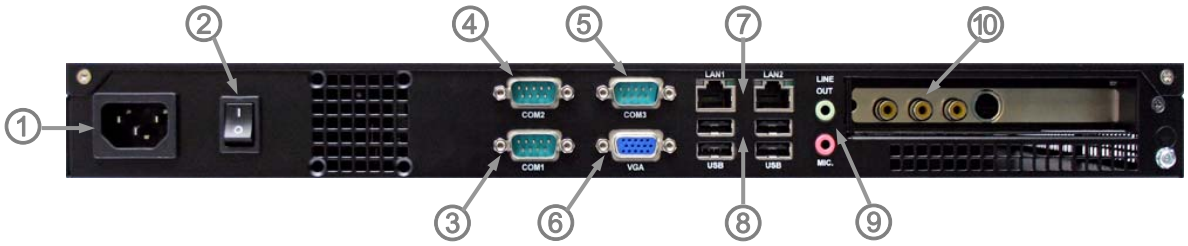
- **Rear Panel of AutoTrak 2.0 Worldwide CPU:**



1) **Power Receptacle:** IEC60320 C14 for power cable
2) **Power Switch: Turns ON/OFF AutoTrak 2.0 CPU**
3) **COM PORT 1:** RS-232 Port for HD-18 IR Reference Camera
4) **COM PORT 2:** RS-232 Port for HD-18 Tracking Camera
5) **COM PORT 3:** Use RS-232 Port 3 when AutoTrak 2.0 is used with the AutoPresenter
6) **RGBHV (on DE-15) Output:** To setup and view software menus (800 x 600 @ 60Hz)
7) **Ethernet Ports:** Not used with AutoTrak 2.0 Application
8) **USB Ports:** Four USB Ports on the back panel for use with Keyboard, Mouse and USB Flash Drive
9) **Audio I/O:** Not used with AutoTrak 2.0 Application
10) **Video Input Port:** Plug the HD-18 IR Reference Camera into the center yellow composite video connector

- **The IR Lanyard and Belt Pack for use with the AutoTrak 2.0 Camera Tracking Systems:**
999-7250-000 and 999-7260-000 North America
999-7250-001 and 999-7260-001 International

1) **IR Lanyard:** Cloth covered flat flex circuit with IR LEDs terminates at the Central Medallion

> **Note: Do not fold the Lanyard Necklace at any time as it contains a flexible circuit that may cease to work if the necklace is hard folded. Folding the Lanyard Flex Circuit will void any and all warranties.**

2) **Central Medallion:** Supplies a connection point for the flat flex cable, contains an integrated condenser microphone and a rubber over-molded cable strain relief that attaches the 32" cable.
3) **32" (813mm) Cable:** Terminates the Central Medallion to the Belt Pack with a 5-Pin Mini XLR-F connector.
4) **Belt Pack:** Holds power circuitry, wireless microphone transmitter, transmitter frequency control switches (see pages 6-7) and rechargeable lithium battery pack.
5) **Belt Pack Front Panel Controls:** The System on/off controls and LED indicator as well as the Microphone on/off controls are located on the Belt Pack Control Panel (see page 6-7).
6) **Belt Clip:** To clip the Belt Pack on a belt like device that the presenter wears.
7) **Antenna:** 1" (25.4mm) RP-SMA straight antenna to transmit RF wireless audio at 2.4 GHZ utilizing Adaptive Frequency Hopping (AFH) from the integrated unidirectional microphone element.

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- **Belt Pack Control Panel**

1) **Lanyard Cable Connector (5-pin mini XLR - M):** Plug the cable attached to the Lanyard into the mini XLR connector to allow audio to be received by the Belt Pack and for power to be provided to the IR LEDs in the Lanyard.
2) **Radio:** This LED indicates an active radio link with the EasyTalk AutoTrak 2.0 Wireless Audio Interface. Solid blue LED indicates connection with the AutoTrak 2.0 Wireless Audio Interface. Flashing blue LED indicates radio link has been lost.
   Note: Radio link operates up to 100 feet line of sight of the AutoTrak 2.0 Wireless Audio Interface.
3) **System Power:** To use the Belt Pack or IR Lanyard, turn the SYSTEM POWER switch to the on position and the LED will illuminate. Be sure to turn off the SYSTEM POWER switch when the system is not in use to save the battery life. Rechargeable Lithium Ion Battery Pack provides up to eight (8) hours with full charge.
   Note: It is highly recommended that the battery pack be fully charged prior to using the Belt Pack for the first time!
4) **Microphone ON/OFF:** This switch turns the wireless microphone on or off at the belt pack allowing the Presenter to use a hand-held or podium microphone instead of the built in microphone, or for momentary microphone muting. The System Status light on the Audio Interface will light if a microphone signal is detected. If the Microphone is turned off at the Belt Pack, the System Status light will not light.
5) **Antenna:** Used to transmit the wireless microphone audio back to the AutoTrak 2.0 Wireless Audio Interface.

Belt Pack Battery Compartment:

1) **Removable Battery Compartment Cover:** To open: Carefully pry the top of the Removable Battery Cover at the small opening.
2) **Rechargeable Lithium Ion Battery:** The battery is housed and attached inside the Battery Compartment and under normal use should last up to eight (8) hours. The battery pack is connected to the J3 connector on the circuit board.
3) **Micro-B USB Charging Port:** The Belt Pack rechargeable battery can be charged by the micro-B USB connector on the bottom side of the belt pack enclosure. A USB charger is included with the Belt Pack. The Belt Pack can also be recharged by using a micro-B USB to USB adapter which can be connected to a PC or Laptop USB port for recharging. A charging LED indicator is co-located with the micro-B USB connector. When the LED is green, the battery is fully charged. A red LED indicates low battery. Use USB charger included in the package

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4) **Dip Switches:** There are two (2) 4-position dip switches located on the circuit board, SW4 and SW5. They provide configuration settings for Microphone Gain Control, Filtering, Compression and Microphone Filtering and Pairing of the Wireless Belt Pack to the AutoTrak 2.0 Wireless Audio Interface.

5) **Procedure for Belt Pack Pairing with the AutoTrack 2.0 Wireless Audio Interface:**

Note: If the AutoTrak 2.0 System and the Optional AutoTrak 2.0 Wireless Audio Interface are ordered at the same time for delivery, the Belt Pack will be paired with the AutoTrak 2.0 Wireless Audio Interface at the factory.

Pairing Procedure:

1) **Place the Belt Pack in close proximity to the AutoTrak 2.0 Wireless Audio Interface.**
2) **Remove the Battery Compartment Cover:** To open: Carefully pry the top of the Removable Battery Cover at the small opening.
3) **Locate Pairing Button Switch labeled SW2:** Press the button and release. The Radio LED on the Belt Pack should begin blinking at a slow rate.
4) **Press the Pair Button on the front panel of the EasyTalk AutoTrak 2.0 Wireless Audio Interface:**
   Important Note: The button on the AutoTrak 2.0 Wireless Audio Interface must be pushed within ten (10) seconds of pressing the pairing button SW2 on the Belt Pack or pairing will not occur.
5) **The Belt Pack and the AutoTrak 2.0 Wireless Audio Interface will automatically sync with each other:** The blue LED's on the Belt Pack and the AutoTrak 2.0 Wireless Interface will turn solid blue indicating they are paired.

- **Belt Pack Dip Switch Settings:**

SW 4: Dip Switch Settings

Switch Number	Function
1	Enable/Disable Bandpass Audio Filter
2	Enable/Disable IR Transmitter in Lanyard
3	Enable/Disable Radio in BPU
4	Not Used

SW 5: Dip Switch Settings

Switch Number	Function
1	3dB Gain Boost on Microphone
2	6dB Gain Boost on Microphone
3	9dB Gain Boost on Microphone
4	Automatic Gain Control Mode

Optional Belt Pack Configuration Settings:

Note: The Belt Pack has a number of custom settings that can be enabled or disabled for specific application needs. These settings can be applied by activating dip switch settings on the two (2) 4-position dip switches SW4 and SW5 located on the Belt Pack Circuit Board.

- **SW4: Dip Switch 1/ Bandpass Filter:** Enable adds a Bandpass Filter to the microphone to emphasize a brighter sound for speech. Disable turns it off.
- **SW4: Dip Switch 2/ IR Transmitter:** Enable turns on the IR Transmitter LED's in the IR Lanyard. Disable turns off the IR Transmitters in the Lanyard and the camera tracking will not function.
- **SW4: Dip Switch 3/ Radio in Belt Pack:** Enable turns on the Radio circuit in the Belt Pack. Disable will turn off the Radio circuit-which will extend the battery life of the Belt Pack if you are not using the optional EasyTalk AutoTrak 2.0 Wireless Audio Interface with the AutoTrak 2.0 System.
- **SW4: Dip Switch 4/ Not Used:**

Note: The following Gain Boost Switches 1-3 can be used individually or in combination. Ex: If Dip Switch 1/ 3dB Gain and Dip Switch 2/ 6dB Gain are enabled, they will add a total of 9 dB of gain.

- **SW5: Dip Switch 1/ 3-dB Gain Boost:** Enable adds a three (3) dB gain to the microphone audio. Disable provides zero gain.
- **SW5: Dip Switch 2/ 6-dB Gain Boost:** Enable adds a six (6) dB gain to the microphone audio. Disable provides zero gain.
- **SW5: Dip Switch 3/ 9-dB Gain Boost:** Enable adds a nine (9) dB gain to the microphone audio. Disable provides zero gain.

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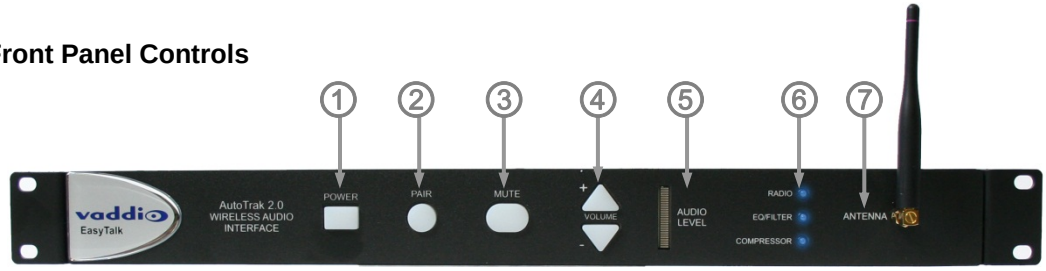
- **SW5: Dip Switch 4/ Automatic Gain Control:** Enable adds Automatic Gain Control-a function that maintains a constant audio level to regulate soft talkers as well as loud-talkers. Disable turns off Automatic Gain Control.

Optional AutoTrak 2.0 Wireless Audio Interface for AutoTrak 2.0 Systems:
998-7230-000: EasyTalk AutoTrak 2.0 Wireless Audio Interface-North America
998-7230-001: EasyTalk AutoTrak 2.0 Wireless Audio Interface-International

- **Front Panel Controls**



1) Power ON/OFF: This switch turns the power for the AutoTrak 2.0 Wireless Audio Interface on or off. To use, push the power button until the blue LED is lit and the system is ready for operation.

2) Pair: This button initiates the automatic pairing (Pairing is the setting of the same Radio Frequency Hopping Spread Spectrum (FHSS) channel hopping sequence for both devices) for the Belt Pack Radio Transmitter and the AutoTrak 2.0 Wireless Audio Interface Radio Receiver in the AutoTrak 2.0 Wireless Audio Interface.

3) Mute: This control mutes (turns off) the audio outputs of the AutoTrak 2.0 Wireless Audio Interface.

4) Volume: the + (plus) and – (minus) buttons are used to raise and lower the audio outputs (Balanced and Unbalanced) from the AutoTrak 2.0 Wireless Audio Interface.

5) Audio Level: This LED display will indicate the relative audio level output (from all sources) of the AutoTrak 2.0 Wireless Audio Interface. Red Line at the top of the LED Display indicates clipping of the audio signal.

6) Radio, EQ Filter and Compressor Status LED's:

- **Radio LED**: Solid blue light indicates normal operations. Fast flashing indicates no link established with the Belt Pack Wireless Microphone. Slow flashing indicates the Pairing cycle is in progress.

- **EQ Filter:** Blue light on indicates the EQ Filter is turned on. Blue light off indicates the EQ Filter is off. When EQ Filter is enabled, it helps increase speaker intelligibility for voice applications.

- **Compressor:** Solid blue light indicates that the Compressor is on. No light indicates that the Compressor is off. Compressor on minimizes the potential of "clipping" by attenuating the audio signals that exceed the maximum output levels.

7) Antenna: The antenna is tuned to receive 2.4 GHZ signals from the IR Lanyard Belt Pack Microphone. Note: If the AutoTrak 2.0 Wireless Audio Interface is installed deep inside a metal equipment rack or is surrounded by other metal cased equipment, the antenna may need to be extended away from the rack to improve reception.

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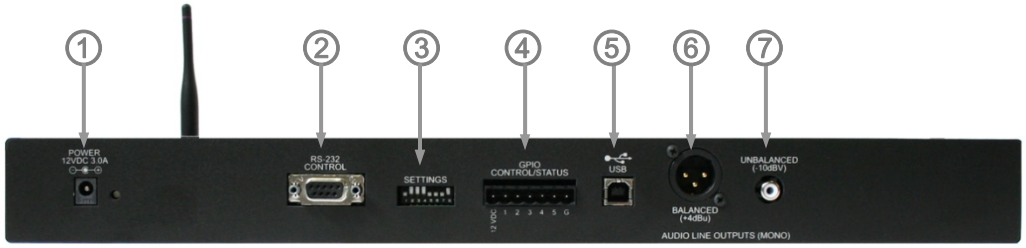
AutoTrak 2.0 Wireless Audio Interface: Rear Panel Connections



1) **12 VDC, 1.0 Amp Power Connector:** The 5.5mm OD and 2.5mm ID power connector should be plugged into the PowerRite power supply provided by Vaddio. Use of any unauthorized power supplies will void any and all warranties.

2) **RS-232 Control:** The DB-9 female connector is provided for 3rd party control systems using the Wireless Audio Interface Application Protocol Interface (API). See Command List on page ##.

3) **Settings (8-Position Dip Switch):** The eight position dip switch is used for system configuration of the AutoTrak 2.0 Wireless Audio Interface:
   - **Dip Switch 1/Compressor:** Enable adds a Compressor for the Audio Line Level Outputs (balanced or unbalanced). Disable turns it off.
   - **Dip Switch 2/Speaker EQ Filter:** Enable adds a specialized output filter for improved intelligibility for voice applications. Disable turns it off.
   - **Dip Switch 3/USB Conference Mode:** Enable creates the desired audio mixing (Near and Far ends) for USB conferencing applications such as Skype. Disable turns off the USB Conference Mode.
     - Note: In the USB Conference Mode, the PC USB Speaker Audio is sent to the balanced and unbalanced audio line outputs which allows the Far End Audio to be presented in the room. The Belt Pack Wireless Microphone Audio is also sent to the PC to send to the Far End.
     - The AutoTrak 2.0 Wireless Audio Interface will also be recognized as a USB Audio Device by the PC with Recording (the Belt Pack Wireless Microphone Audio) and Playback (the Speaker Audio) capabilities. Disable turns the USB Conference Mode off.
   - **Dip Switch 4/Baud Rate Selection:** Enable sets the Baud Rate of the RS-232 Port at 38.4K and Disable sets the Baud Rate at 9.6K.
   - **Dip Switch 5/Radio On-Off:** Enable turns the Radio Receiver for the Wireless Microphone on. Disable turns it off.
   - **Dip Switch 6/Unused**
   - **Dip Switch 7/Software Control:** Enable turns on the Radio Receiver in the AutoTrak 2.0 Wireless Audio Interface for the Belt Pack Wireless Microphone. Disable turns it off.
   - **Dip Switch 8/Unused**

Eight Position Dip Switch Settings

Switch Number	Function
1	**Enable/Disable Compressor for the Balanced and Unbalanced Audio Outputs**
2	**Enable/Disable Speaker EQ Filter**
3	**USB Conference Mode (Skype-type PC applications)**
4	**Baud Rate Selection: 9600-Off/38.4K-On**
5	**Disable Radio (1-Off)**
6	**Not Used**

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7	**Software Control**
8	**Not Used**

4) **GPIO Port:** The GPIO Port provides the ability to interface with external control systems. Inputs are logic level low. Output is an open collector.

