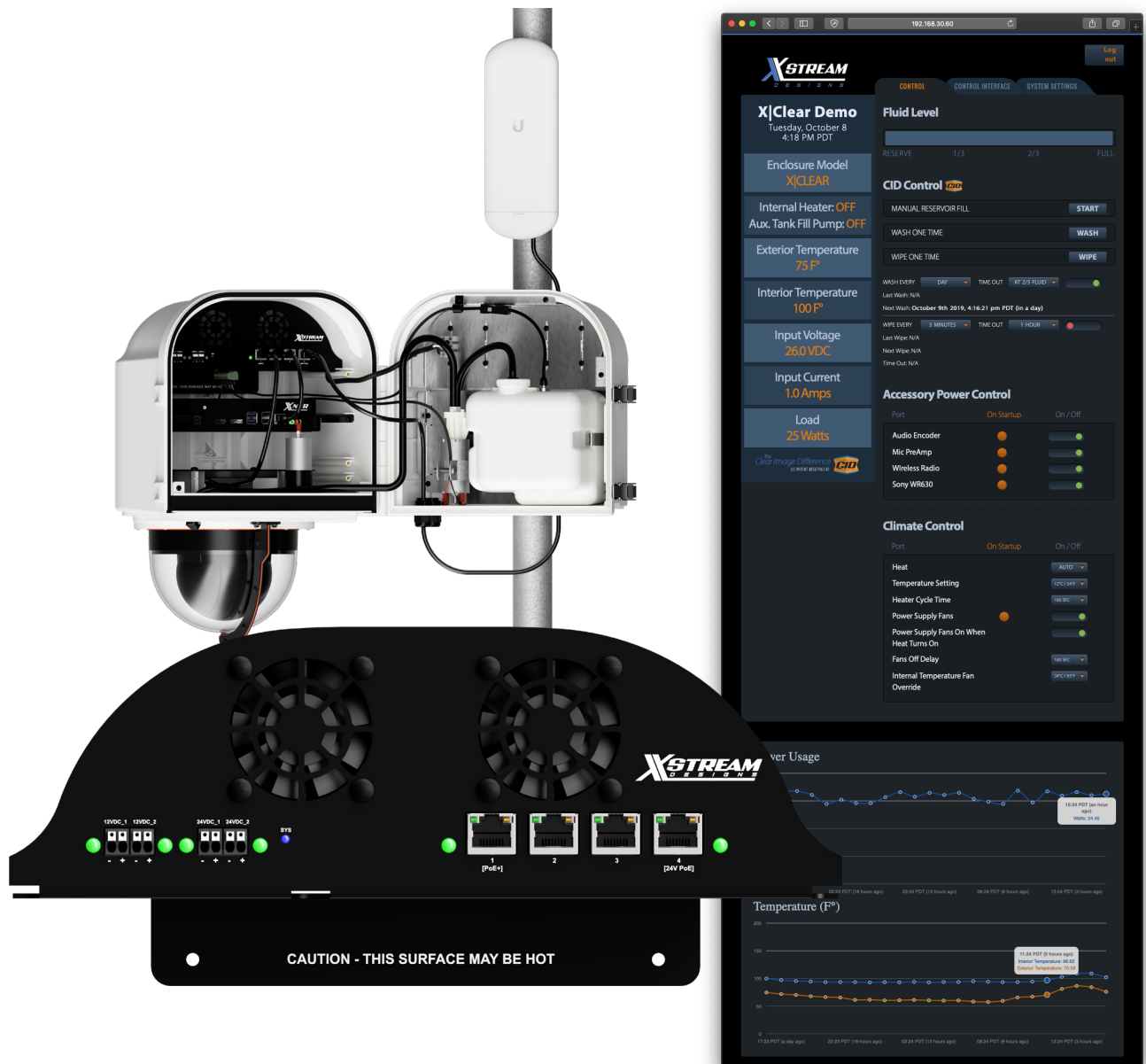




# X|Smart User Manual

Rev. 1.3



THE  
CLEAR IMAGE  
DIFFERENCE

US PATENT #8567963 B1

SELF CLEANING CAMERA DOME

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X Stream Designs, Inc.  
Customer Service Department  
2120 Jimmy Durante Blvd., Suite 115  
Del Mar CA 92014  
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## INSTALLATION GUIDELINES

- The X Stream Designs enclosure system should be installed by qualified personnel.
- This unit must not be used for medical, life saving purposes, or for any purpose where its failure could cause serious injury or the loss of life.
- This unit must not be used in any way where its function or failure could cause significant loss or property damage.

## SECURITY NOTES

The X|Smart™ system employs a Linux operating system and does have the ability to support features such as telnet, FTP and SSH. For this reason, there is a chance that someone can 'break in' to the X|Smart™ system and access other devices on your local network. As with any device installed on a network, appropriate security precautions should be observed.

If the X|Smart™ system is installed on the Internet, it is recommended that the control password be enabled. Passwords should be at least 8 characters in length and use a combination of upper and lower case letters and numbers. For additional security, a firewall may be used to limit access to selected IP addresses. Another option may be to set up a Virtual Private Network (VPN) between the network where X|Smart™ resides and the client machine.

## FINAL INSTALLATION NOTES

The X|Smart™ product and the integrated 4 port network switch supports 10Mbps and 100Mbps network connections. Port #1 provides IEEE 802.3at 30 Watt Active Power Over Ethernet (POE). Port #4 provides 24VDC Passive Power Over Ethernet (PoE) to power wireless radios. Power to both of these PoE ports is remotely controllable via the web interface.

## SECTION 1: INTRODUCTION

The X|Smart system tray is a multi-function web-enabled power supply chassis facilitating control and monitoring of the camera enclosure system. The X|Smart system tray consists of [2] 12VDC, [2] 24VDC, [1] IEEE 802.3at 30 Watt PoE and [1] 24VDC Passive PoE user accessible accessory power ports. It can be controlled and/or monitored over any IP network including private networks and the Internet. Using a web browser, users can control the dome wiping and cleaning process, check washing fluid levels (X|Rain & X|Clear model Enclosures), remotely turn on and/or off the accessory power ports, monitor and control temperature settings and monitor power and temperature in real time as well as over a period of time via the graphing functionality.

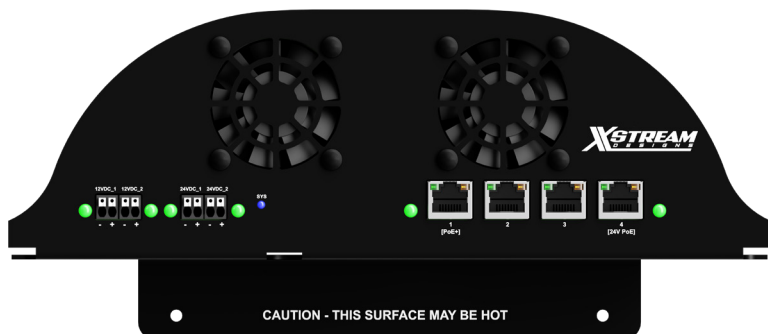


Figure 1.1 - X|Smart System Tray

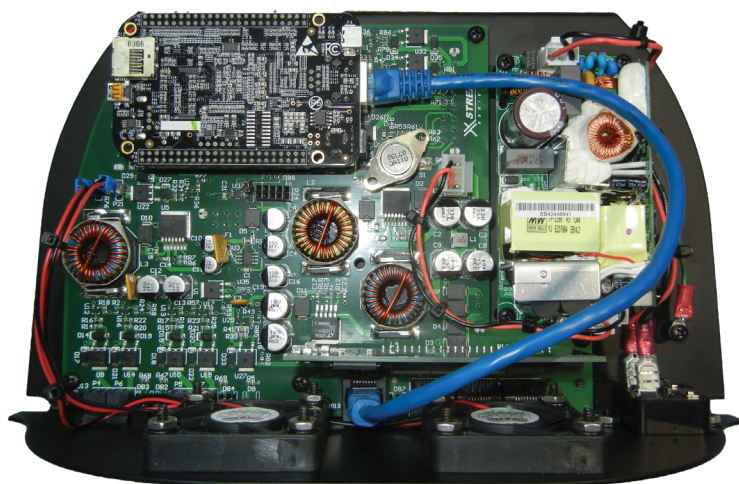


Figure 1.2 - X|Smart System Tray PCBA



Figure 1.3 - X|Smart Web Interface

## 1.1 X|SMART FEATURES

### 115/230VAC to 24VDC 150 Watt Internal Power Supply

The X|Smart\_PSP power supply chassis has an integrated 115/230VAC power supply capable of providing 150 Watts of power at 24VDC to the PCBA and enclosure system. (**Note:** If you opted for the optional **X|DC-INPUT** upgrade, your enclosure system only accepts 10-60VDC to power the X|Smart System Tray.)

