



# BITSTREAM™

power • data • fire over ethernet

BT500-8R  
BT500-16R



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# Notes and Warnings

## Symbol Definitions

The following symbols are used throughout this manual

-  This symbol is intended to alert the installer of shock hazards within the enclosure. Service should only be performed by qualified service personnel
-  This symbol is intended to alert the installer of important information intended to help the installer avoid personal injury or property damage

## Warnings

-  Installation and service should be performed only by qualified service personnel and should conform to all local codes
-  To reduce the risk of electric shock or fire, do not expose this equipment to rain or moisture
-  This equipment shall be installed in a manner which prevents unintentional operation by employees, cleaning personnel, or others working in the premises, by falling objects, customers, building vibration, or similar causes
-  This equipment is not intended for use within the patient care areas of a Health Care Facility
-  Replace fuses only with the same type and rating as indicated in the specifications section of this manual.
-  To prevent impaired operation, ensure that all wiring is routed and secured to prevent accidental open or short circuit conditions
-  The system and any batteries (if used) should be tested at least once per year to ensure proper operation

## Regulatory Information

The equipment discussed within this manual has been tested to the following standards:

- UL294
- EN60950 EN55022 CLASS A EN55024
- CE



## FCC Information

**NOTE:** 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 own expense.

## Conventions Used Within this Manual

Positional information (e.g. top, bottom, up, down, left, right, etc.) is referenced with the board or enclosure in the orientation shown in the illustrations in this manual

# Introduction

## Product Description

The UL Listed BitStream BT500 series of multi-port PoE midspan injectors are designed to provide PoE power with battery backup to 802.3bt compatible IP devices such as access control panels, IP surveillance cameras, IP phones, locks, IR illuminators and other PoE compatible access control edge devices. The BT500 series products provide up to 90W of power per port (500 total maximum) and are compliant with the IEEE 802.3bt standard.

The chart below shows the models in the BT500 product family.

## BT500 Midspan Injectors

Model No.	Description	Notes
BT500-8R	8 port / 90W per port 500 Watts Managed midspan injector	Battery backup, SFI Mode, 802.3bt compatible

The BT500 series is compatible with the BX50 PoE splitter with Single-point Fire Interface (SFI) and the BX75 with local fire alarm disconnect. Single-point Fire Interface (SFI) mode is a proprietary mode compatible with the BX50 PoE splitter. SFI mode allows a single FACP connection at the BT500 midspan to drop lock power on all connected BX50 splitters, eliminating the need for an FACP connection at each door.

All models are fully network managed and are capable of charging battery sets from 4 to 18 amhours utilizing an internal float charger for central battery backup without excessive loading of the rack UPS.

## Specifications

Input voltage range	90 – 265 VAC
Input frequency	47 – 63 Hz
Power Factor / Current THD	> 0.9 / <10%
Total Output Power	500W
Max Power per Port	90W
Network Speed	10/100/1000
Battery Voltage	48V

## Section 1 – Installation

The following pages cover the installation of the BT500 Series rack-mountable PoE power supplies.

### 1.1 Mounting the BT500 into a Standard 19" Rack

Use the following procedure when mounting a BT500 series supply into a standard EIA 19" equipment rack.

1. If not already, securely mount the included ears to the front of the enclosure sides using the eight included countersunk screws (four per ear).
2. Locate the rack-mounting holes in the ears of the enclosure. (Figure 1)
3. Slide the enclosure into an open 1U location in the rack
4. Center the enclosure in the rack and secure with the four 10-32 x 3/4" screws provided.

**NOTE:** Use rails or other appropriate support for heavy enclosures. Keep heavier components near the bottom of the rack to reduce the risk of toppling of a top-heavy rack.