GPIO Port Pin Configuration

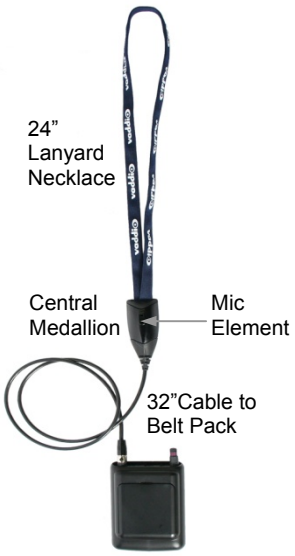
Pin	Function
1	**Power (12Vdc)**
2	**Mute (Input)**
3	**Mute Status (Output)**
4	**Volume Up (Input)**
5	**Volume Down (Output)**
6	**Not Used**
7	**Ground**

5) **USB Type B Connector:** This connector is used to interface with the Host PC for Skype type applications.

6) **Audio Outputs:** There are two (2) Audio Outputs on the rear panel:
- **Balanced Audio Output Jack:** Balanced Line Level (on XLR - M connector) +4dBu
- **Unbalanced Audio Output Jack:** Unbalanced Line Level (on RCA-F connector) -10dbV

Lanyard, Belt Pack Controls:

The central medallion of the lanyard has an attached, strain-relieved, 32" cable that terminates to a 5-pin mini XLR female connector. Attach the 5-pin mini XLR to the 5-pin mini XLR male connector on the belt pack. The microphone element is on the top of the central medallion. The lanyard material houses a flat flex type circuit where the IR LEDs are mounted. After the initial setup is complete, the presenter should slip the lanyard over their head and position the medallion away from the presenter and face the Vaddio logos on the lanyard cloth cover out, toward the cameras. Clip the belt pack onto the clothing, belt or waistband securely. Please avoid dropping the belt pack.



Power to illuminate the IR LEDs is supplied from the Belt Pack and if the System Power Switch is ON, the IR LEDs will illuminate at 850 nanometers (out of the range of visible light for humans). Each Lanyard has 15 IR LEDs spread out evenly throughout the Lanyard Necklace. This invisible light is picked up by the IR reference camera of the AutoTrak 2.0 System and information is sent to the Tracking Camera in order to follow the presenter throughout the presentation environment.

Do not fold the Lanyard Necklace at any time as it contains a flexible circuit that may cease to work if the necklace is hard folded. Folding the Lanyard Flex Circuit will void any and all warranties.

Installation and Operating Instructions for AutoTrak 2.0 with Belt Pack Unit and IR Lanyard 999-7250-000 and 999-7260-000 North America 999-7250-001 and 999-7260-001 International

1) Connect the 12 VDC, 1.0 Amp power supply to the Audio Interface.
2) Connect the 6.5" RP-SMA Antenna to the back of the Audio Interface.
3) Connect the Audio outputs to a mixer/amp.
4) Select a frequency to transmit and receive audio from the Belt Pack Unit on the back of the Audio Interface.
5) Touch the Power button on the Audio Interface and the blue LED inside the power switch will illuminate
6) Turn the Audio Level on the front panel to "1".
7) Connect the Lanyard to the Belt Pack
8) Move the System Power and the Microphone switches on the Belt Pack to the "OFF" position
9) Remove the battery door on the Belt Pack:
   a. Set the 3-position dip switch to the same frequency (position) as the Audio Interface
   b. Carefully matching the polarity markings; install four (4) AA batteries (not included)
   c. Return the battery door cover

10) Move the System Power and the Microphone power switch on the Belt Pack to the "ON" position.
11) The System Status LED on the Audio Interface should illuminate.
12) Make sure that the Mic Mute LED on the front panel is not lit.
13) Adjust the mic volume by moving the Audio Level potentiometer until the desired output level is reached.

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14) Test the mic ON/OFF switch on the Belt Pack and also the Mic Mute switch on the Audio Interface for proper operation.

Notes:

- The IR LEDs cannot be seen (if you are human - since the 850nm LED light is outside of human optical sensory range) so make sure that the System Power on the Belt Pack Unit is off when it is not in use.
- If the Audio Level output is set to a high level, please avoid touching the mic element on the central medallion.
- If the System Power LED on the Belt Pack turns red, then the battery is low and a battery recharge is required.
- If Microphone LED on the Belt Pack flashes, then a fault condition is present (i.e. bad IR LED in the lanyard necklace or a bad fold in the lanyard necklace etc…). Cycle the power, check the lanyard to Belt Pack cable connection and check the batteries. If checking these conditions and recycling power does not clear the problem, then call Vaddio Technical Support Team.
- Inside the Belt Pack there is a 6-position Dip switch. The first 3 positions are used to set the transmit frequency, switches 4 and 5 are unused/future and switch 6 can be used to turn off the IR LEDs in case the Presenter wants to use the Lanyard, Belt Pack and Audio Interface as a wireless mic only. If switch 6 is activated, the system will not track the lanyard.

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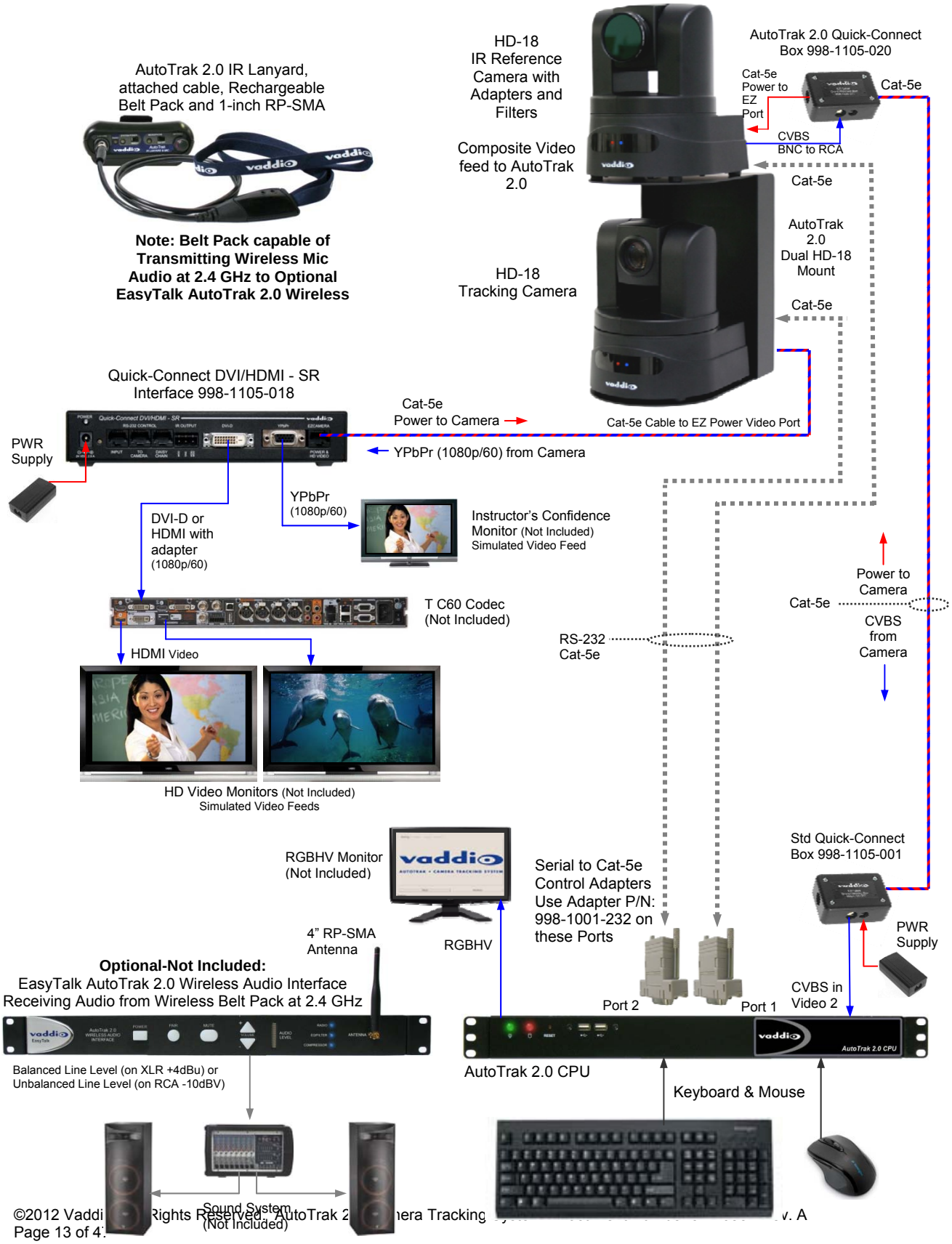
Basic System Configuration 1:

AutoTrak 2.0 999-7250-000 Dual HD-18 Kit with Quick Connect DVI/HDMI Interface (North America Only)



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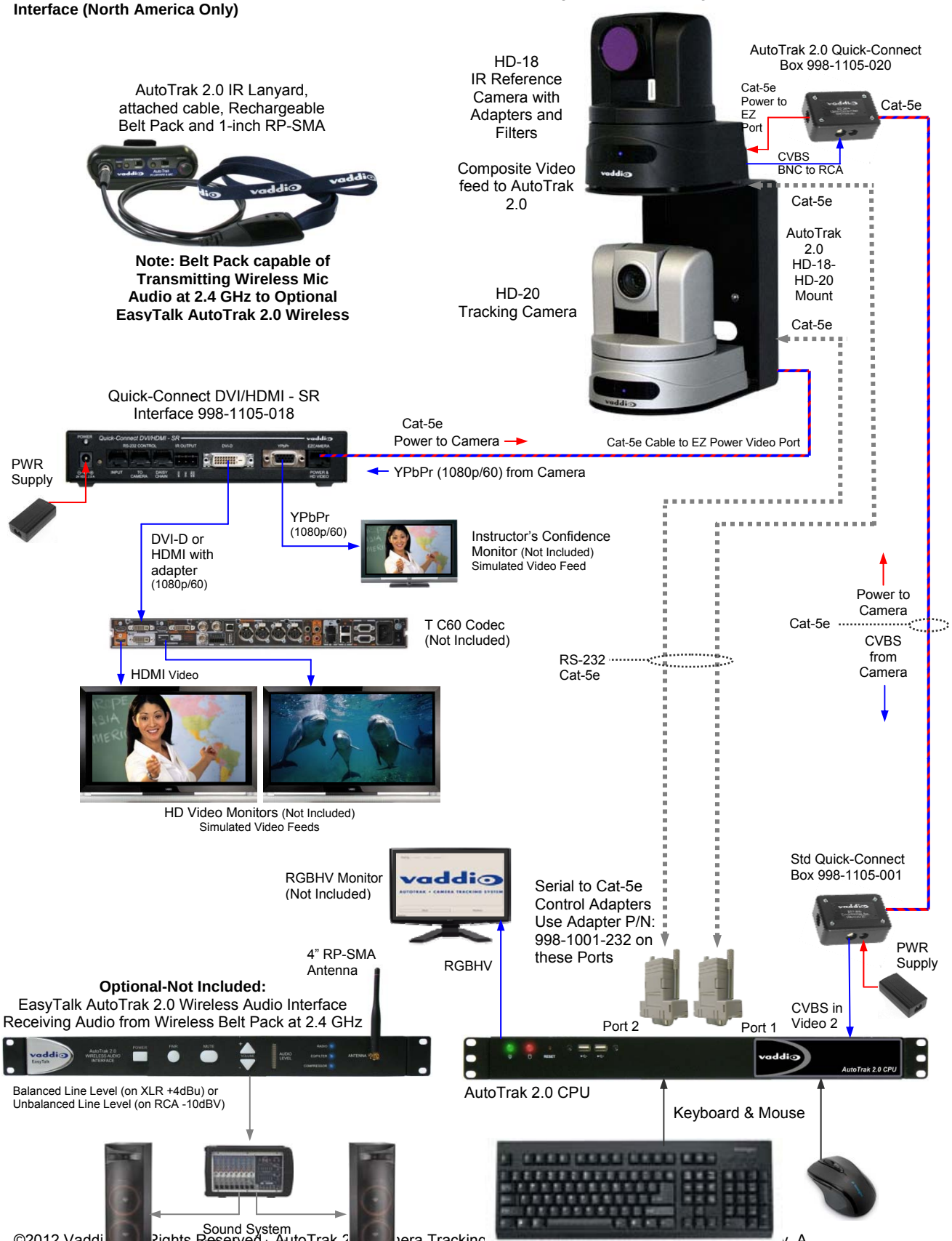
Basic System Configuration 2:

AutoTrak 2.0 999-7260-000 HD-18 IR Reference Camera and HD-20 Tracking Camera Kit with Quick Connect DVI/HDMI Interface (North America Only)



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The AutoTrak 2.0 CPU, Camera and Software Operating Instructions

The AutoTrak 2.0 CPU is a 1-RU rack mount computer that comes preloaded with the AutoTrak 2.0 software. It is a closed system based on a Linux operating system.

The AutoTrak 2.0 CPU uses an Intel® Atom™ Dual Core Processor, Intel Graphics Media Accelerator, 1GB DDR2 Memory with six (6) USB ports, four(4) RS-232 Ports, two (2) PS/2 interfaces for keyboard/mouse, 16GB Compact Flash and Video capture card. CPU specifications and cosmetics are subject to change.

Getting Started:

1) Take the AutoTrak 2.0 CPU out of the box to start the system connection.
2) Connect two (2) of the 998-1001-232 control adapters (check part numbers carefully) to serial com ports 1 and 2. The IR Reference camera will be connected to Port 1 and the Tracking Camera will be connected to Port 2.
3) Connect the Keyboard and the Mouse to the AutoTrak 2.0 CPU using USB ports
4) Connect the computer monitor (not included) to the DE-15 (HD-15) on the AutoTrak 2.0 CPU.
5) Connect the AC Power Cord, but do not turn on the computer yet.

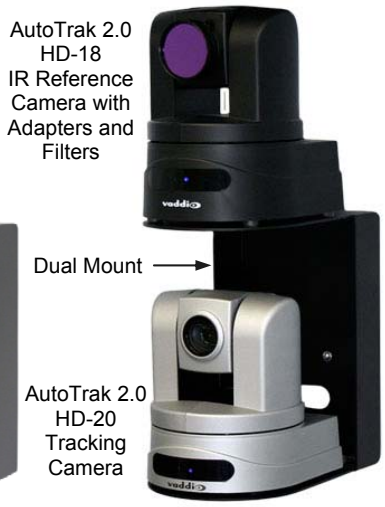
Mounting the Cameras and Distance Limits:

The AutoTrak 2.0 systems are shipped with either a dual HD-18 camera mount or an HD-18 and HD-20 Camera that can be mounted to a wall permanently or be mounted to an optional cart system. The vertically stacked camera arrangement is required for the AutoTrak 2.0 software to track properly.

Consider the placement of the cameras carefully; the range of use is from 12' (3.65m) and up to 40' (12.2m). System positioning is critical for proper and consistent operation. If the distance from the presenter to the wall mounting location is greater than 40' (12.2m), then an optional portable cart system is recommended to place the cameras in range of the IR Lanyard, which is required for the tracking system to acquire the IR LED light in order to track the presenter.

Mount the cameras with the IR Reference Camera on the top shelf of the dual mount and mount the Tracking Camera on the lower shelf of the dual mount.

AutoTrak 2.0 999-7250-000 Dual HD-18 Cameras for IR Reference and Tracking Cameras



AutoTrak 2.0 999-7260-000 HD-18 IR Reference Camera and HD-20 Tracking Camera

Please mark and test the cables prior to termination. Please do not connect these cameras up to the Quick-Connect systems using the "guess/trial and error" method.