### Accessory Power Control

Remote control 12VDC, 24VDC and PoE accessory power ports via the web interface.

### 12VDC Power Ports [2]

Capable of providing up to 53 Watts of power to accessory devices, the two 12VDC ports can be remotely controlled (on/off) via the web interface.

### 24VDC Power Ports [2]

Capable of providing up to 70 Watts of power to accessory devices, the two 24VDC ports can be remotely controlled (on/off) via the web interface.

### 30 Watt PoE+ Port [1]

Capable of providing up to 30 Watts of power to PoE devices, the IEEE-802.3at compliant PoE port can be remotely controlled (on/off) via the web interface.

### 24VDC Passive PoE Port [1]

Provides 24VDC Passive PoE to power popular wireless radio manufacturer devices like Ubiquiti. The port can be remotely controlled (on/off) via the web interface. (**Note:** It is the users responsibility to verify that the device plugged into the 24VDC Passive PoE port accepts 24VDC Passive PoE. Damage can occur if the device plugged into this port does not accept 24VDC Passive PoE.)

### Internal & External Digital Temperature Sensors

Embedded on the X|Smart PCBA, the internal digital temperature sensor allows you to monitor the internal temperature of the enclosure in real-time. It is also integrated into the climate control system triggering heat on/off when the system is set to AUTO. The **X|EXT-TEMP** probe is an optional accessory from X Stream Designs allowing you to monitor the outside temperature in real-time.

### Integrated 4 Port 10/100Mbps Network Switch

The X|Smart system tray employs a 4 Port 10/100Mbps network switch giving the user 3 available ports after populating one of the ports with a network connection.

### Circulation Fans [2]

Integrated into the X|Smart system tray are two [2] circulation fans. The fans can be remotely controlled (on/off) via the web interface.

### Input Power Monitoring (Voltage, Current & Load)

Monitor the PCBA input voltage, input current (Amps) and Load (Watts) in real-time via the web interface and detect potential power issues before problems arise. The watt is a derived unit of power which can be used to express the rate of energy or transfer of energy with respect to time. Ohm's Law ( $W = \text{Voltage} \times \text{Current}$ ) allows us to derive the enclosure power load and monitor it in realtime. A great feature for off-grid and remote applications or the energy conscious user.

### Climate Control System

Control the interior enclosure temperature setting via the web interface by choosing heat AUTO and setting the temperature or Heat OFF.

### Real Time Clock

Manually set the time & date or synchronize via an NTP server.

### CID Control

Remotely control & schedule the wiping and wash functions via the web interface of X|Clear and X|Rain model enclosure systems.

### Fluid Level Meter

Monitor the washing fluid level in real-time via the web interface. Level values are FULL, 2/3, 1/3 and RESERVE.

### Event Scheduler

Schedule the X|Rain & X|Clear enclosure systems to Clean and/or Wipe at pre-defined intervals via the web interface.

### Graphing

Monitor Power Usage & Temperature over a period of time in graph format.

## 1.2 APPLICATIONS

The X|Smart system tray and web based user interface was designed to meet numerous industry applications. It gives the user much more functionality than just an interface to trigger wiping and cleaning of the enclosure dome. With the integrated relays and power sensors, users can remotely control multiple accessory power ports and monitor power usage in real-time. A great tool for remote camera systems and especially off-grid powered systems.

The X|Smart system tray is integrated into all of our enclosure systems. Example Applications Include Coastal Monitoring Cameras, Rainy Environments, Off-Grid Powered Camera Locations, Remote Camera Applications and any installation that requires housing additional camera accessory components.

## 1.3 ACCESSORY POWER CONNECTIONS & INDICATORS

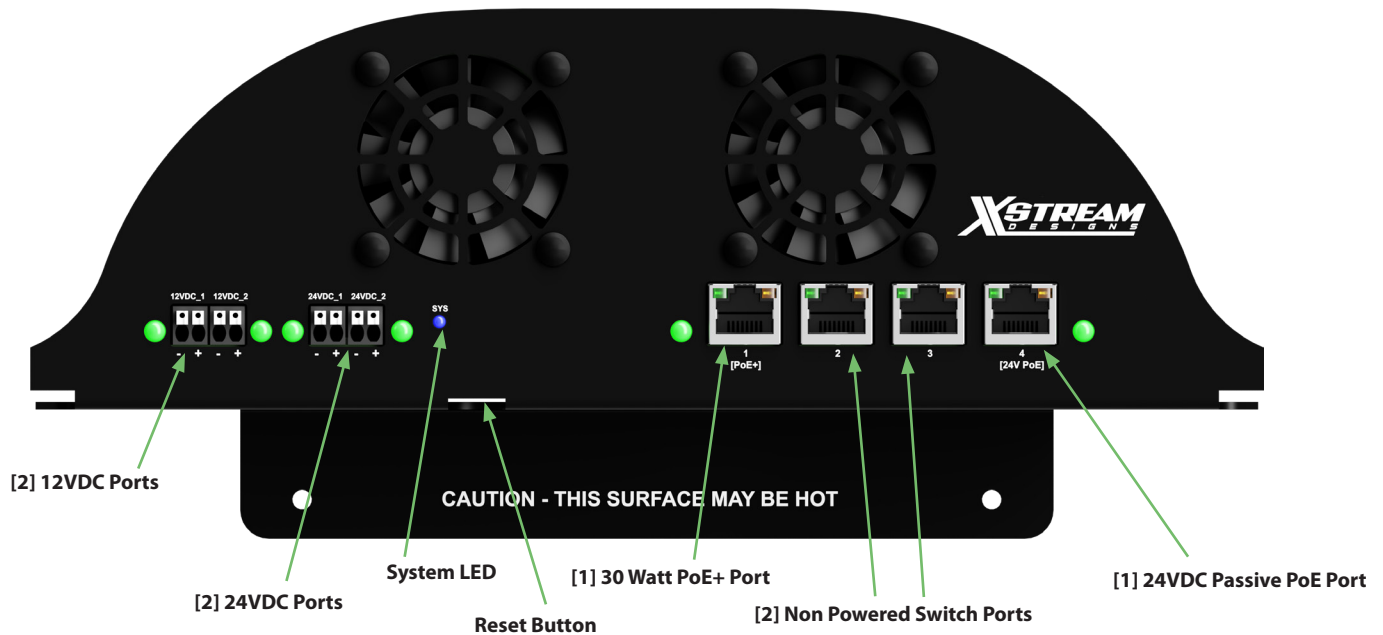


Figure 1.4 - X|Smart System Tray Connections & Indicators

### [2] 12VDC Accessory Power Ports

The X|Smart system tray has two 12VDC accessory power ports. Each port is individually controlled (on/off) via the X|Smart web interface. Next to each accessory port is a green indicator LED which illuminates when power is available on the port.

### [2] 24VDC Accessory Power Ports

The X|Smart system tray has two 24VDC accessory power ports. Each port is individually controlled (on/off) via the X|Smart web interface. Next to each accessory port is a green indicator LED which illuminates when power is available on the port.

### [1] 30 Watt PoE+ Switch Port

The X|Smart system tray has one 30 Watt PoE+ network switch port which is controlled (on/off) via the X|Smart web interface. Next to the PoE+ port is a green indicator LED which illuminates when power is available on the port.

### [1] 24VDC Passive PoE Switch Port

The X|Smart system tray has one 24VDC Passive PoE network switch port which is controlled (on/off) via the X|Smart web interface. Next to the 24VDC Passive PoE Port is a green indicator LED which illuminates when power is available on the port.

### Reset Button

The X|Smart system tray has a reset button. When depressed for more than 3 seconds, the system tray will reset to factory defaults.

### System LED

The System LED is a blue LED light which blinks indicating the system is live and operating normally. Allow approximately 10-15 seconds at power up for the System LED to start blinking.