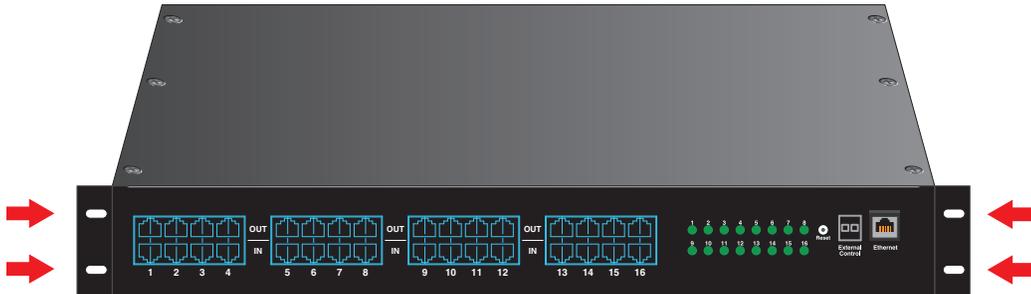


Figure 1: The Enclosure Mounting Holes

## 1.2 BT500 Rackmount Power Supply Overview

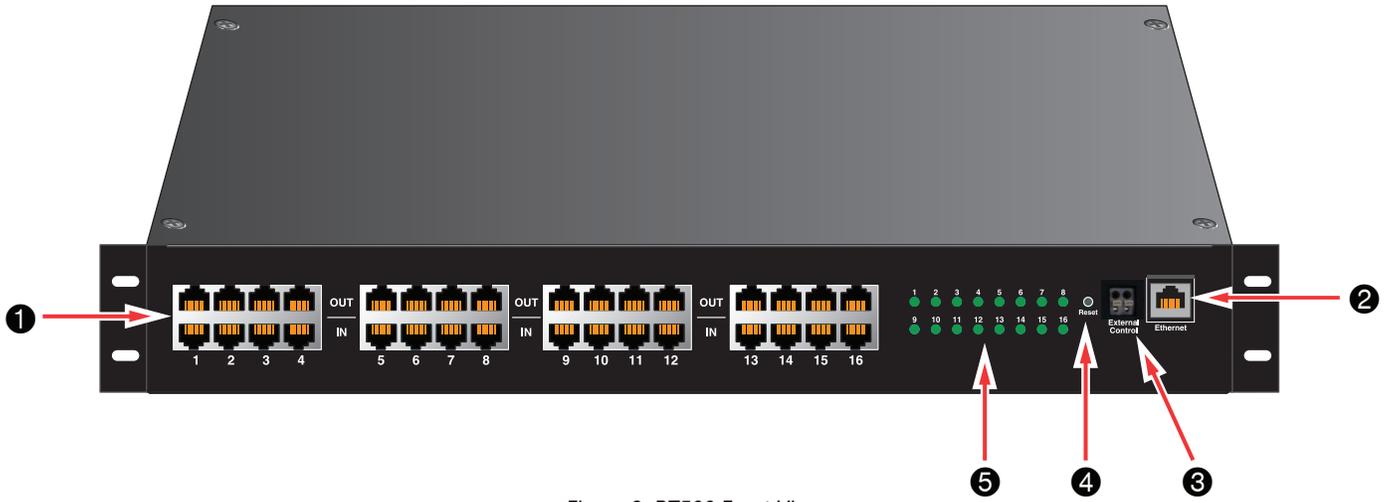


Figure 2: BT500 Front View

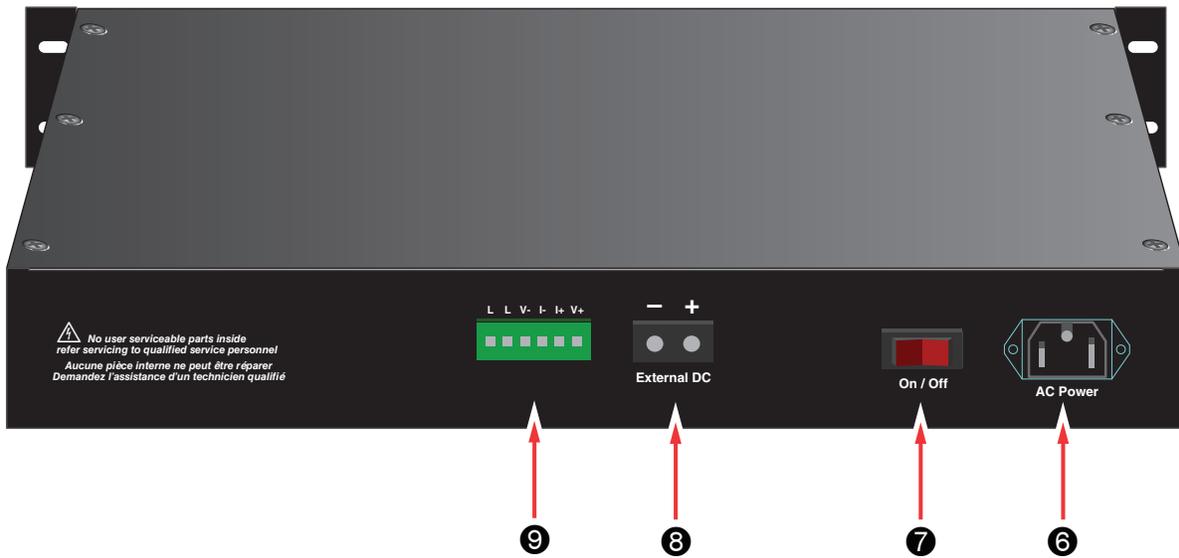


Figure 3: BT500 Rear View

The following are basic descriptions. Refer to the appropriate section for more detailed information. Note that the front panel may appear different based on the configuration of your system.

### 1 PoE Input / Output (IN / OUT)

Depending on model, there are eight or sixteen RJ45 jack pairs (top and bottom pair) labeled sequentially. For each pair, the bottom jack is for network data input. The top jack is the data and power output.

Connect your data-only cables to the bottom row of the RJ45 jacks (from a network switch, video server, etc.).

Connect the top jacks to the corresponding PoE compatible devices (e.g. IP cameras).

### 2 Ethernet Input (Ethernet)

This port allows users to monitor and control the BT500 multi-port midspan injector through a computer, over a LAN or the Internet. Access is via web browser, with no software needed. You may connect a PC directly to this Ethernet port, or via LAN/Internet.

### 3 External Control (External Control)

This connector allows an external trigger voltage to shut-down selected PoE outputs (programmed by user via the web browser interface). Note that this shutdown is independent of the Fire Alarm Input (See #9)

The trigger voltage is 5 to 24V, AC or DC.

### 4 Reset Button (Reset)

Pressing the recessed reset button with a pin for a length of time will reset BT500 as follows:

**10 Seconds** User Name & Password Only

**20 Seconds** User Name, Password, and IP Settings

**NOTE** - *The user name and password will both reset to "admin". If pressed for 20 seconds, the IP address will reset to 192.168.1.9 and the other IP settings will return to default.*

### 5 Front Panel LEDs (1-8 or 1-16)

Depending on model, 8 or 16 front panel LEDs (labeled 1 through 8 or 1 through 16) indicate the port status of the corresponding PoE channels. When the output is connected to a valid PoE Powered Device (PD) within the specified current limit, the LED will be green, indicating normal operation. When there is a fault condition, such as when no PD is connected to that port, the LED will be yellow.

The LED will be turned off if the corresponding port is disabled through the browser interface.

LED Status	Status
Green	Normal Operation
Yellow (Fault)	No Powered Device connected or fault condition present
Off	Port disabled

When the BT500 is first powered, these LEDs will light yellow

in sequence (1-8 or 1-16 depending on model) multiple times as the unit performs a self-test

### 6 AC Line Input (AC Power)

This is the connector for the AC line cord. Plug the included computer-style line cord into this connector. Connect the other end of the cord to the power strip inside the rack or another suitable AC power receptacle. The BT500 series has a universal input and accepts 90-265VAC input.

### 7 Main AC Power Switch / Circuit Breaker (On/Off)

This is the main AC power switch for the BT500. This switch lights when power is on and also has a built-in circuit breaker rated at 15A. If the circuit breaker trips, reset it by cycling the switch to off then back to on.

### 8 External DC Voltage Input (External DC +/-)

This input may be used to either power the BT500 via an external 50VDC supply or to provide battery backup to the BT500. The "External DC" input is reverse polarity protected. See below for details:

#### To Use Battery Backup

Connect AC power to the BT500 unit as normal. In addition, connect a 48V nominal battery set to the "External DC" connector, using the battery cable supplied.