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Installing the PTZ Cameras

- **The IR Reference Camera** requires two (2) Cat-5e cables run from the head-end equipment; one for composite video and power, and one for control. The installation steps for the IR Reference Camera are as follows:

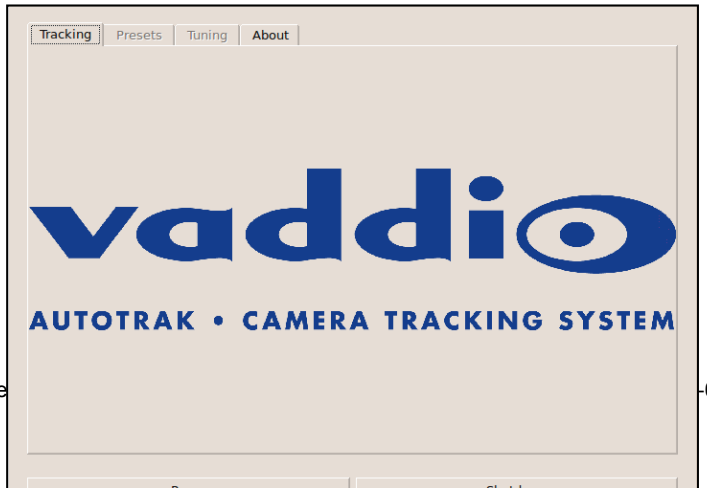
1) Identify the IR Reference Camera, the HD-18 with the 37mm lens adapter on the lens
2) Screw on the 37mm to 58mm adapter ring
3) Screw on the 58mm polarizing filter
4) Screw on the 58mm band-pass IR filter.
5) Mount this camera to the top shelf of the dual mount with the supplied ¼"-20 screws.
6) Connect the 18"/45.8mm BNC to RCA Video Cable to the Composite (CVBS) BNC-M video connector on the back of the camera and connect the RCA-M connector to the RCA–F connector on the AutoTrak 2.0 Quick-Connect Box 998-1105-020.
7) Connect one side of the 12"/30.48cm Cat-5e Patch Cable to the EZ Power Video RJ-45 connector on the camera and the other end of the cable to the AutoTrak 2.0 Quick-Connect Box 998-1105-020 to the end marked "IR Reference Camera". This connector is only providing power to the EZ Power Video Port.
8) Connect the 1st Cat-5e cable (up to 100'/30.5m not supplied) to the AutoTrak 2.0 Quick-Connect Box 998-1105-020 to the RJ-45 port labeled "AutoTrak 2.0". This Cat-5e cable is terminated at the head end to the other Quick-Connect Box (998-1105-001) RJ-45 connector.
9) Take the composite output of the Quick-Connect Box 998-1105-001 and connect it to the AutoTrak 2.0 CPU composite video input (you'll need a RCA-M to RCA-M cable, which is not supplied) to the center yellow composite input on the back of the AutoTrak 2.0 CPU.
10) Connect the 2nd Cat-5e cable (up to 100' /30.5m - not supplied) to the RS-232/IR port on the camera, and at the head-end connect it to the Control Adapter that is on **COM PORT 1** on the CPU.
11) Connect the 24VDC power supply to the 998-1105-001 Quick-Connect Box.

- **The Tracking Camera** requires two (2) Cat-5e cables run from the head-end equipment; one for YPbPr video and power, and one for control.

1) Identify the HD-18 Tracking Camera (the normal camera without the 37mm lens adapter).
2) Mount this camera on the lower shelf of the mount with the supplied ¼"-20 screws
3) Run one Cat-5e (up to 100/30.5m) cable between the EZ Power Video Port on the HD-18 camera to the EZCamera Power & HD Video Port on the 998-1105-016 HD-18 Quick-Connect SR Interface.
4) Connect the HD Video YPbPr output to a high definition monitor (if using the HD-18 Quick-Connect SR Interface) or the DVI-D or the YPbPr output (or both) to a HD monitor.
5) Run the 2nd Cat-5e from the RS-232/IR port on the back of the HD-18 camera to Control Adapter that is connected to **COM PORT 2** on the CPU
6) Connect the 24VDC Power supply to the HD-18 Quick-Connect Interface.

Booting up the System and Initial Set-up:

1) With the AutoTrak 2.0 Belt Pack on (at least the system power switch on) and the lanyard plugged into the belt pack (with known good batteries), place the lanyard/belt pack in a centered location approximately 20' (6.096m) from the AutoTrak 2.0 stacked camera assembly and about 5' (1.524m) off the floor to imitate the height of a presenter/instructor.
2) Turn on the cameras and AutoTrak 2.0 CPU. The AutoTrak 2.0 CPU should boot up to the AutoTrak 2.0 application automatically. Click the Pause button to enter setup. The screen shot is below.

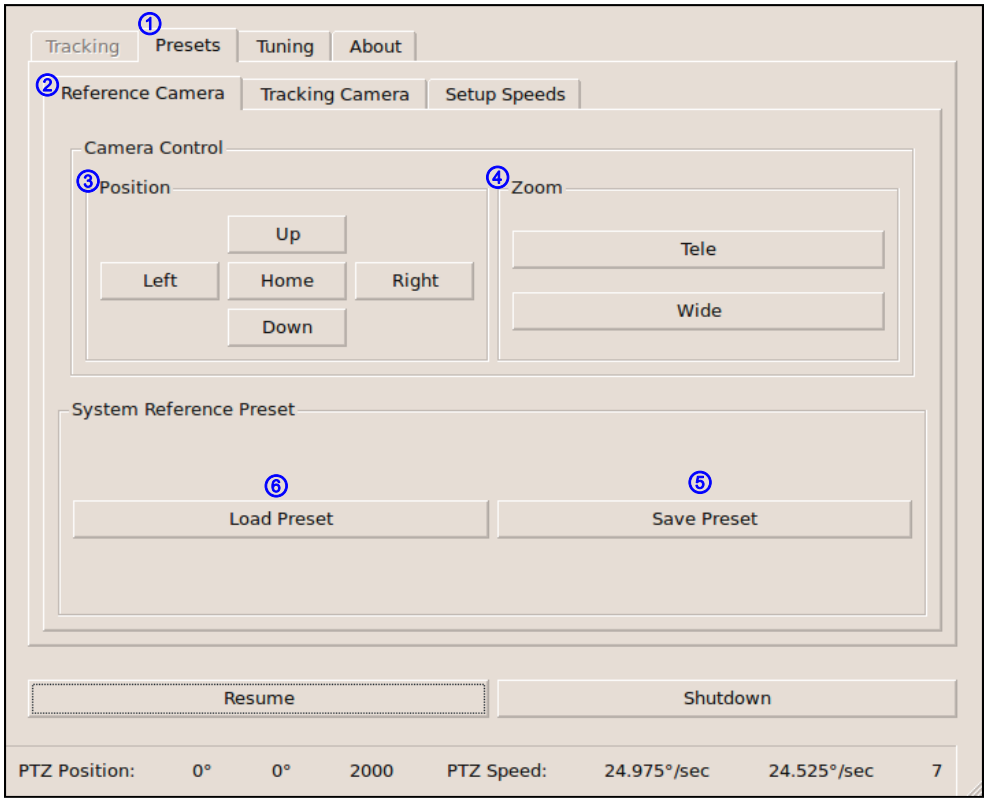


3) Plug the IR Reference Camera into a monitor for set-up purposes. With the IR Reference plugged into a monitor, the IR LEDs should be visible as white dots on a black background. These LEDs will be tracked as the presenter moves around the room. To aid in set-up, a temporary RCA Y-cable may be used to split the signal between the monitor and CPU.

4) Select the Presets Tab①, then the Reference Camera Tab②. Use the Position③ buttons to Center the IR lanyard in the monitor display horizontally and vertically.

5) Use the Zoom④ buttons (tele & wide) to increase the size of the lanyard in the display until the is approximately 1/3 the size of the video image on the monitor. Use the Position③ up/down buttons to locate the lanyard in the upper 1/2 of the screen so the presenter's head is in the top ½ of the screen.

6) Click the Save⑤ button to save this default zoom and tilt position for the IR Reference Camera. The Load⑥ button is for recalling a previously saved preset.



7) Plug the composite video from the IR Reference Camera back into the middle yellow RCA-F jack on the back of the AutoTrak 2.0 CPU.

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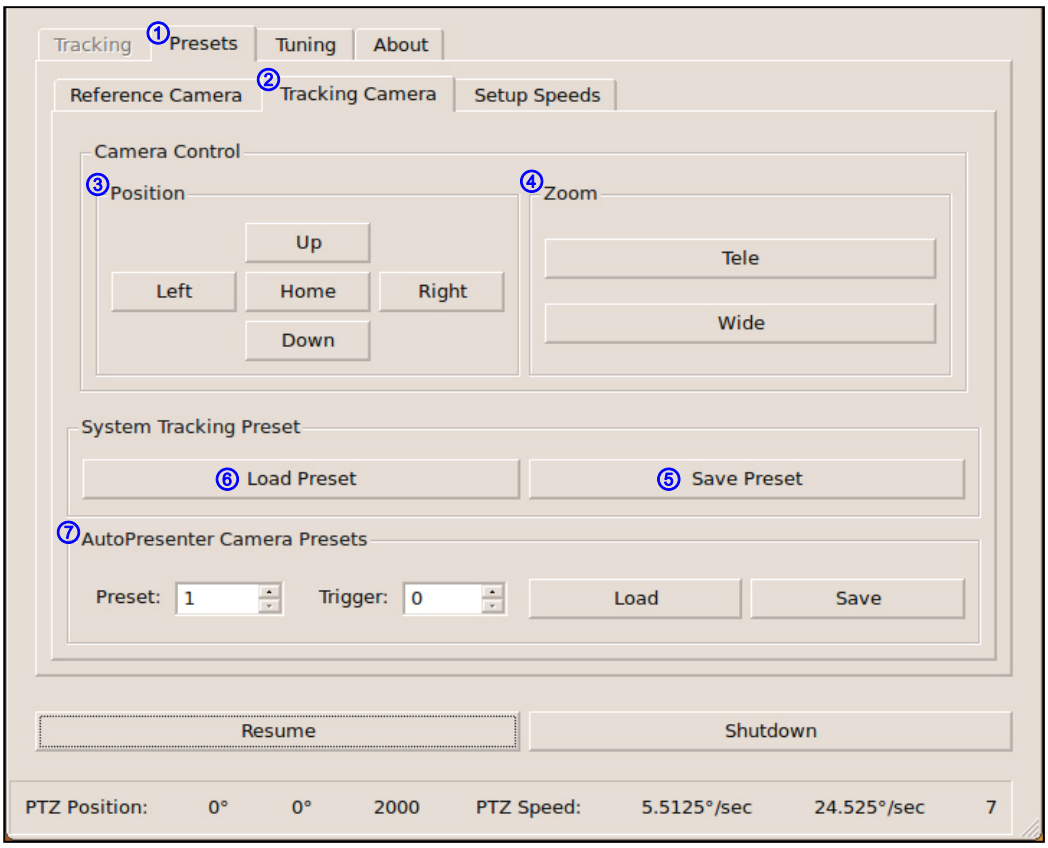
8) With the Tracking Camera plugged into a monitor, select the Presets① Tab and then the Tracking Camera② Tab. Adjust the Position③ buttons and the Zoom④ buttons to tilt/zoom the camera to the desired presenter framing. Set the zoom position and the tilt angle of the Tracking Camera and click on the Save Preset Button⑤ to store the System Tracking Preset. The Load⑥ button is for recalling a previously saved preset.



Note: The AutoPresenter Camera Presets ⑦ are supported by AutoTrak 2.0 when used in conjunction with an AutoPresenter 6x1 Seamless switcher and Automated Camera Preset Controller. A later section explains the connectivity and set-up when using these devices together.

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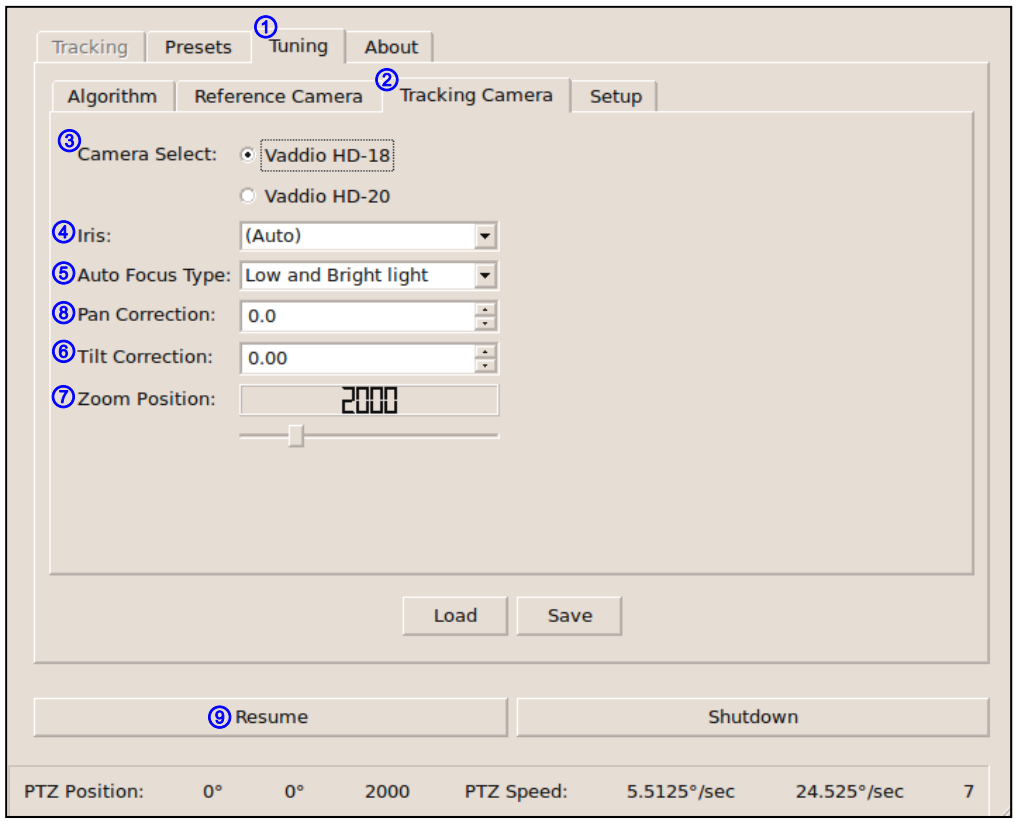
9) On the Tuning① / Tracking② Camera page, Camera Select③ automatically detects the camera is being used as the Tracking Camera. The auto-detect choices are between the HD-18 and HD-20.
10) The Iris④ control allows the user to set the specific f-stop (iris value) of the camera for challenging lighting environments or use the system in Automatic mode. *The system will auto set this value.*
11) The Auto Focus Type⑤ allows the user to select the type of auto focus that is preferred. The Low and Bright Light setting is effective for bright to low light conditions. The Low Light setting allows for faster focusing in low light conditions. *The system will auto set this value.*
12) The Tilt Correction⑥ angle is to compensate for the different heights of the camera lens when the HD-18 cameras are mounted in a co-linear stacked array which is a highly preferred and recommended configuration. This correction angle is automatically figured by the system when the Tracking Camera Preset or the Reference Camera Preset is saved assuring that both cameras are pointing at the same target.
13) The Zoom Position⑦ is a reference position stored as part of the system Tracking Camera Preset.
14) The Pan Correction⑧ parameter should only be used if; ***there is absolutely no way that the cameras can be stacked in a co-linear array and have to be used side by side***. The side by side configuration is not recommended. The stacked configuration is highly preferred.



To start AutoTrak 2.0 click the Resume⑨ button.

15) After twenty about (20) seconds the IR Reference Camera will search and locate the IR lanyard. The lanyard was placed earlier at a specific central location and height and distance from the cameras in previous steps.

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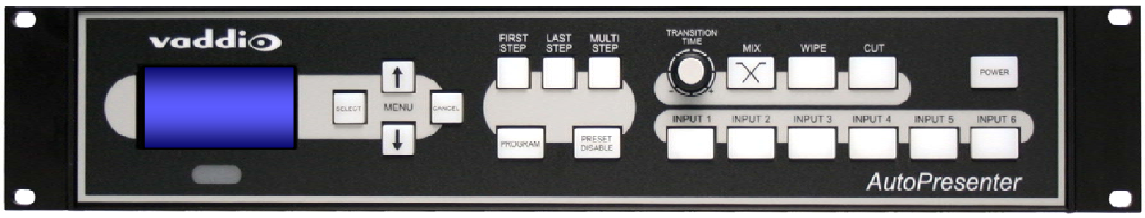
16) Once the lanyard is located, the Tracking Camera will acquire a shot of the lanyard. A slight manual adjustment may be necessary if the lanyard is not centered in the shot. To make the fine adjustment, loosen the ¼-20 screw(s) holding the Tracking Camera to the mount and move the Tracking Camera until the lanyard is centered in the display monitor. Re-tighten the ¼-20 screw and initial setup is complete.