## 1.4 ACCESSING THE X|SMART WEB INTERFACE

The X|Smart system has a built-in web server that provides the user with a simple web interface for controlling and monitoring the PTZ camera enclosure system. No special software is required to get started. Configuring the network parameters is explained in more detail in subsequent sections of this user manual. By default, the X|Smart system has an IP address of 192.168.10.25. The default username and password to access the control interface and system settings tabs after accessing the web interface are u: admin and p: xsd

**Note:** Depending on the setup of your network, configuring your network router and / or managed switches may be required in order to access the system from outside of your local network.

## 1.5 GOOD WIRING PRACTICES

**CAUTION: MAKE SURE THAT POWER IS COMPLETELY OFF BEFORE WIRING.**

**MIS-WIRING OR MIS-CONFIGURATION COULD CAUSE PERMANENT DAMAGE TO THE X|SMART PCBA, THE EQUIPMENT TO WHICH IT IS CONNECTED OR BOTH.**

Correct Wiring Procedures:

1. Make sure that power is disconnected completely from the X|Smart System Tray.
2. Strip each power wire approximately 4 to 5 mm.
3. Carefully insert the bare end of the wire into the appropriate (-/+) power port minding the voltage (12VDC or 24VDC).
4. Make sure that no bare wire shows.
5. Give the wire a slight tug to make sure that it is in the power port securely.
6. Re-Apply power to the X|Smart System Tray.

Making clean and proper connections to the accessory power ports on the X|Smart system tray is important. See Figures 1.6.1 and 1.6.2 below.



Figure 1.6.1 - Exposed Wire & Poor Connection



Figure 1.6.2 - Good Connections

## 1.5 RESET TO FACTORY DEFAULT SETTINGS

The X|Smart system tray has a reset button as shown in Figure 1.4 above. To reset to factory default settings, while the system is powered up, press and hold the reset button for more than 3 seconds. The system will reset to the default settings as follows.

IP Address: 192.168.10.25  
 Subnet Mask: 255.255.255.0  
 Gateway IP: 192.168.10.1  
 DNS: 8.8.8.8  
 Username: admin  
 Password: xsd

**Note:** Depending on your network configuration, you may have to assign a static IP address to your computer in the same subnet (Example: 192.168.10.30) in order to reach the web interface at 192.168.10.25.

## SECTION 2: NETWORK CONNECTION

By default, the X|Smart system tray is configured with the following network settings and credentials:

IP:	192.168.10.25	Username:	admin
Subnet Mask:	255.255.255.0	Password:	xsd
Gateway IP:	192.168.10.1		
DNS1:	8.8.8.8		
DNS2:	8.8.4.4		
HTTP Port:	80		

To access the web interface of the X|Smart system tray and configure the settings for your network, power up the enclosure system and work your way through the following instructions. It is suggested to do the initial connection and configuration of the X|Smart system tray prior to mounting the enclosure system at the installation site.

1. Connect an Ethernet Cable between a computer (or laptop) direct to any of the ethernet ports on the face of the power supply chassis. This can be done direct or through a network switch (Figure 2.1.1). It is suggested that no other devices are connected to the network if connecting through a switch to avoid potential IP Address conflicts.
2. Configure your computer to have an IP address within the same 192.168.10.X subnet (EX: 192.168.10.20) and Subnet Mask: 255.255.255.0
3. It is not necessary to input a Gateway IP address or DNS information. If you enter this information, use 192.168.10.1 for the Gateway IP Address, DNS1: 8.8.8.8 and DNS2: 8.8.4.4
4. Apply and/or save those settings on your computer.
5. Open up your favorite web browser. Firefox and Chrome work well.
6. Enter the following into the URL Window; `http://192.168.10.25` then hit enter.
7. The X|Smart web interface will load in the web browser and look similar to login window in Figure 2.1.2 below. Enter "admin" for the username and "xsd" for the password. The Control Tab window of the X|Smart web interface will load as seen in Figure 2.1.3 below. You are now connected with the X|Smart web interface.



Figure 2.1.1 - X|Smart Connection - Computer Direct & Through a Networks Switch

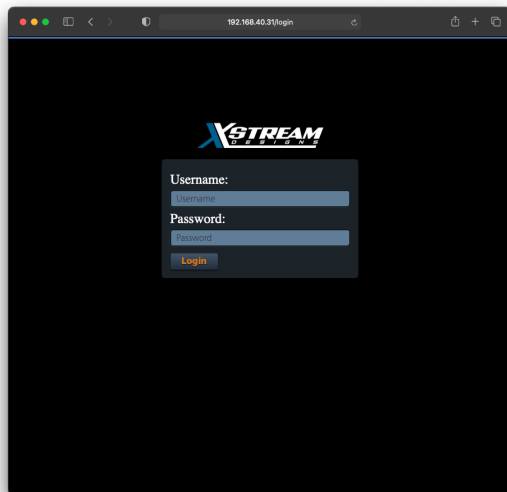


Figure 2.1.2 - X|Smart Login Window

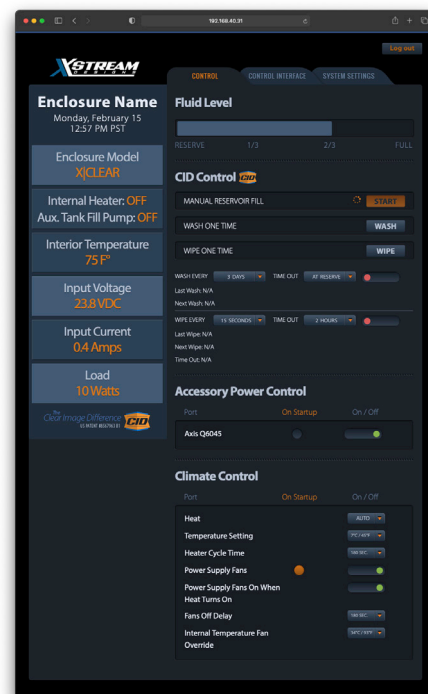


Figure 2.1.3 - X|Smart Initial Web Interface Window

## SECTION 3: CONTROL WINDOW OVERVIEW

When first connecting to the web interface of the X|Smart system, the control window will appear. You can also navigate to the control window by clicking on the control tab. It is within the control window that you monitor power and temperatures, control the CID washing and wiping functions and power on and off accessory power ports.