#### To Use an External 50Vdc Supply

Connect a 50V power supply to the "External DC" connector at the rear. The ratings requirements for the DC power supply are given below:

Input voltage range	44 –57 VDC
Max input current (500W model)	14.0 A
Max input current (250W model)	7.0 A

Note that if both AC and DC power sources are connected to the unit at the same time, the AC source will supply the power to the output ports. The external DC source will not supply the outputs unless the AC source is missing or the power switch is turned off.

### 9 Fire Alarm Input (For BX50 SFI Mode)

This terminal accepts an input from a Fire Alarm Control Panel (FACP) to activate SFI mode when used with BX50 PoE splitters. See section 1.3 for more information on the Fire Alarm Input and SFI mode.

### 1.3 Using the Fire Alarm Input for SFI Mode

The BT500-8R and BT500-16R both contain a Fire Alarm Input which can be used to activate Single-point Fire Interface (SFI) mode when used with LifeSafety Power's BX50 PoE splitters. SFI mode allows a single FACP connection at the BT500 to control the lock output of one or more BX50 splitters through the ethernet cable without additional wiring between the BT500 and BX50, or to the door.

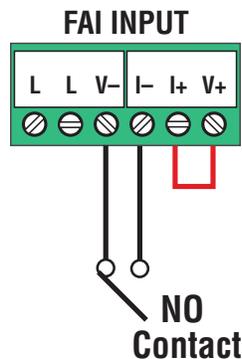
*NOTE: Only the BX50 is compatible with SFI mode. Activating SFI on other devices will result in improper operation.*

### Wiring the Fire Alarm Input

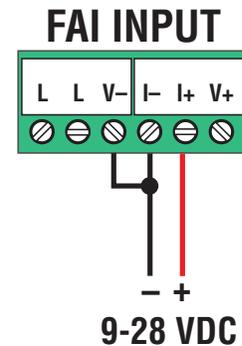
The Fire Alarm Input of the BT500 consists of 6 terminals for flexibility in connection method. See Figure 4 below for typical wiring diagrams. Connections are as follows:

- **I+ & I- Terminals** These terminals are the input terminals for the FAI input. The FAI input is activated when a voltage between 9 and 28VDC is present on these terminals in the proper polarity.
- **V+ & V- Terminals** These terminals are a low-current auxiliary voltage which can be used for activating the I+ and I- terminals through a contact.
- **L Terminals** When a NC contact is placed across the L terminals, the FAI input will latch when activated until the NC contact is momentarily opened. If latching is not needed, these terminals should be left disconnected.

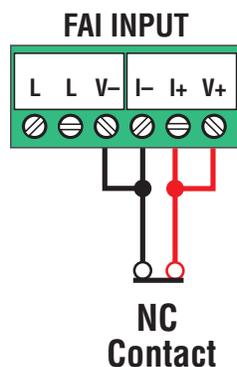
#### Normally Open Contact



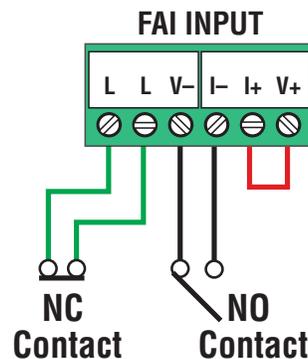
#### Voltage Input



#### Normally Closed Contact



#### Latching



*Note - NO Activation shown, but any method can be used for FAI activation*

Figure 4: Wiring the FAI Input

## Section 2 – Initial Configuration

The PowerCom PoE management interface allows users to configure, monitor, and control each output port of the BT500 series midspan injector. PowerCom PoE is an embedded web browser based interface and does not require the installation of any dedicated software on the user's PC. Any device with a network connection and a web browser may be used to access PowerCom PoE.

### 2.1 Preparing to configure the BT500

In order to perform the initial configuration of the BT500, you will need the following:

- A computer (PC or Mac) set to a static IP address in the subnet 192.168.1.xxx, where xxx is a subnet address (0 to 255) not being used by any other device on the network. Do not use 192.168.1.9 or the final IP address you will be using for the BT500. (See Figure 5.)
- A CAT5 or higher Ethernet cable long enough to reach between the computer and the BT500's Ethernet port.
- The BT500 must be powered. After powering, wait for the BT500 to initialize. When ready, the port LEDs will be lit steady.