IMPORTANT NOTES:

Important Notes Regarding AutoTrak 2.0

- ☑ When setting up the IR Reference Camera, avoid the lights on the ceiling or other bright light sources. Bright light from any source or sunlight can overwhelm IR reception in the camera, making it impossible to distinguish the lanyard from the background light. Tilt the Reference Camera down and away from ceiling light cells to limit the stray light.
- ☑ The IR Reference Zoom Field of View (FOV) should be as wide as possible. When the IR Reference Camera is zoomed in too far on the tele end, the pan search speed must be slowed down, which could cause the acquisition of the presenter's lanyard to take a much longer time.
- ☑ The AutoTrak 2.0 CPU is a computer running a Linux OS. Please do not remove power from the AutoTrak 2.0 CPU without first shutting the system down, as you would any other business computer. After the AutoTrak 2.0 CPU is shut down it is safe to remove power. Also note that a quick power cycle can also wreak havoc with the AutoTrak 2.0 CPU, just like any other computer.
- ☑ When the system is not being used, please note that the System Power on the belt pack should be turned off and the blue LED should be off to save battery life. The Lanyard battery life is expected at 6 to 8 hours, so please change or recharge the batteries regularly to insure proper IR LED light levels.
- ☑ Refer to the **Control Parameter Descriptions** table for definitions of the terminology used in the AutoTrak 2.0 Software

- **Using the AutoTrak 2.0 as an Input to the AutoPresenter for Camera Presets**
  (If the AutoTrak 2.0 and AutoPresenter are not being used together in a system – skip this section)



- AutoTrak 2.0 Tracking Camera presets require configuration in both AutoTrak 2.0 and AutoPresenter.

- In the AutoTrak 2.0, the actual camera preset positions are determined and stored. Each preset is selected based on a Preset Index and a Preset Trigger (AutoPresenter trigger number).

- In AutoPresenter, Presets (Input only) are identified and stored to a trigger number (1-72). A menu item ("AutoTrak 2.0 Input") must be set identifying which video input select (1-6) is to be used with AutoTrak 2.0 video output.

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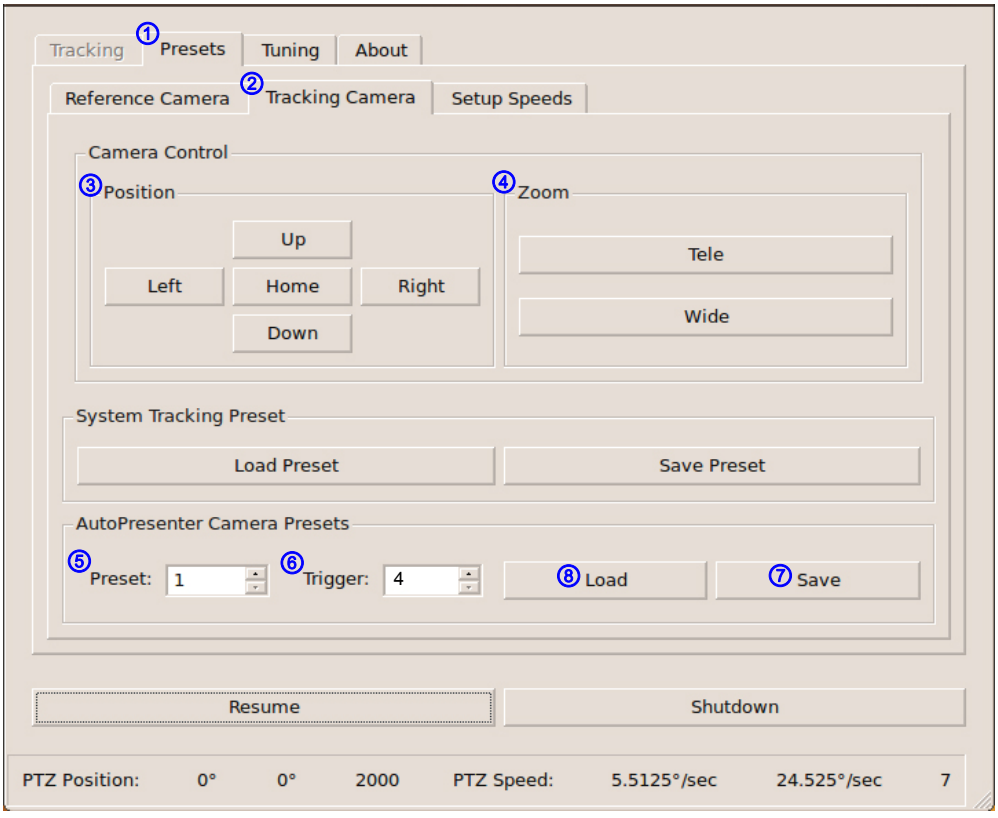
- The AutoPresenter will send a command to the AutoTrak 2.0 when a Preset Trigger is tripped with AutoTrak 2.0 input select.

To Connect the AutoTrak 2.0 to AutoPresenter (skip this section if an AutoPresenter is not part of the system):

1) Take the supplied 998-1001-232 Control Adapter and attach it to COM PORT 3 on the CPU.
2) Attach the 998-7200-232 Control Adapter to the RS-232 THRU port on the back of the AutoPresenter.
3) With a Cat 5e cable (not supplied) connect the two (2) control adapters list in steps 1 & 2 above.
4) A system shutdown and reboot will be required for the AutoTrak 2.0 to recognize the AutoPresenter. For reference, the AutoPresenter port is identified on the Tuning/Setup screen.

To Set the Tracking Camera Presets in AutoTrak 2.0 to be activated by AutoPresenter:

1) In the AutoPresenter Menus, select the menu item "AutoTrak 2.0 Input" and select which input (1-6) to which the AutoTrak 2.0 will be connected. This way up to six (6) trigger inputs, between 1 and 72, can be dedicated to preset positions for the AutoTrak 2.0 Tracking Camera. These presets can be incorporated into the system and use the Vaddio trigger devices such as PresenterPOD, StepVIEW mats, AutoVIEW IR Sensors, MicVIEW push to talk mics or TouchVIEW RF buttons.
2) To set Tracking Camera presets, put the system in pause mode to get at the menus and click on the Presets① tab and then the Tracking Camera② tab.
    a. Adjust the Position③ (Pan/Tilt) and Zoom④ controls for the desired preset position.
    b. Assign this position Preset⑤ # (1-6) under the AutoPresenter Camera Presets area.
    c. Assign Trigger⑥ # (1-72) that is associated with the AutoPresenter trigger preset.
    d. Click on the Save⑦ button.
    e. To recall a preset position, set the Preset⑤ # (1-6) and click on Load⑧.



3) As an example, if the AutoPresenter video input for the AutoTrak 2.0 is Input 6, the AutoTrak 2.0 preset is #1 which is triggered by input trigger #4 with a trigger device. Then anytime the presenter trigger input #4, the AutoPresenter will switch to Input 6 and the AutoPresenter will communicate to the AutoTrak 2.0 which will send the Tracking Camera to go to Preset #1.

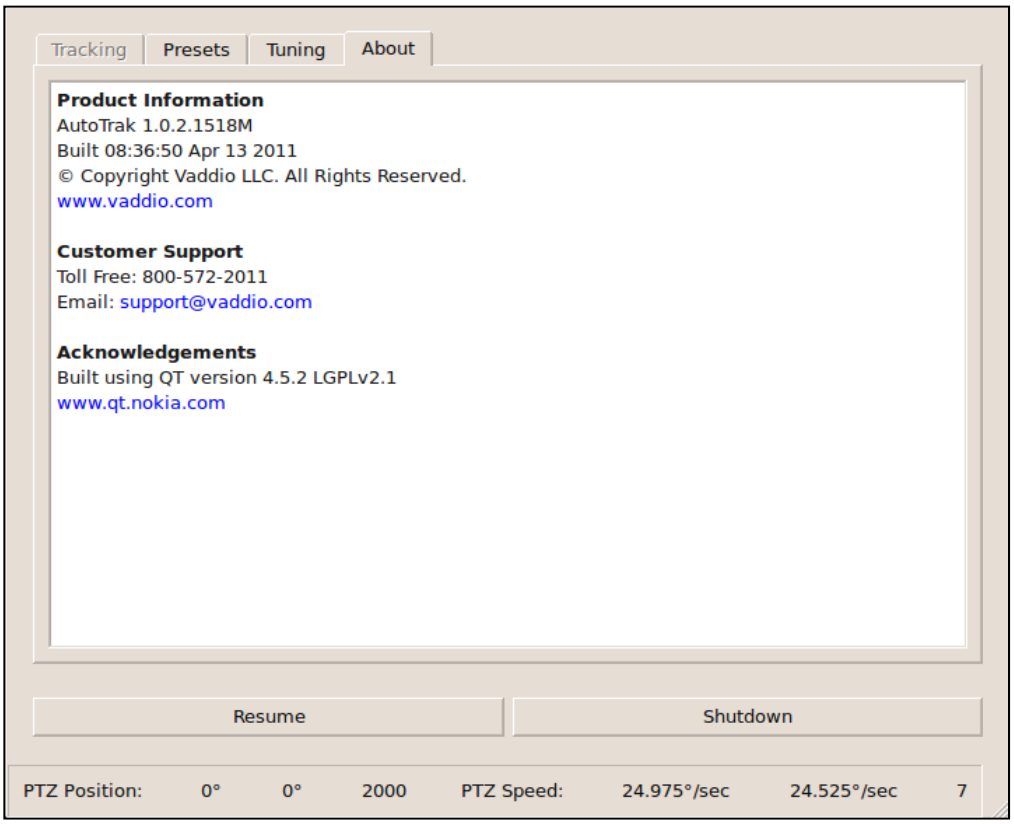
Updating the System Software:

1) To update the system software, contact Vaddio Tech Support or go to the Vaddio website to get the Zip File. Copy the file to Root Directory of USB Flash Drive (not included).
2) Turn off AutoTrak 2.0 CPU.
3) Insert the USB flash drive into any available USB port of the AutoTrak 2.0 CPU.
4) Turn ON the AutoTrak 2.0 CPU. When the system recognizes a valid update file, a dialog box will open and ask the user to confirm or cancel the firmware update.
5) Confirm the update request and the update will be applied.
6) The system will reboot and be ready to operate.
7) Remove the USB flash drive and the update process is complete.

Note: On earlier versions of the software, the Update Tab is used to start the update.

The About Tab:

The About Tab's purpose in life is to provide information on the Software Revision, supply Technical Support contact information and certain acknowledgements.



All Menu Screen Shots and Control Descriptions:

Tracking/Main Page

Control	Action	Description
Pause/Resume Button	Click/Press	Stop/Interrupt tracking
Shutdown Button	Click/Press	Close/Shutdown system

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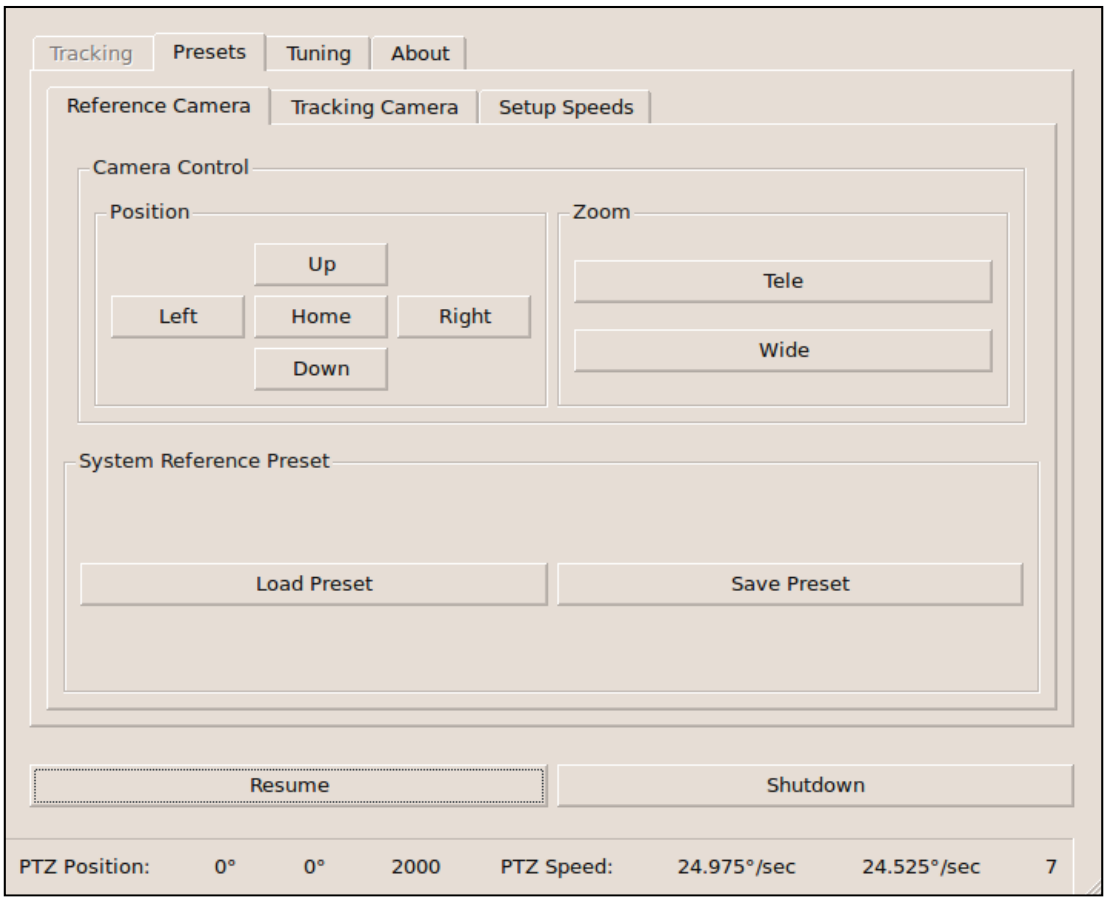
All Menu Screen Shots and Control Descriptions *(continued):*

Presets: Reference Camera



Control	Action	Description
Camera Control Position **Up** Button	Click/Press and hold	Direct Reference Camera Up
Camera Control Position **Down** Button	Click/Press and hold	Direct Reference Camera Down
Camera Control Position **Left** Button	Click/Press and hold	Direct Reference Camera Left
Camera Control Position **Right** Button	Click/Press and hold	Direct Reference Camera Right
Camera Control Position **Home** Button	Click/Press and hold	Direct Reference Camera Home
Camera Control Zoom **Tele** Button	Click/Press and hold	Direct Reference Zoom In (Tele)
Camera Control Zoom **Wide**	Click/Press and hold	Direct Reference Zoom Out (Wide)

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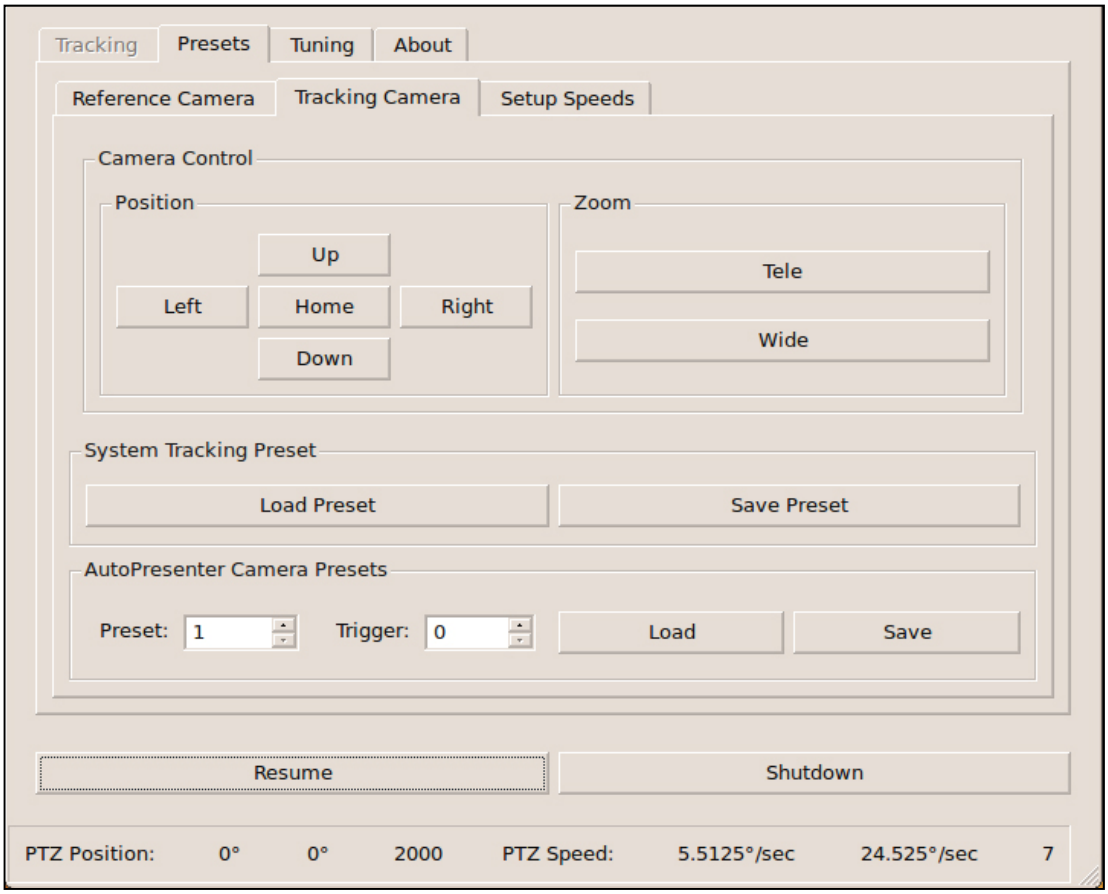
Button		
System Reference **Load Preset** Button	Click/Press	Load Reference Camera Preset
System Reference **Save Preset** Button	Click/Press	Save Current Zoom/ Tilt Reference Camera Preset
Pause/Resume Button	Click/Press	Pause or Return to Tracking
Shutdown Button	Click/Press	Close/Shutdown system