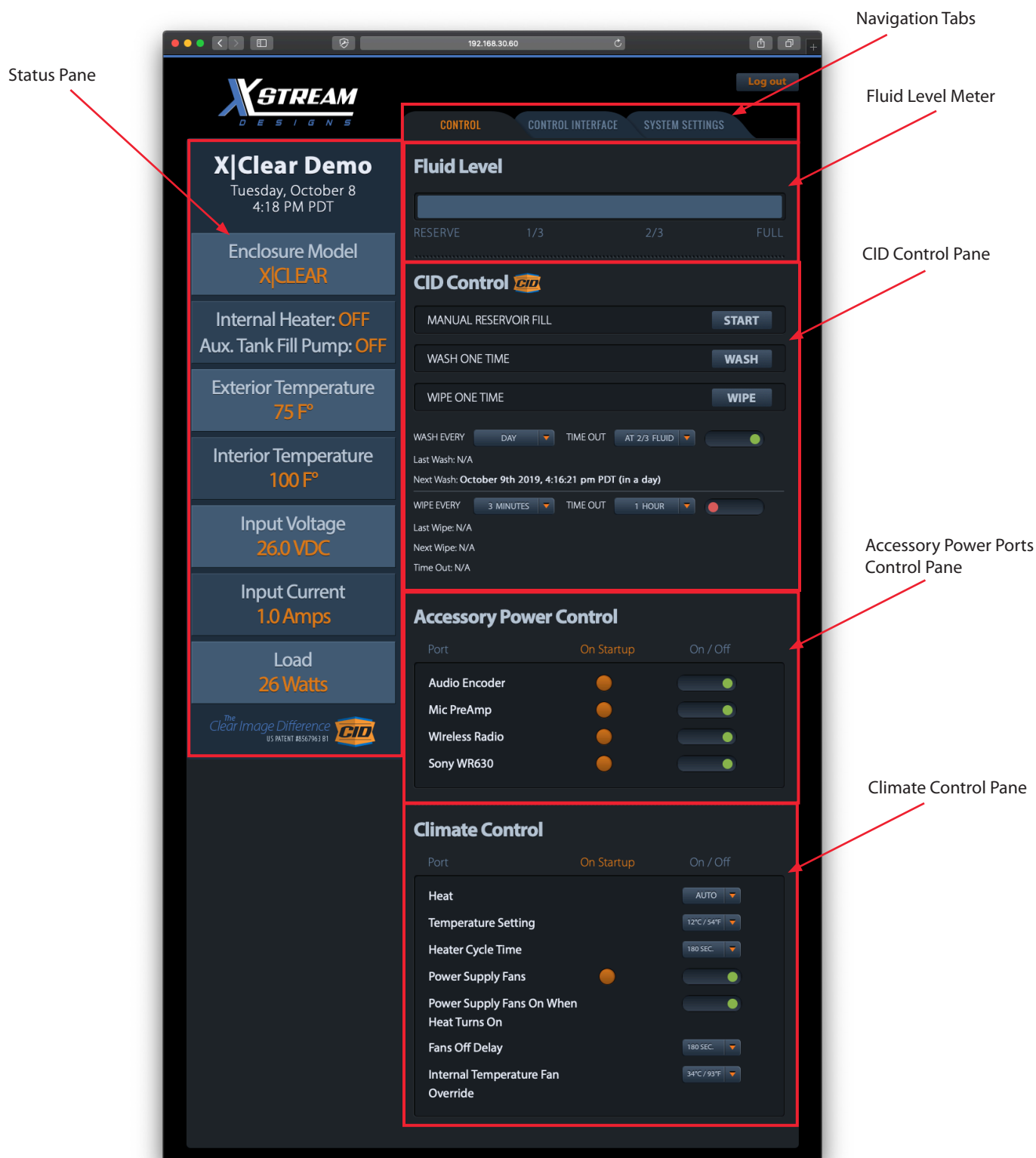


Figure 3 - X|Smart Control Tab Window

### 3.1 CONTROL TAB WINDOW

The Control Window is comprised of the Status Pane, Navigation Tabs, Live Stream Window, Fluid Level Meter, CID Control Pane, Accessory Power Control Pane, Climate Control Pane and Power and Temperature Graphs. Each section of the control window and what is displayed can be customized as desired by the user within the CONTROL INTERFACE tab.

#### Status Pane

This section of the control window displays the System Name, Time/Date, Enclosure Model, Exterior Temperature (Exterior temperature is only displayed if the optional X|EXT-TEMP probe is installed), Interior Temperature, Input Voltage, Input Current and Load. By default, the system displays temperature in both Fahrenheit and Celsius. This can be changed to °F, °C or both as well as what is displayed in the status pane within the CONTROL INTERFACE and SYSTEM SETTINGS navigation tabs.

#### Navigation Tabs

The navigation tabs allow the user to navigate from the Control Window to system setup menus under the CONTROL INTERFACE tab and SYSTEM SETTINGS tab.

#### Live Stream Window

The Live Stream Window streams live HTTP/HLS streams. It can be enabled and disabled from within the Control Interface tab. HTTP URL settings are entered in the System Settings tab. Note: This feature DOES NOT allow you to display live video from typical IP network cameras unless they support HTTP streaming.



Figure 3.1 - Fluid Level Meter

#### Fluid Level (Applies to the X|Clear model enclosure only)

The Fluid Level meter displays the level of the washing fluid at four levels - FULL, 2/3, 1/3 and RESERVE. When the fluid bottle is filled completely, FULL will be displayed for approximately 15 wash cycles. 2/3 will then be displayed until approximately 30 wash cycles are completed. 1/3 will then be displayed until approximately 50 wash cycles are completed. When no bar is displayed in the meter, the fluid bottle has reached the RESERVE level. This happens at approximately 70 wash cycles with approximately 20 wash cycles remaining.

**Note:** There is no indicator as to when the fluid bottle is completely empty. Damage to the pump and possible scratching of the dome can occur if the system runs out of fluid and continued attempts are made to clean / spin the dome against a dry wiper blade.

#### CID Control Pane

It is within this section of the Control Window that the user controls the dome washing function and the dome wiping function of X|Rain and X|Clear model enclosures. In the X|Clear model enclosure, the CID Control Pane will display both Wash and Wipe functions. In the X|Rain model enclosure, the CID Control Pane will only display the Wipe function. The CID Control Pane is not displayed in the X|Heat, X|Cold or X|Mod enclosures.

Manual Reservoir Fill is only displayed with the optional auxiliary external reservoir (Optional Accessory/Upgrade: X|Aux-Reservoir). To manually fill the internal reservoir with fluid from the external reservoir, click start.

To manually trigger a one time wash event or wipe event, click on the appropriate wash or wipe button.

To schedule wash events, select the frequency at which wash events will occur, select the fluid level when the schedule will timeout then enable by clicking on the red ball.

For wet and rainy weather, you can enable the wipe every function. To schedule wipe events, select the frequency of the wipe events, the amount of time before the schedule times out then enable by clicking on the red ball.

The Last Wash/Wipe Event and Next Wash/Wipe Event Time/Date are displayed below respective schedules.



Figure 3.2 - CID Control Pane

### CID Control Pane (continued)

#### Notes:

When the fluid level has reached the RESERVE level, the WASH EVERY function cannot be enabled.

It is suggested to choose appropriate Time Out values so that the fluid bottle is not emptied pre-maturely and the Wipe Every function is not wiping a dry dome which can lead to surface scratches on the dome lens.

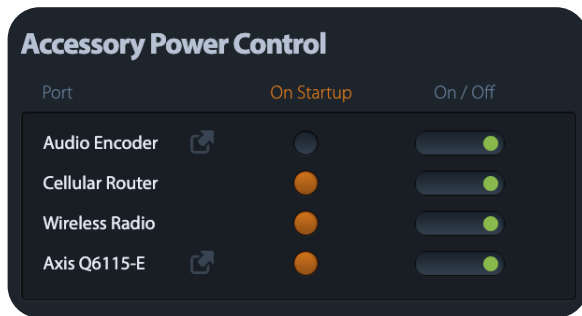


Figure 3.3 - Accessory Power Control

### Accessory Power Control

This section of the Control Window allows the user to monitor and control the accessory power ports including the IEE 802.3at 30 Watt PoE+ and 24VDC Passive PoE powered ethernet ports. By default, the system displays the 12VDC and 24VDC accessory ports as 12VDC\_1, 12VDC\_2, 24VDC\_1 and 24VDC\_2 where “\_1” is the port on the left and “\_2” is the port on the right for both the 12VDC and the 24VDC ports. The user can customize the naming of these accessory power ports within the CONTROL INTERFACE tab.

Examples: 12VDC\_1 to Audio Encoder, 24VDCV\_1 to Cellular Router, 24VDCV Passive PoE to Wireless Radio and POE to Axis Q6115-E (Figure 3.3).

Enabling and disabling power to the accessory power ports is achieved by clicking the mouse in the appropriate toggle slider to the right. The indicator is either green when enabled or red when disabled.

Each of the accessory power ports can be enabled to automatically turn on at system startup. This is enabled under the CONTROL INTERFACE tab. If the power port is enabled to be “on” at system startup, an orange ball will appear under “On Startup”.



Figure 3.4 - Accessory Hyperlink Icon

The icon to the right of the accessory power port name (Figure 3.4) is a hyperlink to a user specified URL. The link URL is configured under the CONTROL INTERFACE tab in the Accessory Power Ports section. It is a convenience feature allowing you to quickly access the web interface of the device being powered by the accessory power port.

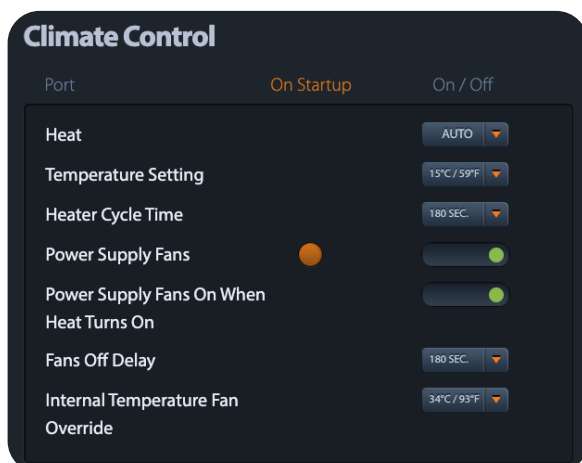


Figure 3.5 - Climate Control

### Climate Control

The Climate Control pane of the Control Tab interface allows you to configure specific features and parameters of the internal climate control and air circulation. While the settings might seem a bit complex, they allow for customized settings to reduce power load which is extremely important for off-grid power installations.