After the BT500 is powered and initialized, connect the ethernet cable between the ethernet ports of the BT500 and computer.

### 2.2 Logging into PowerCom PoE for the first time

From the factory, the BT500 is preset with the following settings:

- IP Address: 192.168.1.9
- Username: admin
- Password: admin

Open a browser on the computer and enter "192.168.1.9" into the address bar. The login screen will appear (See Figure 6). Enter "admin" for both the user name and password.

**⚠ If the wrong password is entered three consecutive times, the user will be locked out of the device for 24 hours. Enter the password carefully to avoid lockout.**

On first login, the BT500 will require a password change. Enter a new password and submit. The BT500 Home Page should appear (See Figure 7).

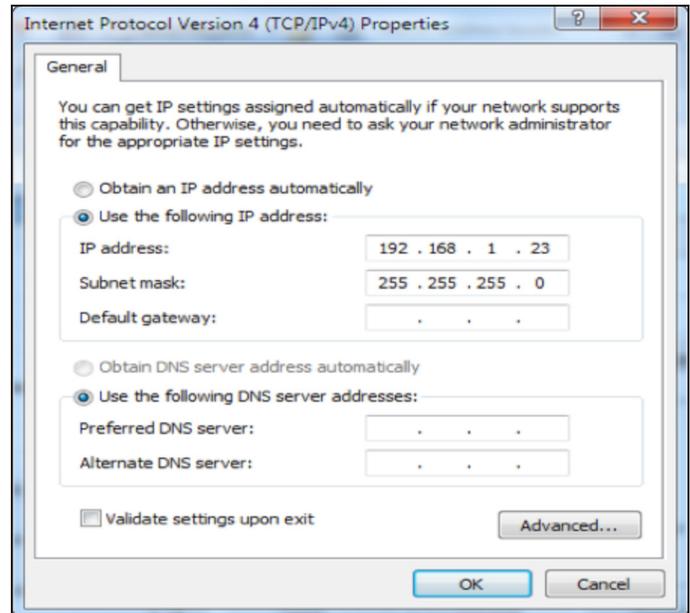


Figure 5: Example of a PC Ethernet port setting window

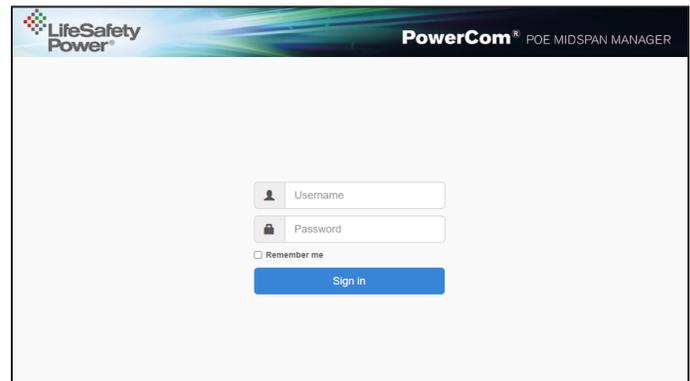


Figure 6: PowerCom PoE user login screen




Home    Configure    Programming    Tools
msm [Logout](#)
Ver: 0.1.9

MODEL: BT500-8

Site ID **BT500-8 Demo Unit**

Total Power  
127.86W

Date **Sun Sep 13 2020**

Time **17:38:07**

Enable Selected Ports
Disable Selected Ports
Reset Selected Ports
View Data

Enable All Ports
Disable All Ports
Reset All Ports
Save Settings

MCU VER: 1.60

Port	Ext.Control	Priority	Channel	Device	Enabled	FAI State	Voltage	Current	Power	Class	Status
<input type="checkbox"/> 1	<input type="checkbox"/> 1	0	Channel A&B	Camera 1	Yes	N/A	54.42V	0.53A	28.73W	4	Normal
<input type="checkbox"/> 2	<input type="checkbox"/> 2	0	Channel A&B	Door 1	No	N/A	0.00V	0.00A	0.00W	N/A	Disabled
<input type="checkbox"/> 3	<input type="checkbox"/> 3	0	Channel A&B	Door 2	Yes	N/A	54.47V	0.53A	28.70W	4	Normal
<input type="checkbox"/> 4	<input type="checkbox"/> 4	0	Channel A	Door 3: System Power	Yes	Active	54.45V	0.03A	1.47W	4	Normal
			Channel B	Door 3: Lock Power			0.00V	0.00A	0.00W	N/A	Disabled
<input type="checkbox"/> 5	<input type="checkbox"/> 5	0	Channel A	BX75	Yes	N/A	54.23V	0.07A	4.01W	8	Normal
			Channel B	BX75			54.37V	0.07A	4.02W		
<input type="checkbox"/> 6	<input type="checkbox"/> 6	0	Channel A&B	Door 5	Yes	N/A	54.37V	0.53A	28.98W	4	Normal
<input type="checkbox"/> 7	<input type="checkbox"/> 7	0	Channel A&B	Door 6	Yes	N/A	54.30V	0.52A	28.34W	4	Normal
<input type="checkbox"/> 8	<input type="checkbox"/> 8	0	Channel A	Door 7 A	Yes	N/A	54.43V	0.03A	1.80W	8	Normal
			Channel B	Door 7 B			54.44V	0.03A	1.80W		

**Battery Status Monitoring**

Battery Status:  **Connected**

Battery Voltage:  VDC

Figure 7: BT500-8R Home Page (BT500-16R similar)



## 2.3 Configuring the TCP/IP Settings

In the menu bar at the top of the browser screen, click the "Configure" link. Figure 8 shows the top section of the BT500 Configure page.

At the top left of the Configure page is the "TCP/IP Settings" area. The settings in this area include:

### **Site ID**

Entered by user. Enter any meaningful name to identify the BT500 midspan unit. This name will be displayed at the top of each page and in email alerts.