All Menu Screen Shots and Control Descriptions *(continued):*

Presets: Tracking Camera & Presets for use with AutoPresenter



Control	Action	Description
Camera Control Position **Up** Button	Click/Press and hold	Direct Tracking Camera Up
Camera Control Position **Down** Button	Click/Press and hold	Direct Tracking Camera Down
Camera Control Position **Left** Button	Click/Press and hold	Direct Tracking Camera Left
Camera Control Position **Right** Button	Click/Press and hold	Direct Tracking Camera Right
Camera Control Position **Home** Button	Click/Press and hold	Direct Tracking Camera Home
Camera Control Zoom **Tele** Button	Click/Press and hold	Direct Tracking Zoom In (Tele)
Camera Control Zoom **Wide** Button	Click/Press and hold	Direct Tracking Zoom Out (Wide)
System Tracking **Load Preset** Button	Click/Press	Load Tracking Camera Preset
System Tracking **Save Preset** Button	Click/Press	Save Current Tilt & Zoom as Tracking Camera Preset
AutoPresenter Presets - Preset: #	Click/Press Up/Down	Select AutoTrak 2.0 preset index (1-6)
AutoPresenter Presets - Trigger: #	Click/Press Up/Down	Select AutoPresenter Trigger(1-72)

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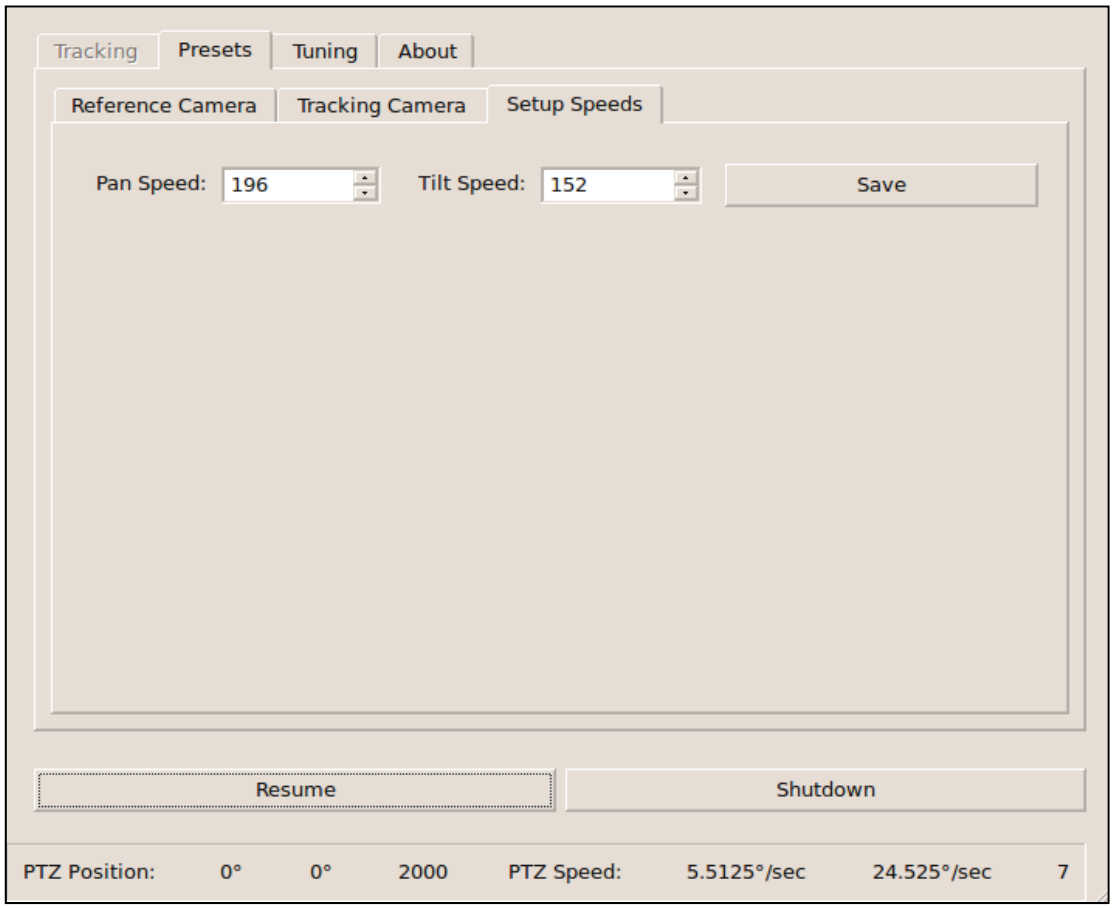
AutoPresenter Presets **Load** Button	Click/Press	Load selected preset
AutoPresenter Presets **Save** Button	Click/Press	Save selected preset
Pause/Resume Button	Click/Press	Pause or Return to Tracking
Shutdown Button	Click/Press	Close/Shutdown system

Note 1: AutoPresenter Presets Trigger Number "0" denotes no presets present.
Note 2: Status bar shows the Tracking Camera Pan/Tilt/Zoom positions and Pan/Tilt Speeds.

All Menu Screen Shots and Control Descriptions *(continued):*

Presets: Setup Speeds



Feature	Action	Description
Pan Speed	Click/Press Up/Down	Select Pan Speed
Tilt Speed	Click/Press Up/Down	Select Tilt Speed
Save Button	Click/Press	Save Pan/Tilt Speeds
Pause/Resume Button	Click/Press	Pause or Return to Tracking
Shutdown Button	Click/Press	Close/Shutdown system

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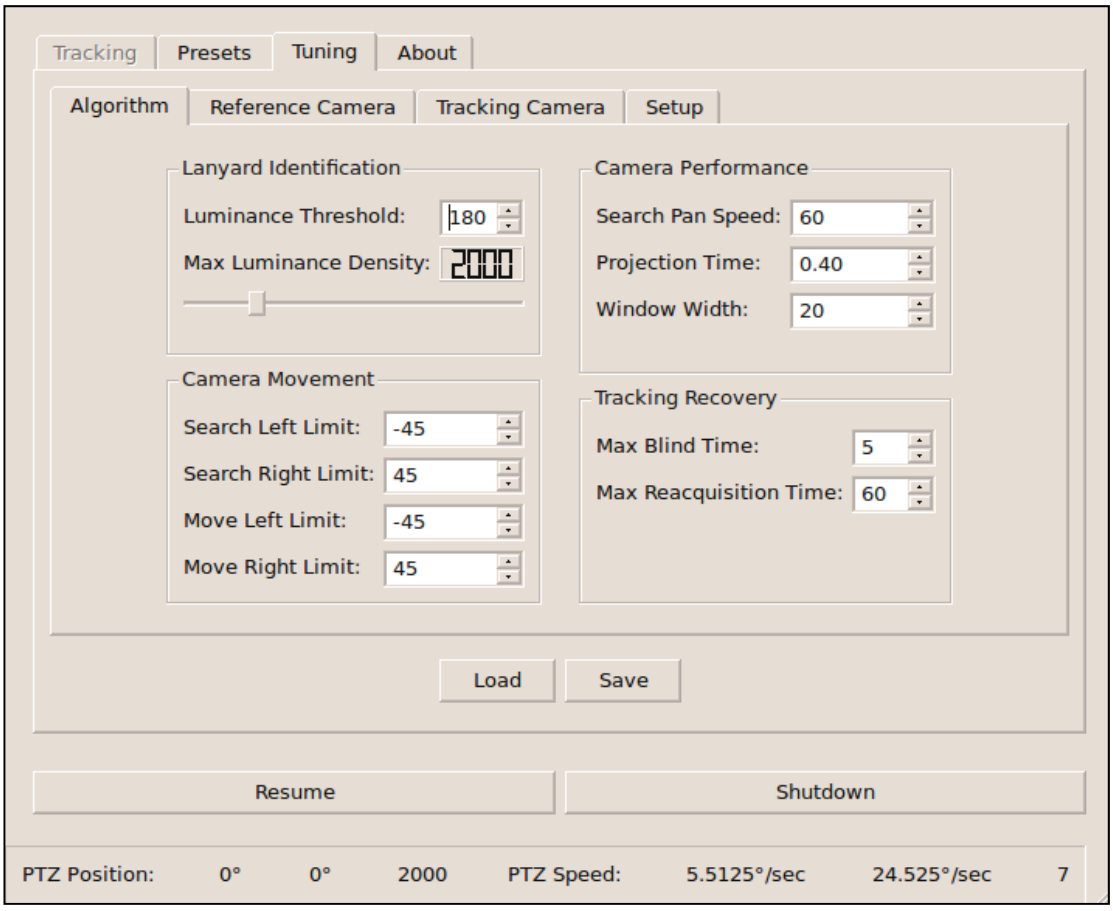
All Menu Screen Shots and Control Descriptions *(continued):*

Tuning: Algorithm



Control	Action	Description
Luminance Threshold	Click Up/Down	Minimum illumination to be considered a valid target (1-255)
Max Luminance Density	Slider Left/Right	Max luminance points to be considered a valid target (1-9999)
Search Left Limit	Click Up/Down	The Left most location, in degrees, to search for target.
Search Right Limit	Click Up/Down	The Right most location, in degrees, to search for target.
Move Left Limit	Click Up/Down	The Left most location, in degrees, camera can move.
Move Right Limit	Click Up/Down	The Right most location, in degrees, camera can move.
Search Pan Speed	Click Up/Down	Pan search speed and max tracking camera speed
Search Tilt Position	Click Up/Down	Reference camera tilt angle, in degrees
Projection Time	Click Up/Down	Tracking speed adjustment where higher value reduces speed.

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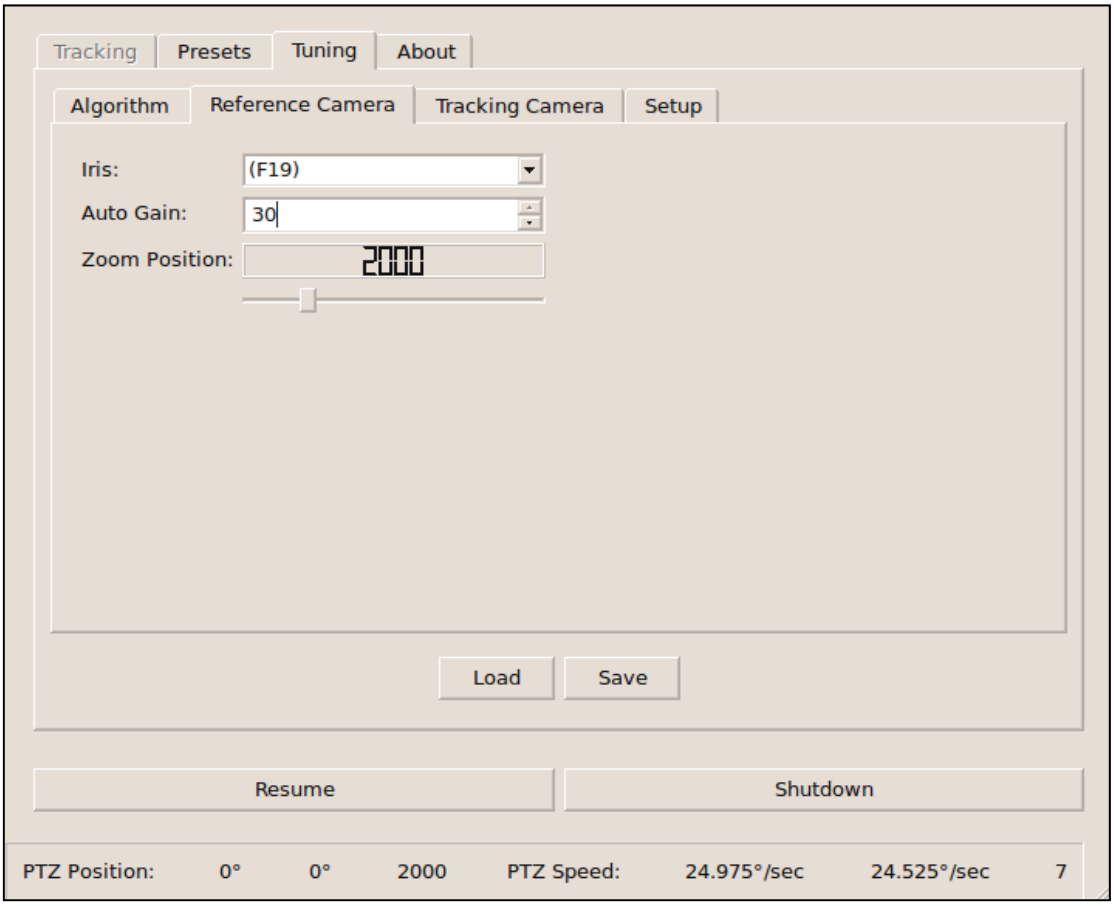
Window Width	Click Up/Down	Wider Window Width reduces left-right movement. Narrow Window Width increases the left-right movement of the camera
Max Blind Time	Click Up/Down	Time, in sec, to wait after target loss to begin target re-acquisition
Max. Reacquisition Time	Click Up/Down	Time, in sec, to search for target before going into standby mode.
Load Button	Click/Press	Load all tuning setting
Save Button	Click/Press	Save all tuning setting
Pause/Resume Button	Click/Press	Pause or Return to Tracking
Shutdown Button	Click/Press	Close/Shutdown system

All Menu Screen Shots and Control Descriptions *(continued):*

Tuning: Reference Camera



Feature	Action	Description
Iris	Click Up/Down	Manual Mode allows Iris adjustment in steps (f-stops)
Auto Gain	Click Up/Down	Brightness gain used to make IR lanyard more visible (0-30)
Zoom Position	Slider Left/Right	Zoom position, in steps (0- 9984), auto-stored when Reference Camera Preset is saved.
Load Button	Click/Press	Loads previously saved settings
Save Button	Click/Press	Saves tuning settings for IR Reference Camera
Pause/Resume	Click/Press	Pause or Return to Tracking

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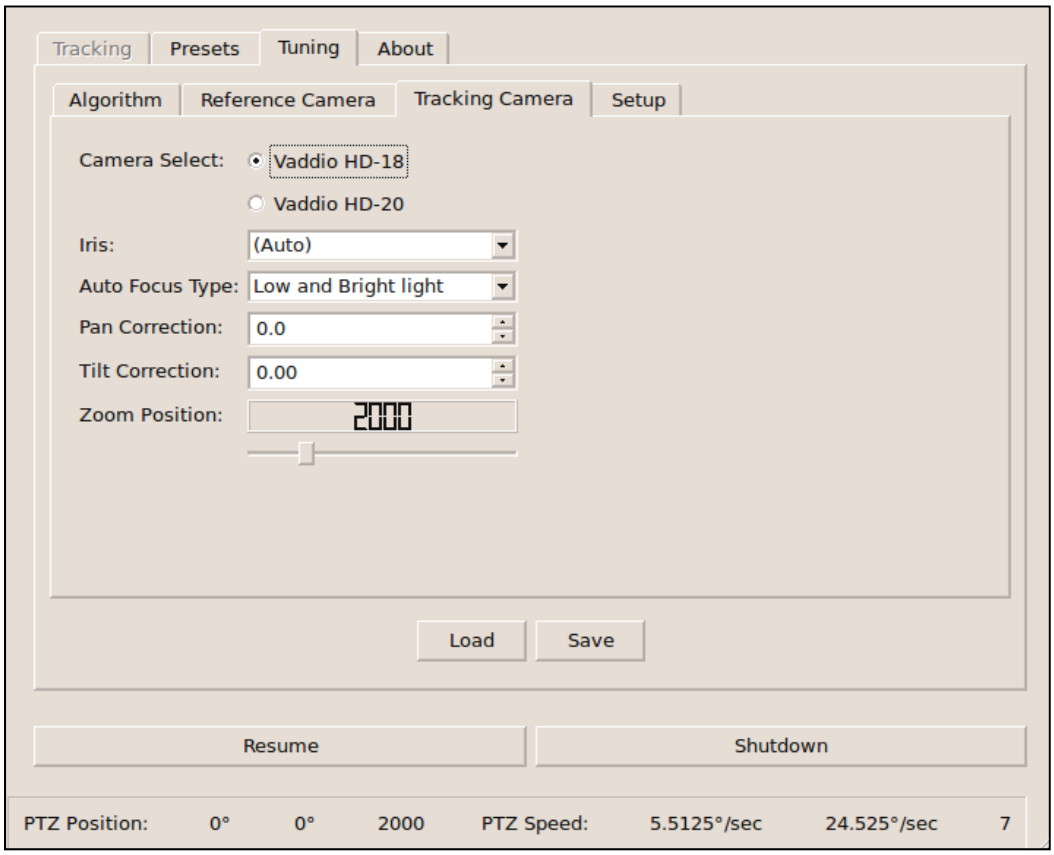
Button		
Shutdown Button	Click/Press	Close/Shutdown system