The enclosure heating system is set to OFF by default. The selectable options are OFF or AUTO. If OFF is selected, the Temperature Setting value is not selectable. If Heat is set to AUTO, the user is able to select a Temperature Setting value via a drop down menu (Figure 3.6). If the internal temperature of the enclosure is below the Temperature Setting, the heater element is enabled for the duration as selected in the dropdown menu under Heater Cycle Time (Figure 3.7). The system will continue to run the selected Heater Cycle Time durations until the Temperature Setting is reached at which time, the heater element is disabled. The enclosure heating system will again run a Heater Cycle Time automatically if the internal temperature drops below the Temperature Setting value.

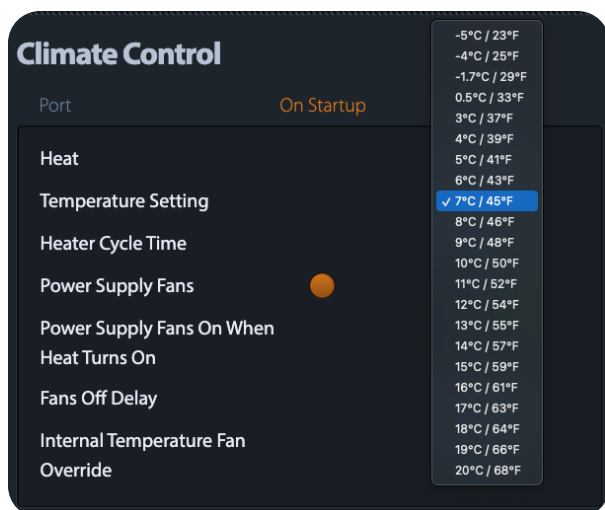


Figure 3.6 - Climate Control Temperature Setting

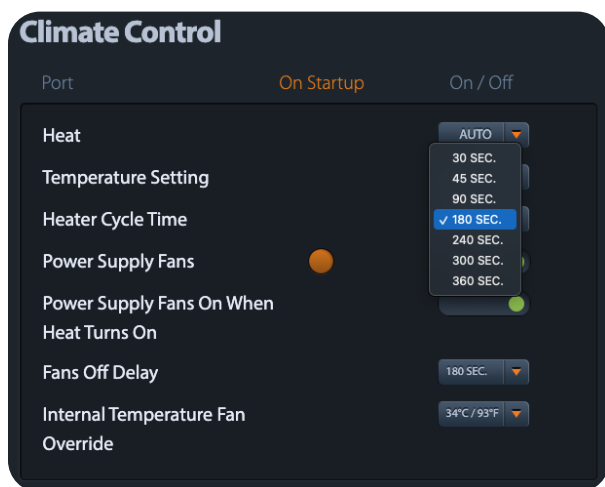


Figure 3.7 - Heater Cycle Time

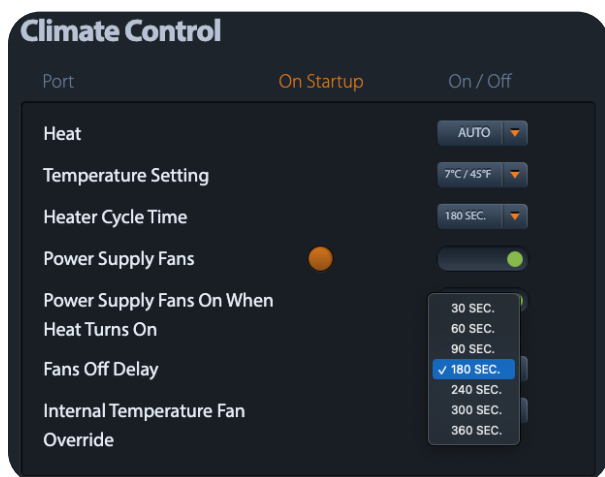


Figure 3.8 - Fans Off Delay

### Climate Control (continued)

For power load purposes (approximately 3 watts) and sensitive fan noise environments, we've designed the interface to give the user the ability to enable and disable the Power Supply Fans. The Power Supply Fans can be turned on or off via the power toggle slider. If the slider is red and in the left position, the fans are off. If the slider is green and in the right position, the fans are on. The Power Supply Fans are enabled to come on at system startup by default. The default startup state (on or off) of the fans can be changed under the CONTROL INTERFACE tab.

To further reduce power loads for off-grid power locations, we've designed the interface to give the user the ability to enable or disable the Power Supply Fans when the heat turns on. IT IS NOT RECOMMENDED to run the heater with the Power Supply Fans off. If the user selects this option, the system will pop up a warning window with this same message.

If the Power Supply Fans are disabled but the Power Supply Fans On When Heat Turns On is enabled, the system will run the Power Supply Fans for the duration selected in the dropdown menu under Fans Off Delay. The user is able to select specific durations (as depicted in Figure 3.8) that the Power Supply Fans will remain on after the heater element has turned off.

As a safety feature, we've given the user the ability to select via dropdown menu specific temperature values at which the Power Supply Fans will override the other settings in the Climate Control Pane and turn on to protect integrated components. It is recommended to select a temperature settings value at least 15°F below the highest operating temperature value of the integrated components.

#### Note:

*The Power Supply Fans are instrumental in circulating air within the enclosure system eliminating hot spots created by integrated components such as the camera and thermal heating to the external housing. Unless power consumption (Approximately 3 Watts) or noise is a concern, it is recommended that the power supply fans are left on at all times.*



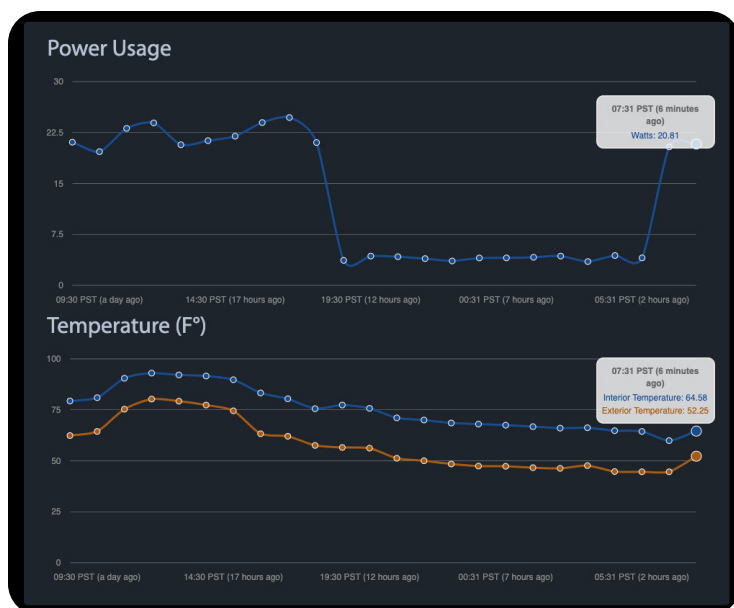


Figure 3.9 - Power Usage & Temperature Graphs

### Power Usage & Temperature Graphs

In addition to the power and temperature values displayed in the status pane, the X|Smart web interface displays power usage and temperature in a graphical format over a 24 hour period. Power is displayed in watts while temperature is displayed in either Celsius or Fahrenheit. If the optional external temperature probe is installed, both internal and external temperatures are graphed.

The Power Usage and Temperature graphs provide valuable insight into power usage, temperature and climate for the purpose of selecting the correct settings and reducing power load for off-grid power install locations.

Each hour, the system determines the watts used and graphs the value in the Power Usage graph. The specific time and value at that point in time can be displayed by mousing over the circle points in the line graph.

The Temperature Graph displays the temperature in either Fahrenheit or Celsius each hour. Under the CONTROL INTERFACE tab in the Display pane, the user can select either Fahrenheit or Celsius and enable or disable displaying the power and temperature graphs all together.

## SECTION 4: ENCLOSURE SYSTEM SETTINGS TABS

The enclosure system settings is found under the CONTROL INTERFACE and SYSTEM SETTINGS tabs at the top of the interface window (Figure 4.1).



Figure 4.1 - System Settings Tabs

### 4.1 CONTROL INTERFACE TAB

Under the CONTROL INTERFACE tab, you will find the System Name, Time and Date, Accessory Power Ports, Climate Control and Display configuration panes. Each section and the configuration options are explained below in detail.

Figure 4.2 - System Name

Figure 4.3 - Time and Date

#### System Name

The System Name pane allows you to enter text or a name which will appear above the time and date in the Status Pane. Simply enter the desired text into the text input box and click any one of the [UPDATE] buttons. The user has the option to display or not display the System Name field in the status pane by selecting either Yes or No to the right of Display under the System Name text input box.

#### Time and Date

Both the Time and Date are displayed under the System Name within the status pane section of the UI. Within the Time and Date pane of the CONTROL INTERFACE tab, the user is able enable or disable displaying this data. Choose either yes or no and click on any one of the [UPDATE] buttons to change the display status.

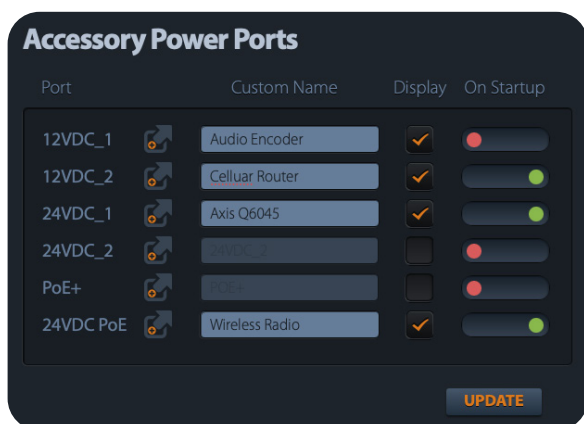


Figure 4.4 - Accessory Power Ports



Figure 4.4.1 Hyperlink Icon

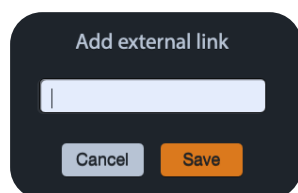


Figure 4.4.2 External Link Window

### Accessory Power Ports

The Accessory Power Ports configuration pane (Figure 4.4) allows the user to customize the name of each accessory power port, enter HTTP URL quick link data, select whether the port should be displayed in the the CONTROL Tab window and enable or disable the power port state at system startup. To display a power accessory port in the Accessory Power Ports pane of the CONTROL window, mouse click the respective box under the Display header. A check mark will appear indicating that displaying of the port in the CONTROL Tab window is enabled.

Instead of displaying the default names of each power port (Ex. 12VDC\_1), the user can enter an appropriate name in the text input box (Ex: Sony PTZ Cam) then click the [UPDATE] button to save the custom port name.

To enable a power port on startup, mouse click the appropriate toggle slider under On Startup. The red ball will move to the right and turn green indicating that the power port will be "ON" when the system starts up.

To enter a hyperlink URL for quick web access to accessory power port devices, click on hyperlink icon to the left of the Custom Name text input box (Figure 4.4.1). A window will appear (Figure 4.4.2) allowing you to enter the full URL of the device including http://. When a URL is entered, a similar hyperlink icon will appear next to the respective device in the Accessory Power Ports section of the CONTROL Tab window. Mouse clicking on the hyperlink icon within the CONTROL Tab window will open the entered URL in a new web browser tab.

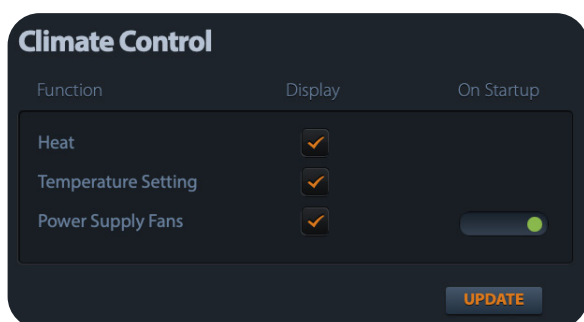


Figure 4.5 Climate Control

### Climate Control

The Climate Control configuration pane allows the user to enable or disable displaying of the respective control items in the Climate Control section of the CONTROL Tab window. It also allows the user to set the default state of the Power Supply Fans at system startup - On or Off. To display the respective item in the Climate Control pane of the CONTROL Tab window, mouse click the respective box under the Display header. A check mark will appear in the box indicating the item will be displayed in the CONTROL Tab window.





Figure 4.6 - Display

### Display

The Display configuration pane allows the user to enable or disable status in the Status pane of the Control Tab window, enable or disable displaying the Power Usage and Temperature Graphs and choose the display units for temperature - Fahrenheit or Celsius.

To disable displaying of a status parameter, mouse click on the check mark under the Display header. To Enable displaying a status parameter, mouse click in the empty box and a check mark will appear indicating that displaying of the parameter is enabled. After enabling or disabling a status display parameter, click the [UPDATE] button.

## 4.2 SYSTEM SETTINGS TAB

Under the SYSTEM SETTINGS tab, you will find System, Network Settings, User Password, Authentication, Time/Date Settings, Live Stream Player, CID Settings and Auxiliary Fluid Reservoir Settings configuration sections. Each section and the configuration options are explained below in detail.

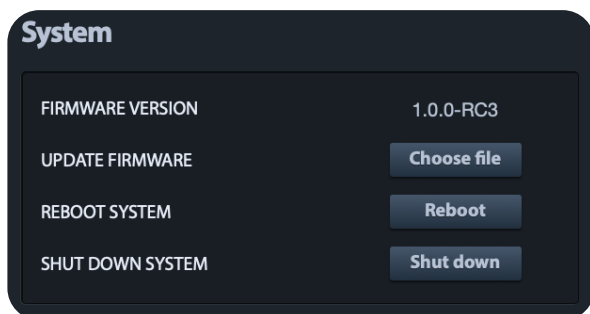


Figure 4.7 - System

### System

The System section of the SYSTEM SETTINGS tab displays the current Firmware Version and allows the user to update the firmware, reboot the X|Smart system and Shutdown the enclosure system.

To update the system firmware, mouse click on the Choose file button, browse your computer files for the firmware update file and select OK. The system uploads the update firmware file and automatically updates the system firmware. Contact X Stream Designs support for updated firmware.

To Reboot the system, click on the Reboot button and confirm your reboot intentions when the confirmation window appears.

To properly shutdown the X|Smart system, click on the Shutdown button and confirm your shutdown intentions when the confirmation window appears.

#### Note:

The X|Smart system is based on a linux operating system. As such, to power down the enclosure system, it is highly recommended to properly shutdown the system by using the Shutdown button. Failure to do so has been known to result in lost configuration settings.

Network Item	Value
IP ADDRESS	192.168.40.34
SUBNET MASK	255.255.255.0
GATEWAY	192.168.40.1
DNS 1	8.8.8.8
DNS 2	8.8.4.4
HTTP PORT	80

Figure 4.8 - Network Settings

### Network Settings

The Network Settings section of the SYSTEM SETTINGS tab allows the user to change the network settings of the X|Smart\_PSP system. It is suggested to contact the administrator of your network for these settings prior to making changes and connecting the system to your network.

Selecting DHCP “yes” and clicking the [UPDATE] button will configure the X|Smart system to get its network settings automatically via the DHCP server on your network. Selecting DHCP “No” allows the user to assign static IP address network settings into the X|Smart system. Enter the IP Address, Subnet Mask, Gateway (Router), DNS1/DNS2 information and click the [UPDATE] button. When doing so, you will temporarily lose connectivity to the X|Smart system. If the new IP Address information entered is part of a different network subnet (Example: 10.0.0.25), you will likely have to change the network settings on your computer to allow access to that subnet in order to access the system UI at the new IP Address settings.

The HTTP port by default is port 80. This can be changed as desired. If the HTTP port is changed to 8000 for example, the new URL to access the X|Smart system will be `http://<IP_Address>:8000`. When changing the HTTP port, click on the [UPDATE] button to save your setting changes. You will then have to use the new URL format above in order to access the X|Smart system.

Figure 4.9 - User Password

### User Password

The User Password section of the SYSTEM SETTINGS tab allows the user to change the default admin password (xsd). Enter the new password into both the New Password and Re-Enter New Password text fields and click on the [UPDATE] button to save the changes. The system will immediately require the user to enter the new login in credentials. Enter admin and your new password, then click Login.

Figure 4.10 - Authentication

### Authentication

The Authentication section of the SYSTEM SETTINGS tab allows the user to require or not require authentication when controlling the enclosure system via its API. When enabled, the username and password required for API authentication is the admin username / password used to login to the enclosure.