All Menu Screen Shots and Control Descriptions *(continued):*

Tuning: Tracking Camera



Feature	Action	Description
Camera Select	Click On	The system will auto-detect if a HD-18 Tracking Camera or HD-20 Tracking Camera is being used.
Iris	Click Up/Down	Auto Mode Manual Mode allows Iris adjustment in steps (f-stops) The system will auto set this value to start.
Auto Focus Type	Click Up/Down	Select Between “Low and Bright Light” Conditions or “Low Light” Conditions. The “Low and Bright Light” setting works best in rooms with bright spots and reflections (uneven lighting). The “Low Light” Setting works best in low to medium, even lighting environments and focusing is faster. The system will auto set this value to start.
Pan Correction	Click Up/Down	Value, in degrees, to adjust reference location used to move Tracking Camera. (FOR USE ONLY WITH SIDE BY SIDE CAMERA

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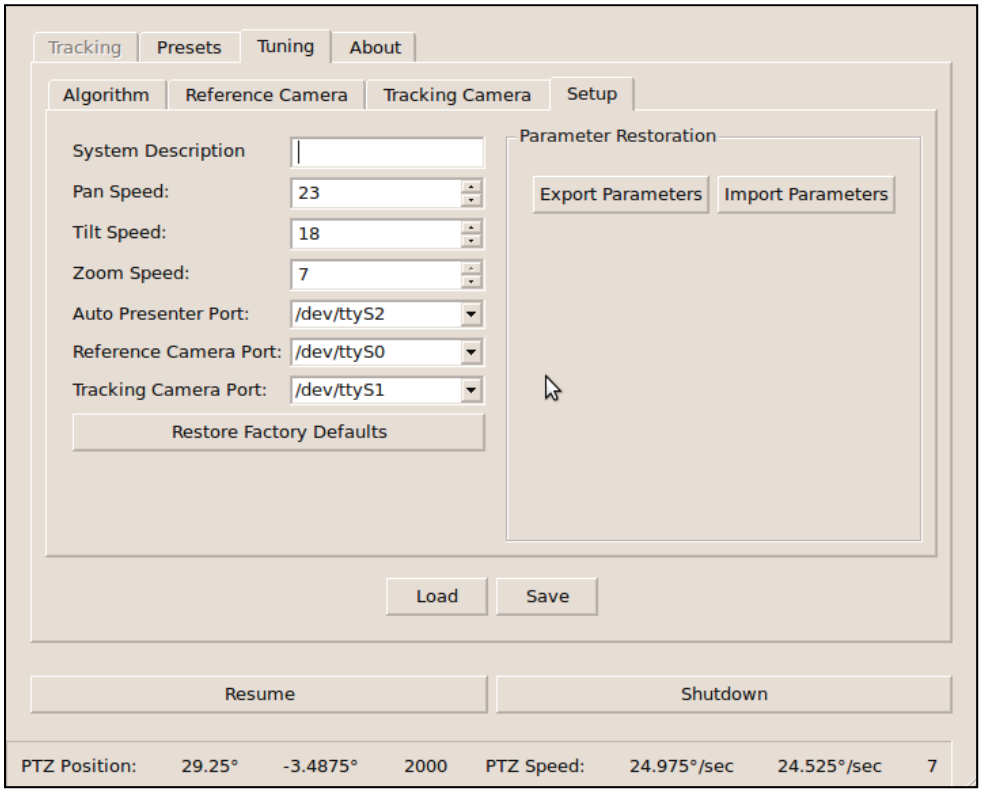
		INSTALLATIONS - THIS CONFIGURATION IS NOT RECOMMENDED)
Tilt Correction	Click Up/Down	Value, in degrees, to adjust reference Tilt location used for the Tracking Tilt.
Zoom Position	Slider Left/Right	Zoom position, in steps (0- 9984), auto-stored when Tracking Camera Preset is saved.
Load Button	Click/Press	Loads previously saved settings
Save Button	Click/Press	Saves tuning settings for Tracking Camera

NOTE: Bright and natural sunlight containing too much IR light can hinder AutoTrak 2.0's performance.

All Menu Screen Shots and Control Descriptions *(continued):*

Tuning: Setup



Feature	Action	Description
System Description	Type # and letters	Names file for Exporting Parameters
Pan Speed	Click Up/Down	Max Pan speed, in degrees/Sec
Tilt Speed	Click Up/Down	Max Tilt speed, in degrees/Sec
Zoom Speed	Click Up/Down	Max Zoom speed
Auto Presenter Port	Drop Down Select	Device Name for AutoPresenter Serial Port
Reference Camera Port	Drop Down Select	Device Name for Reference Camera Serial Port
Tracking Camera Port	Drop Down Select	Device Name for Tracking Camera Serial Port
Restore Factory Defaults*	Click	Sets all parameters to factory preset defaults
Export Parameters	Click/Press	Opens dialogue box to allow user to export (save or store) current AutoTrak 2.0 parameters to local or flash drive
Import Parameters	Click/Press	Opens dialogue box to allow user to export (store) current AutoTrak

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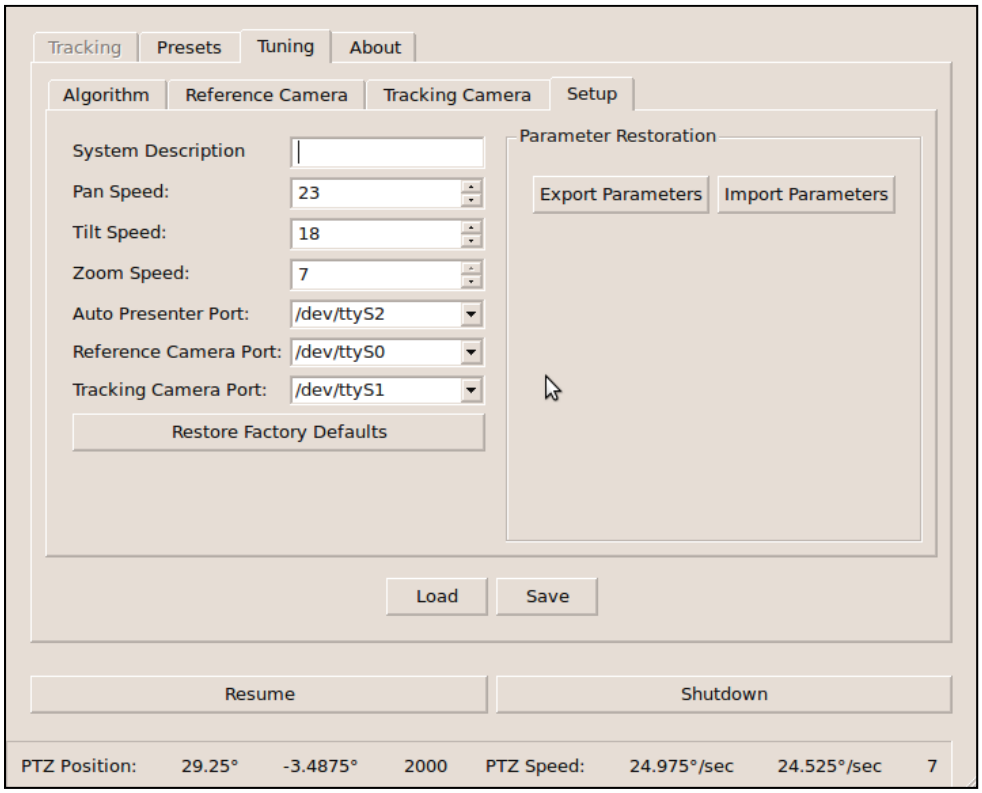
		2.0 parameters. A USB drive must be inserted before clicking this button. The default location is the USB drive (a path such as /media/sdxx). Alternatively, the parameter file can be saved locally at /home/Vaddio.
Load Button	Click/Press	Loads previously saved settings
Save Button	Click/Press	Saves Setup Page settings
Pause/Resume Button	Click/Press	Pause or Return to Tracking
Shutdown Button	Click/Press	Close/Shutdown system

***Pop-up Warning for Restore Factory Defaults:**
If the Restore Factory Defaults button is selected, then the "Are You Sure" dialog box will pop up to protect the previously stored presets and make sure that resetting to the factory defaults is truly intended.
All Menu Screen Shots and Control Descriptions *(continued):*

Tuning: Setup



Feature	Action	Description
System Description	Type # and letters	Names file for Exporting Parameters
Pan Speed	Click Up/Down	Max Pan speed, in degrees/Sec
Tilt Speed	Click Up/Down	Max Tilt speed, in degrees/Sec
Zoom Speed	Click Up/Down	Max Zoom speed
Auto Presenter Port	Drop Down Select	Device Name for AutoPresenter Serial Port
Reference Camera Port	Drop Down Select	Device Name for Reference Camera Serial Port
Tracking Camera Port	Drop Down Select	Device Name for Tracking Camera Serial Port
Restore Factory Defaults*	Click	Sets all parameters to factory preset defaults
Export Parameters	Click/Press	Opens dialogue box to allow user to export (save or store) current AutoTrak 2.0 parameters to local or flash drive
Import Parameters	Click/Press	Opens dialogue box to allow user to export (store) current

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		AutoTrak 2.0 parameters. A USB drive must be inserted before clicking this button. The default location is the USB drive (a path such as /media/sdxx). Alternatively, the parameter file can be saved locally at /home/Vaddio.
Load Button	Click/Press	Loads previously saved settings
Save Button	Click/Press	Saves Setup Page settings
Pause/Resume Button	Click/Press	Pause or Return to Tracking
Shutdown Button	Click/Press	Close/Shutdown system

***Pop-up Warning for Restore Factory Defaults:**
If the Restore Factory Defaults button is selected, then the "Are You Sure" dialog box will pop up to protect the previously stored presets and make sure that resetting to the factory defaults is truly intended.

Control Parameter Descriptions:

Refer to this table for definitions of the terminology used in the AutoTrak 2.0 Software

Luminance Threshold	This is the minimum IR brightness level indicating the IR lanyard is present in the video frame. The actual value is calculated from the video capture data received from the camera. Default = 180 Range 1-255
Max Luminance Density	This is the maximum number of light points to accept the current frame as containing the lanyard. This value could be lowered to restrict false lanyard readings. When a value is read higher then this value, it is ignored, and the "Find Lanyard" processing is restarted. Default = 2000 Range 1-9999
Projection Time	This value is used to reduce the search pan speed based on the projected next position. A larger value will increase the lag time when following the detected lanyard, while lower values will increase the number of camera adjustments. This parameter works in conjunction with the 'Search Pan Speed parameter'. Default = .25
Max Blind Time	This value defines the time to wait after the detected lanyard is lost before re-starting the lanyard search. This parameter is used to account for temporary lanyard loss due to a block condition. Increasing the value will delay the re-start of the Find Lanyard search. Higher values may be counter productive where lanyard loss is due to 'Bright Spots'. Bright spots are non-lanyard light sources which mask out the IR light. Default = 5 seconds.
Search Left Limit	This value, in degrees, is the leftmost point of travel for the camera lanyard search.
Search Right Limit	This value, in degrees, is the rightmost point of travel for the camera lanyard search.
Move Left Limit	This value, in degrees, is the leftmost point of travel for the camera to move.
Move Right Limit	This value, in degrees, is the rightmost point of travel for the camera to move.
Search Pan Speed	This value indicates the maximum speed for pan movement.
Search Tilt Position	This value, in degrees, defines the fixed Reference Tilt angle.
Max Reacquisition Time	This value indicates the maximum find lanyard time. When this time expires, the Reference and Tracking Cameras are returned to home. They will wait until IR is received again to restart. Default = 60 seconds
Window Width	This value, in degrees, is the "Close Enough Zone". When the camera movement reaches in this window, movement stops. A smaller width will provide more accurate centering, while a larger width will reduce the number of camera movements. Default = 20
Reference Zoom Position	This value, in steps, directs the zoom setting of the IR Reference Camera. A lower number will make the camera movement appear smoother but the lanyard needs to be large enough in the image to be recognized. The larger the number, the larger the Lanyard but this reduces the overall capture size and will force a reduction in the 'Search Pan Speed' and an increase of the 'Projection Time' parameters to allow

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	enough capture data received to recognize the Lanyard.
Auto Gain	This value increases the IR Camera gain to recognize the lanyard. Default = 30, Range 0 – 30
Pan Correction	This value, in degrees, overcorrects the Reference Camera target used to calculate the Tracking Camera pan location when the configuration uses side by side cameras (CONFIGURATION NOT RECOMMENDED).
Tilt Correction	This value, in degrees, overcorrects the Reference Camera target used to calculate the Tracking camera tilt location. This parameter automatically adjusts the Reference Tilt to compensate for the distance vertically between the cameras.
Tracking Zoom Position	This value, in steps, directs the zoom setting of the tracking camera.
Setup Pan Speed	This value, degrees' is used in the 'User Interface' to set camera presets.
Setup Tilt Speed	This value, degrees' is used in the 'User Interface' to set camera presets.
AutoPresenter Port	This string represents the Device name of the serial port used to communicate with an AutoPresenter.
Reference Camera Port	This string represents the Device name of the serial port used to communicate with the IR Reference Camera.
Tracking Camera Port	This string represents the Device name of the serial port used to communicate with the Tracking Camera.
Iris Control Ref. Camera	This parameter is used to reduce the light and increase the contrast of the lanyard IR emitters. Default value is in parenthesis.
Iris Control Tracking Camera	This parameter is used to adjust the iris (f-stop) to prevent blooming between light and dark areas in auto iris mode. The Default value is Auto mode, but if blooming within the presenter area is a problem, switch to manual.
Camera Select	This parameter is used select either the AutoTrak 2.0 HD-18 or AutoTrak 2.0 HD-20 as the Tracking Camera (Iris values are different between cameras). Note: The HD-18 is always the reference camera.
Auto Focus Type	This parameter allows the user to select the Auto Focus method. The two (2) options are; Low Light – works in average and even light conditions, Low and Bright Light – works better in rooms with bright spots and reflections. Bright light containing IR will hinder AutoTrak 2.0 operation.

Details on the Vaddio AutoTrak 2.0 HD-18 Pan/Tilt/Zoom Cameras used in the AutoTrak 2.0 System:

Camera Features:

1) Camera/Sensor/Optics:
1/3-Type, Megapixel HD CCD image sensor is combined with an 18x optical zoom lens, for capturing high-quality HD video.

2) Tally Light:
A red tally light is illuminated when the camera receives a VISCA command from an external control system and tally is triggered.

3) IR Sensors:
IR sensors are built into the front of the WallVIEW HD-18 to receive IR signals from the IR remote control supplied with the camera.

4) Power Light:
A blue power light is illuminated when the camera is turned on.

Rear

Front View of Vaddio HD-18 HD PTZ

5) RS-232 In & IR Out:
The RS-232 accepts modified Canon control protocol for camera control.

6) DIP Switch Settings:
Settings for IR remote, baud rate, SD output format, image flip can be configured on these switches. See Page 31 for additional information switch settings.

7) HD Video Select:
A rotary switch allows the user to choose the component HD output video resolution and format. See Page 31 for additional information on switch settings.

8) 12 VDC Input
NOTE: The power input is not used with the AutoTrak 2.0 system. This is only used on the standard, ClearVIEW HD-18 camera.