*Note: Contact X Stream Designs support at [support@hdontap.com](mailto:support@hdontap.com) for access to the X|Smart API Manual.*

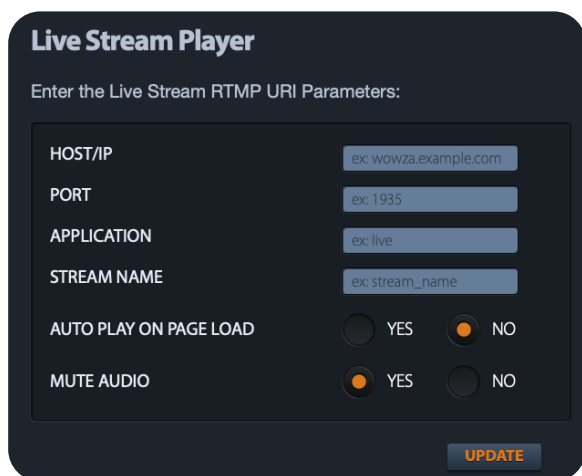
Figure 4.11 - Time / Date Settings

### Time / Date Settings

The Time/Date Settings section of the SYSTEM SETTINGS tab allows the user adjust time and date settings of the X|Smart system.

Choose the country and appropriate Time Zone for the location of the enclosure system. Once the desired settings are made, click on the [UPDATE] button to apply the settings.

*Note: The time is in 24 Hour Format only.*



**Live Stream Player**

Enter the Live Stream RTMP URI Parameters:

HOST/IP	ex: wowza.example.com
PORT	ex: 1935
APPLICATION	ex: live
STREAM NAME	ex: stream_name
AUTO PLAY ON PAGE LOAD	<input type="radio"/> YES <input checked="" type="radio"/> NO
MUTE AUDIO	<input checked="" type="radio"/> YES <input type="radio"/> NO

**UPDATE**

Figure 4.13 - Live Stream Player

**Live Stream Player (Figure 4.13)**

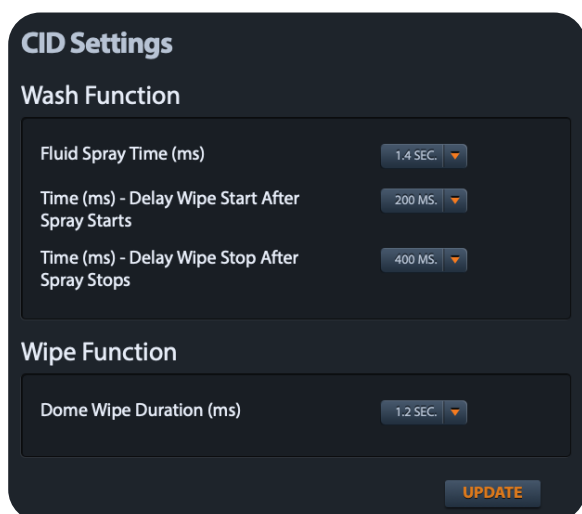
The Live Stream Player section of the SYSTEM SETTINGS tab allows the user to enter HTTP Live Stream URI parameters. Enter the following parameters then click the [UPDATE] button to apply the settings.

- HOST/IP - Hostname or IP Address of the HTTP server.
- PORT - The HTTP Streaming port. This is typically port 80 but may vary depending on the individual settings of the HTTP server.
- APPLICATION - The application name from which you are pulling the HTTP stream.
- STREAM NAME - The name of the live stream.
- AUTO PLAY ON PAGE LOAD - Select "YES" to have the live stream auto start when the CONTROL window loads. Selecting "NO" will require the user to mouse click in the player window to start the live stream playing.
- MUTE AUDIO - Select "YES" to mute audio associated with the live stream. Selecting "NO" will allow audio if any to be audible when viewing the live stream.

**Note:**

The Live Stream Player feature does not allow you to display typical IP Network camera video (RTSP). It is only intended to be used to display live stream video which is served by an HTTP or HLS streaming server. The feature exists for customers using the X|Smart enclosure systems for live streaming purposes.

To display the live stream player within the CONTROL window, you must enable the player within the Display section of the CONTROL INTERFACE tab.



**CID Settings**

**Wash Function**

Fluid Spray Time (ms)	1.4 SEC.
Time (ms) - Delay Wipe Start After Spray Starts	200 MS.
Time (ms) - Delay Wipe Stop After Spray Stops	400 MS.

**Wipe Function**

Dome Wipe Duration (ms)	1.2 SEC.
-------------------------	----------

**UPDATE**

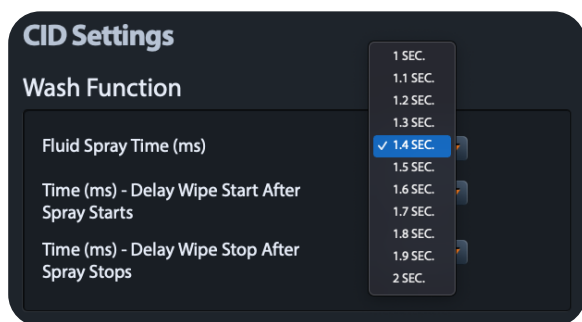
Figure 4.14 - CID Settings

**CID Settings (Figure 4.14)**

Note: The CID Settings section only appears for X|Rain and X|Clear model enclosure systems. Wash Function settings only appear for X|Clear model enclosure systems.

The CID Settings section of the SYSTEM SETTINGS tab allows the user to customize the Wash and Wipe Functions of the enclosure systems.

For X|Clear model enclosure systems, you can customize Wash Function Settings including the Fluid Spray Time, Wipe Start Delay and Wipe Stop Delay After the fluid Spray Stops.



**CID Settings**

**Wash Function**

Fluid Spray Time (ms)	1.4 SEC.
Time (ms) - Delay Wipe Start After Spray Starts	
Time (ms) - Delay Wipe Stop After Spray Stops	

The dropdown menu for Fluid Spray Time (ms) is open, showing options from 1 SEC. to 2 SEC. with 1.4 SEC. selected.

Figure 4.15 - CID Settings - Fluid Spray Time

Fluid Spray Time (Figure 4.15): Is the amount of time the fluid will spray for when the wash function is triggered. The dropdown menu allows you to select times between 1 second and 2 seconds.

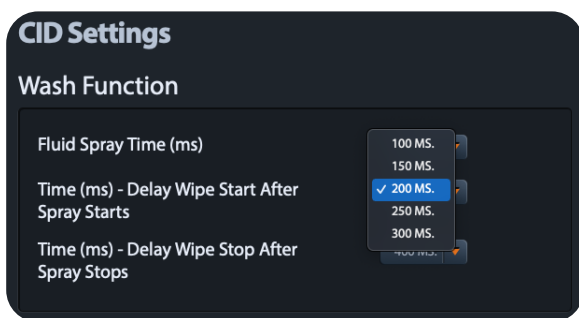


Figure 4.16 - CID Settings - Delay Wipe Start Time

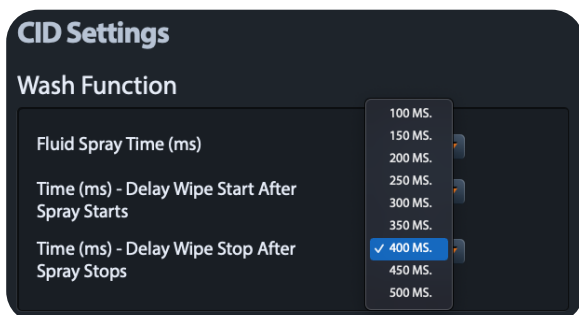


Figure 4.17 - CID Settings - Delay Wipe Stop Time

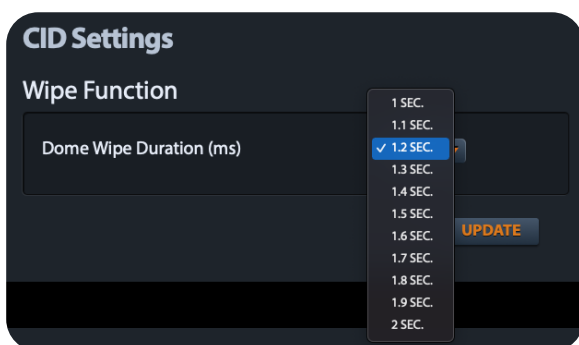


Figure 4.18 - CID Settings - Dome Wipe Duration



Figure 4.19 - Auxiliary Fluid Reservoir Settings

Time (ms) - Delay Wipe Start After Spray Starts (Figure 4.16): Is the amount of time the system will wait after the fluid starts to spray before the dome lens begins to spin (wipe) against the fixed wiper. The dropdown menu allows you to select between the following amounts of time; 100ms, 150ms, 200ms, 250ms, 300ms. For dirtier environments, it is suggested to allow more fluid spray on the lens before it begins to wipe the dome lens - hence a longer delay for this particular setting.