9) YPbPr Video Output:
Component HD video is fed through the DB-15 connector.

10) SD Video Output:
Standard definition video is fed through the BNC connector.

11) EZ Power Video Port:
CAT-5e cable is connected to the HD-18 Quick-Connect SR Interface. The EZ Power Video Port supplies power to the camera and returns component HD video up to 100' (30.5 m)'.

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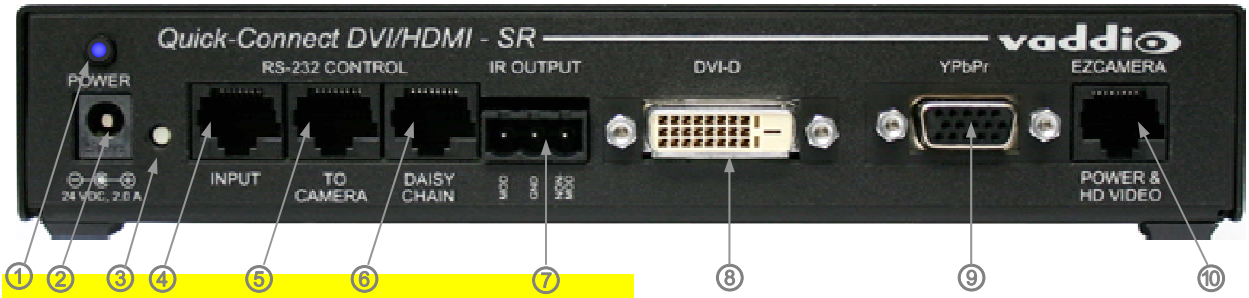
12) Slot for Optional Cards

Optional slot cards can be plugged into the WallVIEW HD-18 camera through the slot in the back of the camera base.

- **Quick-Connect DVI/HDMI - SR Interface:**
  1-RU ½ Rack Size, used with AutoTrak 2.0 Systems 999-7210-000 and 999-7215-000



1) Blue LED Power Indicator.
2) 24 VDC Power Port: Coax Power Connector, 5.5mm OD x 2.5mm ID, Positive Center.
3) Recessed Color Space Conversion Switch: Toggles between HDMI YCbCr and sRGB (RGBHV) color space. Change the color space to accommodate either YCbCr or RGBHV monitors.
4) RS-232 Control Input (from joystick controller, codec or control system).
5) To Camera: RS-232 Control to & from Camera and IR signals returned from the camera.
6) Daisy Chain Control Port: Daisy Chain Control Emulation (DCCE) output to next Quick-Connect DVI/HDMI SR Interface (does not function with the AutoTrak 2.0 System).
7) IR Output Port: Non-modulated (for hard connections) and Modulated for use with IR emitters.
8) DVI-D Output: High Definition Multimedia Interface (HDMI) Transmitter, HDMI (v 1.3 with deep color) and DVI v 1.0 Compliant.
9) YPbPr Output: Analog Component Video Output on DE-15F (HD-15F) Connector, Resolutions up to 1080p/60 with monitor support.
10) EZCamera Power & HD Video Port: Supplies power to camera and returns HD video from the camera via Cat-5e. Maximum distance on the CAT-5e cable is 100' (30.5 m).

AutoTrak 2.0 HD-18 Switch Settings:

These switch settings must be set in accordance with the peripherals used in the system. For the AutoTrak 2.0, the required settings are noted. On the bottom of the camera there is a label that defines the 10-positon dip switch functions and the rotary HD/YPbPr Video Select switch.

Rear panel of HD-18 PTZ Camera

Switch Setting Label on bottom of HD-18:

DIP SWITCH SETTINGS

IR 1 1 & 2 UP	*IR OUT OFF	9600 bps	SD NTSC	SD 4:3 6 & 7 UP		IMAGE FLIP OFF	TEST BARS OFF	10 OFF
IR 2 ON	IR 3 ON	ON	38400 bps	SD PAL	SD SQ	SD LB	ON	ON	ON
1	2	3	4	5	6	7	8	9	10

HD VIDEO SELECT

0	720p/59.94	8	576i/25
1	1080i/59.94	9	——
2	1080p/59.94	A	——
3	1080p/60	B	——
4	720p/50	C	——
5	1080i/50	D	——
6	1080p/50	E	1080p/30
7	480i/29.97	F	1080p/25

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Dip Switch Settings

- **IR 1, 2 & 3:** These settings, using switches 1 & 2, determine the IR frequency of the one IR remote control that was supplied with your system. The IR remote can operate up to three different PTZ cameras from one remote, using the selector buttons at the top of the remote.
- ***IR Out:** The IR output is returned to the Quick-Connect on the RS-232 RJ-45 jack on the back of the camera. **Leave this switch in the ON position on both HD-18 cameras for use with AutoTrak 2.0.** *When this switch is in the ON position, the IR Remote is overridden.*
- **Baud Rate:** The options for baud rate are 9600 or 38,400 for RS-232. **Set to 9600bps for AutoTrak 2.0.**
- **SD Output Frequency:** Select either NTSC or PAL as the output for the camera's SD signal that is transmitted on the BNC connector. For **North America, for the IR Reference camera set to NTSC for the AutoTrak 2.0. For International systems, use the PAL setting**
- **SD Output Size:** Three options are available for the SD output, select from crop, squeeze or letterbox. Set this parameter accordingly to the peripherals used.
- Image Flip: Turning Image Flip on (switch down), will flip the image and allow the camera to be inverted. **For AutoTrak 2.0, set image flip to OFF.**
- **Test Bars:** Turning this switch on will override the camera video output and send non-standard 75% test video bars from the camera output. The test color bars are intended as a convenience for testing the signal path and for use with the HD-18 CCU System and diagnostics of configuration cabling..
- **Switch 10:** This switch is unused, and should be left in the OFF position.

HD Video Select:

This rotary switch sets the HD YPbPr video output resolution. Use the resolution that works well with the peripheral equipment (monitors, codecs, video mixers, etc.) Not all monitors can handle all the resolutions on this table. Please choose the resolution that best serves your peripheral equipment. Finding the sweet spot can be a bit of a challenge due to the scalers built in to cameras, monitors, video mixers and video processors.

AutoTrak 2.0 General Specifications*:

AutoTrak 2.0 Belt Pack and Lanyard	
Battery Type and Size	Four(4) AA Alkaline batteries, rechargeable batteries OK
Battery Life	Up to six (6) hours with Alkaline batteries, less time for rechargeable batteries
Connectors	5-Pin mini XLR-M
Battery Pack Size	4.5" (114.3mm) H x 3.0" (76.2mm) W x 1.25" (31.75mm) D
Battery Pack Weight	0.5 lbs (0.226796185 kg)
Lanyard Necklace Length	24" (609.6mm)
Lanyard Cable Length	32" (812.8mm)
Lanyard Cable	5-Pin mini XLR-F, Strain Relieved on both ends, attached to the Lanyard
Lanyard Weight with Cable	0.15 lbs (0.0680388555 kg - roughly)
AutoTrak 2.0 CPU	
Processor	Intel® Atom™ Dual Core Processor
Graphics	Intel Graphics Media Accelerator
RGBHV Output	One (1) DE-15F (HD-15F) Connector (resolution limited to 800 x 600 @ 60 Hz)
Video Capture Card	Internal with 3-RCA-F and 1-Y/C-F Connectors, Use the center RCA connector for AutoTrak 2.0
Memory	1GB DDR2
Storage	16GB SSD
Ethernet	Two (2) Gb Ethernet ports on RJ-45 (Application Does not support the Ethernet ports)
RS-232 Interfaces	Three (3) RS-232 on DB-9M (DE-9M)
USB Ports	Six (6) USB 2.0 Ports
Dimensions/Weight	1-RU - 1.72" (43.7mm) H x 18.93" (480.8mm) W x 10" (254mm) D / 8.8lbs (4.0kg)
Power	110V -240V 50/60Hz Switching Power Supply (internal)
AutoTrak 2.0 HD-18 Cameras	

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Image Sensor	1/3-Type CCD
Picture Elements	1.3 Megapixel
Signal System	HD: 1080p, 1080i or 720p @ 59.94; 1080p @ 60/50/30/25; 1080i or 720p @ 50 SD: Composite - NTSC or PAL (simultaneous HD & SD Out) Crop, Squeeze or Letterbox Modes
Lens	18x Optical Zoom
Focal Length	f=4.7 to 84.6mm
Horizontal Viewing Angle	3.2 to 55.2 degrees (16:9)
Video S/N Ratio	>50 dB
Invertible	Yes
Minimum Illumination	1.8 Lux
Serial Communication	RS-232 (9600 - Default for AutoTrak 2.0)
Pan Range	+170 degrees to -170 degrees
Tilt Range	+90 degrees to -30 degrees
Dimensions (H x W x D)	8.55" (217.2mm) H x 6.748" (171.4mm) W x 7.134" (181.2mm) D
Weight	5.8 lbs (2.63 kg)
AutoTrak 2.0 Audio Interface for system 999-7200-000 and 999-7210-000 only	
Audio Outputs	Balanced Line Level (on XLR - M connector) +4dBu Unbalanced Line Level (on RCA-F connector) -10dBV
Mic Output Volume Control	10k Audio Taper Potentiometer
Switch Gear	Tactile illuminated push button blue LED Power Switch (ON/OFF), and Mic Mute (Mute when lit)
Status Indicator	Blue LED
Display/LED Indicators Speed	Less than 299,792,458 meters per second (accounting for the index of refractivity of air - 1.0003
Antenna Connector	One (1) RP-SMA connector
Power Supply/Connector	12 VDC, 1.0 Amp Switching Supply, 5.5mm OD x 2.5mm ID coax receptacle on AutoTrak 2.0
Weight	Approx. 3.3 lbs (1.496854821 kg)
Dimensions Audio Interface	1.72" (43.688mm) H x 18.93 (480.822mm) W x 6" (152.4mm) D
Part Numbers	
999-7200-000	With HD-18 Quick-Connect SR Interface (YPbPr output on Tracking Camera)
999-7205-000	999-7200-000 w/o AutoTrak 2.0 Audio Interface and w/Worldwide Belt Pack
999-7210-000	With Quick-Connect DVI-D/HDMI SR Interface (YPbPr and DVI-D outputs on Tracking Camera)
999-7215-000	999-7210-000 w/o AutoTrak 2.0 Audio Interface and w/Worldwide Belt Pack
Origin	Made in the USA with the exception of the AutoTrak 2.0 CPU (assembled in the USA)

*All Specifications are subject to change without prior notice.

Warranty Information: (See Vaddio Warranty, Service and Return Policies posted on vaddio.com for complete details):

Hardware* Warranty: One year limited warranty on all parts. Vaddio warrants this product against defects in materials and workmanship for a period of one year from the day of purchase from Vaddio. If Vaddio receives notice of such defects during the warranty period, they will, at their option, repair or replace products that prove to be defective. Please see Vaddio's Service Terms and Conditions at vaddio.com for specific details and policies.

Exclusions: The above warranty shall not apply to defects resulting from: improper or inadequate maintenance by the customer, customer applied software or interfacing, unauthorized modifications or misuse, operation outside the normal environmental specifications for the product, use of the incorrect power supply, improper installation (plugging things in wrong), improper extension of the power supply cable or improper site operation and maintenance.

Vaddio Customer Service: Vaddio will test, repair, or replace the product or products without charge if the unit is under warranty and is found to be defective. If the product is out of warranty, Vaddio will test then repair the product or products. The cost of parts and labor charge will be estimated by a technician and confirmed by the customer prior to repair. All components must be returned for testing as a complete unit. Vaddio will not accept responsibility for shipment after it has left the premises. Vaddio will only advance replace out of box failures or random equipment failures up to 30 days after the purchase date (not the install date).

Vaddio Technical Support: Vaddio technicians will determine and discuss with the customer the criteria for repair costs and/or replacement. Vaddio Technical Support can be contacted through one of the following resources: e-mail support at support@vaddio.com or online at www.vaddio.com.

Return Material Authorization (RMA) Number: Before returning a product for repair or replacement, request an RMA from Vaddio's technical support. Provide a technician with a return phone number, e-mail address, shipping address, and product serial numbers and describe the reason for repairs or returns as well as the date of purchase

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and proof of purchase. Include your assigned RMA number in all correspondence with Vaddio. Write your assigned RMA number on the clearly on the shipping label when returning the product. All products returned for credit are subject to a restocking charge without exception.

Voided Warranty: The warranty does not apply if the original serial number has been removed or if the product has been disassembled or damaged through misuse, accident, modifications, or unauthorized repair. Cutting the power supply cable on the secondary side (low voltage side) to extend the power to the device (camera or controller) voids the warranty for that device.

Shipping and Handling: Vaddio will not pay for inbound shipping transportation or insurance charges or accept any responsibility for laws and ordinances from inbound transit. Vaddio will pay for outbound shipping, transportation, and insurance charges for all items under warranty but will not assume responsibility for loss and/or damage by the outbound freight carrier. **If the return shipment appears damaged, retain the original boxes and packing material for inspection by the carrier. Contact your carrier immediately.**

Products Not Under Warranty: Payment arrangements are required before outbound shipment for all out of warranty products.

*Vaddio manufactures its hardware products from parts and components that are new or equivalent to new in accordance with industry standard practices.

Other General Information:
Care and Cleaning
Do not attempt to take this product apart at any time. There are no user-serviceable components inside.

- Do not spill liquids in the product
- Keep this device away from food and liquid
- For smears or smudges on the product, wipe with a clean, soft cloth
- Use a lens cleaner on the lens
- Do not use any abrasive chemicals.

Operating and Storage Conditions:
Do not store or operate the device under the following conditions:

- Temperatures above 40°C (104°F) or temperatures below 0°C (32°F)
- High humidity, condensing or wet environments
- In inclement weather
- In swimming pools, airport bathrooms or bat caves
- Dry environments with an excess of static discharge
- In bear caves
- Under severe vibration

Compliance and CE Declaration of Conformity: AutoTrak 2.0 CPU

Compliance testing was performed to the following regulations:

- **FCC 47 CFR Part 15, Subpart B/Oct. 2009** Class A
- **ICES-003,** Issue 4: 2004 Class A
- **EN-55011:** 2007 + A2: 2007 Class A
- **EN 55022:** 2006 + A1: 2007 Class A
- **CISPR** 22: 1997 Class A
- **EMC Directive 2004/108/EC** Class A

FCC Part 15 Compliance

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his/her own expense.

- Operation is subject to the following two conditions: (1) This device may not cause interference, and (2) This device must accept any interference including interference that may cause undesired operation of the device.
- Changes or modifications not expressly approved by Vaddio can affect emission compliance and could void the user's authority to operate this equipment.

Industry Canada Industrie Canada

ICES-003 Compliance

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.
Le présent appareil numérique n'emet pas de bruits radioélectriques dépassant les limites applicables aux appareils numeriques de la classe A préscrites dans le Règlement sur le brouillage radioélectrique édicte par le ministère des Communications du Canada.

CE

European Compliance
This product has been evaluated for Electromagnetic Compatibility under the EMC Directive for Emissions and Immunity and meets the requirements for a Class A digital device. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Standard(s) To Which Conformity Is Declared:
EMC Directive 2004/108/EC

EN-55011: 2007 + A2: 2007	Emissions
EN 55022: 2006 + A1: 2007	Conducted and Radiated Emissions
EN 61000-6-4: 2007	Electromagnetic Compatibility
EN 61000-3-2: 2006	Limits for Harmonic Content
EN 6100-3-3: 2008	Limits for Voltage Fluctuations and Flicker
EN 61000-6-2: 2005	Immunity for Industrial Environments
EN 55024: 1998 + Amendments A1: 2001 + A2: 2003	Immunity
• EN 61000-4-2: 2008	Electrostatic Discharge
• EN 61000-4-3: 2008	Radiated Immunity
• EN 61000-4-4: 2004 + Corrigendum 1:2006 + Corr. 2:2007	Electrical Fast Transients
• EN 61000-4-5: 2005	Surge Immunity
• EN 61000-4-6: 2008	Conducted Immunity
• EN 61000-4-8: 2009	Power Frequency Magnetic Field
• EN 61000-4-11: Second Edition: 2004	Voltage Dips, Interrupts and Fluctuations

Compliance Information:
EasyTalk AutoTrak 2.0 Wireless Audio Interface (Receiver) Systems 998-7230-000 and 998-7230-001

MADE IN THE USA

Compliance and CE Declaration of Conformity: EasyTalk AutoTrak 2.0 Wireless Audio Interface
Compliance testing was performed to the following regulations:

• **FCC Part 15, Subpart B**	**C**lass A
• **ICES-003,** Issue 4: 2004	Class A
• **EN 55022 A:** 2010	Class A
• **AS/NZS CISPR** 22: 2009 +A1:2010	Class A
• **VCCI** V-3/2011.04	Class A
• **EMC Directive 2004/108/EC**	Class A

FCC Part 15 Subpart C, Section 15.249 Compliance and Industry Canada RS-210 Compliance

- This equipment has been tested and found to comply with the limits for a digital device, pursuant to Part 15, Subpart C of the FCC Rules and RS-210 of Industry Canada. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his/her own expense.
- Operation is subject to the following two conditions: (1) This device may not cause interference, and (2) This device must accept any interference including interference that may cause undesired operation of the device.

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- Changes or modifications not expressly approved by Vaddio can affect emission compliance and could void the user's authority to operate this equipment.
- Do not use any antenna other than the one provided on the unit.
- This equipment complies with the FCC/IC radiation exposure limits set forth for portable transmitting devices operating in an uncontrolled environment. End users must follow the specific operating instructions for satisfying RF exposure compliance

Industry Canada Industrie Canada

ICES-003 Compliance
ICES-003, Issue 4: 2004
This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.
Le présent appareil numérique n'emet pas de bruits radioélectriques dépassant les limites applicables aux appareils numeriques de la classe B préscrites dans le Règlement sur le brouillage radioélectrique édicte par le ministère des Communications du Canada.

CE

European Compliance
This product has been evaluated for Electromagnetic Compatibility under the EMC Directive for Emissions and Immunity and meets the requirements for a Class A digital device. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Standard(s) To Which Conformity Is Declared:
EMC Directive 2004/108/EC

EN 55022 A: 2006 + A1: 2007(CISPR 22:2005/A1:2005)	Conducted and Radiated Emissions
EN 55024: 1998 + Amendments A1: 2001 + A2: 2003	Immunity
• EN 61000-4-2: 1995 + Amendments A1: 1998 + A2: 2001	Electrostatic Discharge
• EN 61000-4-3: 2006 + A1: 2008	Radiated Immunity
EN 61000-4-4: 2004 + Corrigendum 2006	*Test not applicable to this device.*
EN 61000-4-5: 2006	*Test not applicable to this device.*
EN 61000-4-6: 2009	*Test not applicable to this device.*
• EN 61000-4-8: 2010	Power Frequency Magnetic Field
EN 61000-4-11: Second Edition: 2004	*Test not applicable to this device.*

Compliance Information: AutoTrak 2.0 Belt Pack and Lanyard (Transmitter)

MADE IN THE USA

Compliance and CE Declaration of Conformity: AutoTrak 2.0 Worldwide Belt Pack and Lanyard
For systems without Audio 999-7205-000 and 999-7215-000
Compliance testing was performed to the following regulations:

• **FCC Part 15, Subpart B**	**C**lass A
• **ICES-003,** Issue 4: 2004	Class A
• **EN 55022 A:** 2010	Class A
• **AS/NZS CISPR** 22: 2009 +A1:2010	Class A
• **VCCI** V-3/2011.04	Class A
• **EMC Directive 2004/108/EC**	Class A

MADE IN THE USA

FCC Part 15 Subpart C, Section 15.249 Compliance and Industry Canada RS-210 Compliance
- This equipment has been tested and found to comply with the limits for a digital device, pursuant to

Part 15, Subpart C of the FCC Rules and RS-210 of Industry Canada. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his/her own expense.

- Operation is subject to the following two conditions: (1) This device may not cause interference, and (2) This device must accept any interference including interference that may cause undesired operation of the device.
- Changes or modifications not expressly approved by Vaddio can affect emission compliance and could void the user's authority to operate this equipment.
- Do not use any antenna other than the one provided on the unit.
- This equipment complies with the FCC/IC radiation exposure limits set forth for portable transmitting devices operating in an uncontrolled environment. End users must follow the specific operating instructions for satisfying RF exposure compliance

Industry Canada Industrie Canada

ICES-003 Compliance
ICES-003, Issue 4: 2004

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le présent appareil numérique n'emet pas de bruits radioélectriques dépassant les limites applicables aux appareils numeriques de la classe B préscrites dans le Règlement sur le brouillage radioélectrique édicte par le ministère des Communications du Canada.

CE

European Compliance

This product has been evaluated for Electromagnetic Compatibility under the EMC Directive for Emissions and Immunity and meets the requirements for a Class A digital device. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Standard(s) To Which Conformity Is Declared:
EMC Directive 2004/108/EC

EN 55022 A: 2006 + A1: 2007(CISPR 22:2005/A1:2005)	Conducted and Radiated Emissions
EN 55024: 1998 + Amendments A1: 2001 + A2: 2003	Immunity
• EN 61000-4-2: 1995 + Amendments A1: 1998 + A2: 2001	Electrostatic Discharge
• EN 61000-4-3: 2006 + A1: 2008	Radiated Immunity
EN 61000-4-4: 2004 + Corrigendum 2006	*Test not applicable to this device.*
EN 61000-4-5: 2006	*Test not applicable to this device.*
EN 61000-4-6: 2009	*Test not applicable to this device.*
• EN 61000-4-8: 2010	Power Frequency Magnetic Field
EN 61000-4-11: Second Edition: 2004	*Test not applicable to this device.*

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Compliance and CE Declaration of Conformity: Vaddio HD-18 HD PTZ Camera

Compliance testing was performed to the following regulations:

- **FCC Part 15, Subpart B** Class A
- **ICES-003,** Issue 4: 2004 Class A
- **EN 55022 A:** 2006 + A1: 2007(CISPR 22:2005/A1:2005) Class A
- **AS/NZS CISPR** 22: 2009 Class A
- **VCCI** V-3/2009.04 Class A
- **EMC Directive 2004/108/EC** Class A

FCC Part 15 Compliance

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his/her own expense.

- Operation is subject to the following two conditions: (1) This device may not cause interference, and (2) This device must accept any interference including interference that may cause undesired operation of the device.
- Changes or modifications not expressly approved by Vaddio can affect emission compliance and could void the user's authority to operate this equipment.

ICES-003 Compliance

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le présent appareil numérique n'emet pas de bruits radioélectriques dépassant les limites applicables aux appareils numeriques de la classe A préscrites dans le Règlement sur le brouillage radioélectrique édicte par le ministère des Communications du Canada.

European Compliance

This product has been evaluated for Electromagnetic Compatibility under the EMC Directive for Emissions and Immunity and meets the requirements for a Class A digital device. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Standard(s) To Which Conformity Is Declared:

EMC Directive 2004/108/EC

EN 55022 A: 2006 + A1 2007 (CISPR 22:2005/A1:2005)	Conducted and Radiated Emissions
EN 55024: 1998 + Amendments A1: 2001 + A2: 2003	Immunity
• EN 61000-4-2: 1995 + Amendments A1: 1998 + A2: 2001	Electrostatic Discharge
• EN 61000-4-3: 2006	Radiated Immunity
• EN 61000-4-4: 2004 + Corrigendum 2004	Electrical Fast Transients
• EN 61000-4-5: 2006	Surge Immunity
• EN 61000-4-6: 2007	Conducted Immunity
• EN 61000-4-8: 1993 + Amendment A1: 2001	Power Frequency Magnetic Field
• EN 61000-4-11: Second Edition: 2004	Voltage Dips, Interrupts and Fluctuations

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Compliance and CE Declaration of Conformity:
Quick-Connect DVI/HDMI SR Interface

Compliance testing was performed to the following regulations:

- **FCC Part 15, Subpart B** — Class A
- **ICES-003, Issue 4: 2004** — Class A
- **European Standard EN 55022 A: 2006 + A1: 2007(CISPR 22:2005/A1:2005)** — Class A
- **EMC Directive 2004/108/EC** — Class A

MADE IN THE USA

FCC Part 15 Compliance

- This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15, Subpart B, of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his/her own expense.
- Operation is subject to the following two conditions: (1) This device may not cause interference, and (2) This device must accept any interference including interference that may cause undesired operation of the device.
- Changes or modifications not expressly approved by Vaddio can affect emission compliance and could void the user's authority to operate this equipment.

Industry Canada Industrie Canada

ICES-003 Compliance

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.
Le présent appareil numérique n'emet pas de bruits radioélectriques dépassant les limites applicables aux appareils numeriques de la classe A préscrites dans le Règlement sur le brouillage radioélectrique édicte par le ministère des Communications du Canada.

European Compliance

This product has been evaluated for Electromagnetic Compatibility under the EMC Directive for Emissions and Immunity and meets the requirements for a Class A digital device. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Ferrite cylinders are included in order to the Quick-Connect DVI/HDMI SR Interface to strictly comply with the European Community EMC Directives compliance. Use these ferrites to ensure the elimination of possible EMI interference from cell phones and AC motors.

Standard(s) To Which Conformity Is Declared:
EMC Directive 2004/108/EC

EN 55022 A: 2006 + A1 2007 (CISPR 22:2005/A1:2005)	Conducted and Radiated Emissions
EN 55024: 1998 + Amendments A1: 2001 + A2: 2003	Immunity
• EN 61000-4-2: 1995 + Amendments A1: 1998 + A2: 2001	Electrostatic Discharge
• EN 61000-4-3: 2006	Radiated Immunity
• EN 61000-4-4: 2004 + Corrigendum 2006	Electrical Fast Transients
• EN 61000-4-5: 2006	Surge Immunity
• EN 61000-4-6: 2007	Conducted Immunity
• EN 61000-4-8: 1993 + Amendment A1: 2001	Power Frequency Magnetic Field
• EN 61000-4-11 Second Edition: 2004	Voltage Dips, Interrupts and Fluctuations

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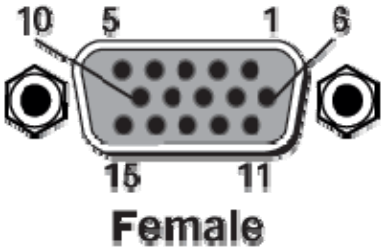
Appendix 1: HD-18 Connector Information

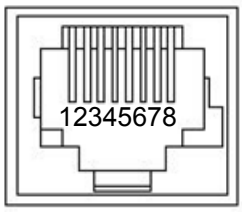
- DE-15-F (HD-15F Connector)

Pin	YPbPr
1	Pr
2	Y
3	Pb
4	-
5	-
6	Pr GND
7	Y GND
8	Pb GND
9	-
10	-
11	-
12	-
13	-
14	-
15	-



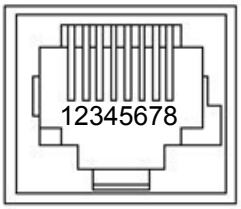
- **EZCamera Power & HD Video RJ-45 Connector Pin-outs** (For HD-18 Camera and Quick-Connect SR and Quick-Connect DVI/HDMI SR Interfaces - 568B Wiring Standard)

Pin	YPbPr
1	Power+
2	Power-
3	Y+
4	PB+
5	PB GND
6	Y GND
7	PR+
8	PR-



- **RS-232 and IR OUT RJ-45 Connector Pin-outs** (For HD-18 Camera and Quick-Connect SR and Quick-Connect DVI/HDMI SR Interfaces - 568B Wiring Standard)

Pin #	RS-232 and IR OUT RJ-45
1	Unused
2	Unused
3	IR Out (TTL level)
4	IR Output (Differential Signal to HD-18 Quick-Connect)
5	IR Ground (Differential Signal to HD-18 Quick-Connect)
6	GND
7	RXD (from TXD of control source)
8	TXD (to RXD of control source)



Communication Specification

Communication Speed: 9600 bps

- Start bit: 1
- Stop bit: 1
- Data bits: 8
- Parity: None
- No Flow control

RS-232 Command	Description
P00<lf>	Preset Off (back to active tracking)
P01<lf>	Preset 1 for Tracking camera
P02<lf>	Preset 2 for Tracking camera
P03<lf>	Preset 3 for Tracking camera
P04<lf>	Preset 4 for Tracking camera
P05<lf>	Preset 5 for Tracking camera
P06<lf>	Preset 6 for Tracking camera

Notes:

- A total of six (6) presets can be accessed with a control system via RS-232
- Each Command must be followed by a line feed <lf>
- Presets are set up on the Preset-Tracking Camera tabs under the AutoPresenter Camera Preset Area. No trigger assignments are needed. Set the Tracking Camera position and store the preset. Recall the preset with the commands above.
- The Preset OFF command must be issued to return to active tracking.

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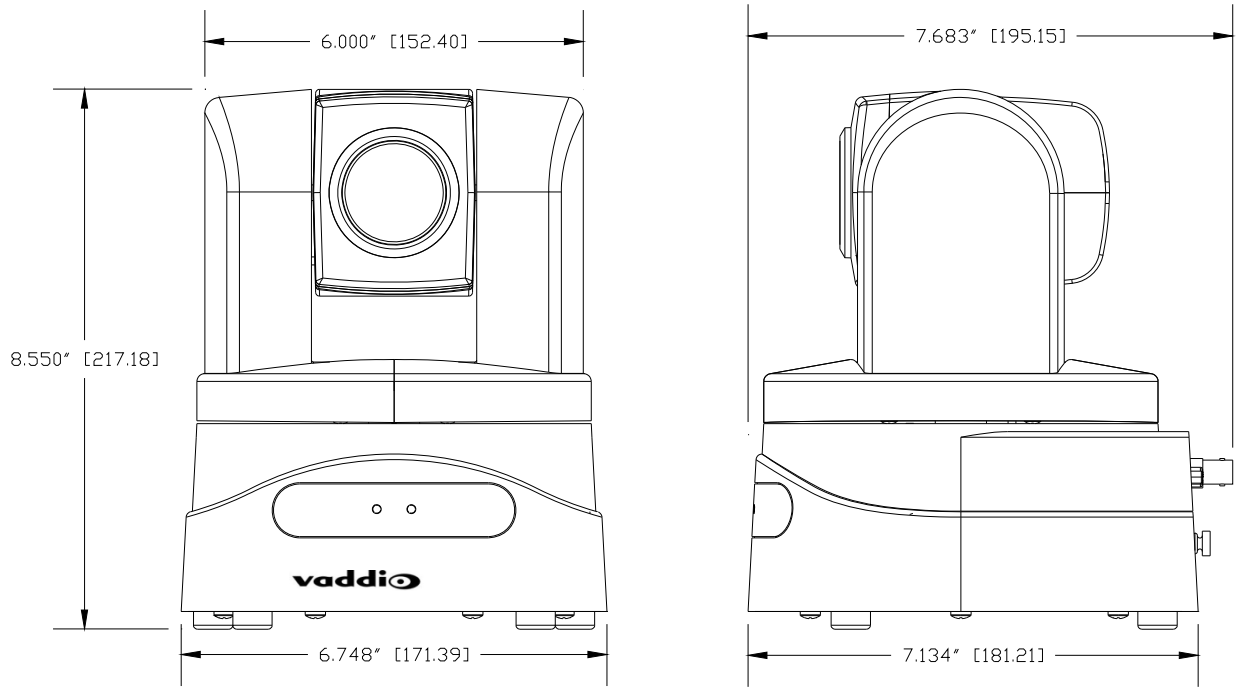
AutoTrak 2.0 HD-18 PTZ Camera Dimensions



Optional AutoTrak 2.0 System Cart
In order to put the system within 30' to 40' of the presenter in larger auditoriums, an AutoTrak 2.0 System Cart system is recommended. The Vaddio Edge series carts are built to be robust, portable and extremely strong. The AutoTrak 2.0 System Cart includes:

Edge Model ASC-3755
P/N: 799-7200-000 - Assembled
P/N: 799-7200-001 - Flat Packed

AutoTrak 2.0 System Cart Includes:

One (1) Edge HighBoy Cart HB-3755
- Fits 37" to 55" diagonal flat screen monitors up to 600mm x 400mm VESA Hole Pattern
- Two (2) Monitor brackets tilt 12° forward and 5° back
- Attractive metallic silver and black finishes
- 4" (101mm) twin wheel casters with 225 lbs rating each
- Two (2) Locking casters two stabilizing/leveler feet
- Overall dimensions/weight: 63.25" (1605mm) H x 34.5" W (876mm) x 33.75" (858mm) D / 83.6 lbs (38 kg)

One (1) Edge EE-9RU 9-Space Equipment Enclosure
One (1) Dual Camera Mount
One (1) Adjustable Vertical Support Pipe
Mounting Hardware and ¼"-20 Screws

Note: Instructor LCD Confidence Monitor and the rack full of gear is not included.

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