Time (ms) - Delay Wipe Stop After Spray Stops (Figure 4.17): Is the amount of time the system will continue spinning (wiping) the dome lens against the fixed wiper after the fluid spray stops. The amount of time for one revolution of the dome lens is approximately 1000ms. This number can vary depending on the wiper adjustment to the dome lens and the friction created. Suggested setting for this parameter is 350 or 400ms.

*Note: It is suggested to try different settings and test them by manually triggering wash events while physically monitoring the washing of the dome lens until you find the settings that work best. Keep in mind that increasing the fluid spray time will reduce the number of wash events between internal fluid reservoir refills.*

Wipe Function - Dome Wipe Duration (Figure 4.18): Is the amount of time the dome lens will spin against the fixed wiper when a wipe event is triggered. The dropdown menu allows you to select times between 1 and 2 seconds.

Default Values for the CID Settings are as follows:

Fluid Spray Time: 1.4 Seconds

Delay Wipe Start After Spray Starts: 200 MS

Delay Wipe Stop After Spray Stops: 400 MS

Dome Wipe Duration: 1.2 Seconds

### Auxiliary Fluid Reservoir Settings (Figure 4.19)

The Auxiliary Fluid Reservoir Settings only appear in the System Settings Tab window if the enclosure system was purchased with the optional auxiliary external reservoir (Optional Accessory/Upgrade: X|Aux-Reservoir).

These settings allow you to setup how the Auxiliary Fluid Reservoir will operate.

**Auto Fill:** If enabled, the system will automatically fill the internal reservoir with fluid from the external aux reservoir.

**Refill at Fluid Level:** Dropdown menu options include 1/3 and 2/3. If Auto fill is enabled, the system will wait until the internal fluid reservoir level reaches the selected value before fluid is transferred from the external reservoir to the internal reservoir.

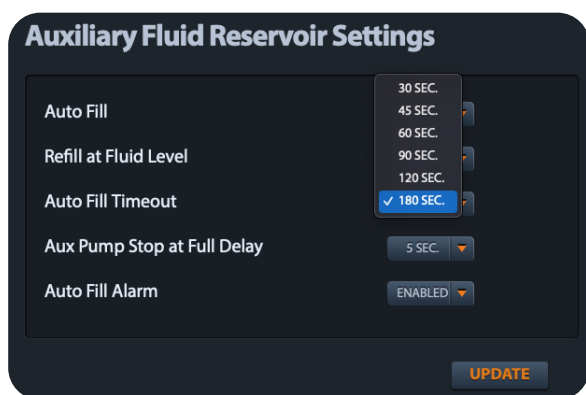


Figure 4.20 - Auto Fill Timeout

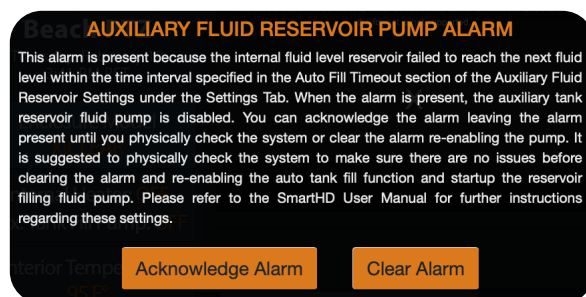


Figure 4.21 - AUXILIARY FLUID RESERVOIR PUMP ALARM

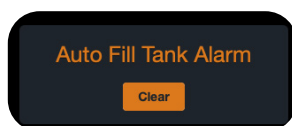


Figure 4.22 - Auto Fill Tank Alarm

### Auxiliary Fluid Reservoir Settings (continued)

*Note: The remaining settings in the Auxiliary Fluid Reservoir Settings are put into place to protect against mishaps as well as allow the user to customize when alerts and automatic system protection takes over. The amount of time that it takes to transfer fluid from the external reservoir to the internal reservoir can vary depending on the size of the pump as well as the height of the internal reservoir relative to the height of the external reservoir. For Example, it takes longer to transfer fluid to a height of 8 feet than it takes to transfer fluid to a height of 5 feet.*

**Auto Fill Timeout (Figure 4.20):** The dropdown menu allows you to select values between 30 Seconds and 180 Seconds. The value selected is the amount of time the system will wait for the fluid in the internal reservoir to change to the next higher level before an AUXILIARY FLUID RESERVOIR PUMP ALARM (Figure 4.21) is triggered and the transfer of fluid stops.

**Aux Pump Stop at Full Delay:** When the fluid transfers from the external reservoir to the internal reservoir and the level reaches full, there is actually more room in the internal reservoir for fluid. For this reason, the user can select a time value with the dropdown menu between 0 and 15 seconds that the pump will continue to run once the system reads full - thus filling the internal fluid reservoir to its actual capacity.

**Auto Fill Alarm:** Options are Enabled or Disabled. If Enabled, the system will display the pop up alarm as shown in Figure 4.21 and stop the pump. If disabled is selected, the pop up alarm window and auto stopping of the pump is disabled. *Note: It is not recommended to disable the Auto Fill Alarm.*

**AUXILIARY FLUID RESERVOIR PUMP ALARM window:** This pop up window appears if the alarm is triggered because the fluid level failed to reach the next higher level within the amount of time selected for the Auto Fill Timeout value. When the pop up window appears, you can either click Acknowledge Alarm or Clear Alarm. If you click Acknowledge Alarm, the pumping of fluid stops and a small alarm window (Figure 4.22) appears in the bottom right of the browser window. If you click Clear Alarm, the alarm is cleared, pumping of fluid continues and the fluid level must reach the next higher level within the time selected for the Auto Fill Timeout value otherwise the alarm will appear again.

*Note: It is recommended that you run tests with all of these values until you reach settings that work for your setup.*

## OPTIONAL ACCESSORIES & UPGRADES

The following optional accessories are available for purchase from X Stream Designs. Please contact an X Stream Designs representative via phone, our website at <http://xstreamdesigns.com> or email [sales@xstreamdesigns.com](mailto:sales@xstreamdesigns.com).

Accessory	Description	Part Number
External Temperature Probe	1 Wire Stainless Steel External Temperature Sensor Probe	X EXT-TEMP
Accessory Shelf	Black Powder Coated Perforated Aluminum Accessory Shelf Slides into Accessory Mounting Rails	X SHELF
Network Video Recorder (NVR)	Internally mounted NVR with Optional i3, i5 or i7 Processor	X NVR
High CFM Fans	Higher CFM Fans to Increase Airflow Within the Enclosure	X HIGM-CFM
50 Watt Internal Heating Element	For systems that come with a 20 Watt Heating Element, this optional upgrade gives you an additional 30 Watts of heat capacity.	X 50WH
External Auxiliary Fluid Reservoir	For X Clear model enclosure systems, the optional external auxiliary fluid reservoir increases the washing fluid capacity by the size of the reservoir used ultimately giving 8x plus the number of wash events between internal fluid reservoir refills.	X AUX-RESERVOIR
Heat Shielding Insulation	This optional upgrade includes installing open cell silicone foam rubber insulation on the internal walls of the enclosure system reducing solar radiation from the sun and/or the cold out - thus keeping integrated components within their operating temp range.	X INSULATE
Pole Mount Bracket	This optional accessory includes a pole mounting bracket, leveling plate and associated hardware. It does not include the strapping materials.	X PMB
DC Source Input Power Module	This optional accessory allows your enclosure to take 10-60VDC Input Power for Solar or Off-Grid Installations.	X DC-INPUT
Outdoor Omni-Directional Microphone	Outdoor ready omni-directional microphone with non-metallic conduit to the enclosure.	X ML-MIC
Microphone PreAmp / Interface	MicPreAmp with gain control produces line level audio input to camera for clear and crisp audio.	X LLMI
AC Power Cord	16AWG 3 conductor SJOOW outdoor ready power cord prepped to length with 15Amp Three Prong Plug	X AC-PC