### **IP Address**

The factory default IP address is set to 192.168.1.9. This address may be changed to any valid IP address. In the event the IP address is later forgotten, press the "Reset" button on the front panel of the BT500 for 20 seconds and the IP address, default user name, and default password will be reset to factory default values.

### **Net Mask**

Should typically be set to 255.255.255.0

### **MAC address**

The MAC Address is factory set and is not programmable by the user.

### **Gateway IP**

The default gateway is 192.168.1.1. This value may be changed by the user - consult with your IT department for more information.

### **DNS0, DNS1**

The default value for DNS0 and DNS1 are 192.168.1.1. These values may be changed by the user - consult with your IT department for more information.

### **Enable DHCP**

Normally, this option is left unchecked, however in some cases you may want to allow the network to assign an IP address to the BT500. However, please note that **once you select this option, you will need a network scanning tool to find the BT500's IP address before you will be able to log into the BT500 and that the IP address may change periodically.**

You must click the "Submit" button at the bottom right of this area to save the changes in this section. The new settings will take effect after the BT500 is power cycled, or rebooted.

### **IPV6 Settings**

Below the TCP/IP settings are the IPV6 settings. If required, enter these settings as appropriate. Consult with your IT department for more information. Click submit once the settings are entered. The new settings will take effect after the BT500 is

power cycled, or rebooted.

## 2.4 Configuring the Time Settings

The Time Settings block (See Figure 8) is where the time and date are programmed into the BT500. First, select the correct time zone from the drop down list and click Submit. After the time zone is set, the time and date can be set one of three ways:

### **Manual Entry**

Enter the correct time and date in the following format and click the "Submit" button:

For Date: **YYYY MM DD**

For Time: **HH MM SS**

⚠ ALWAYS enter two digits in time field.. ie., 7AM = 07, not 7

The new date and time will take effect immediately.

### **Sync With Computer**

The "Sync Date/Time with computer" button will set the date and time of the NPR to match the computer currently being used to access the NPR. The new date and time will take effect immediately.

### **Sync With NTP Server**

To sync the BT500's time and date with an NTP server, enter one or two NTP server addresses into the NTP Server fields. Click the Get GMT Time button to get the time and date from the NTP server. The BT500 will periodically update the date and time from the NTP server.

Once set, you must click the "Submit" button to save the time and date settings.

## 2.5 MSM Settings

These settings are used when connecting the BT500 to an MSM Enterprise server. Enter the IP address of the MSM Server in the "IP Address" field. Set the Port number as appropriate (typically 9888). Click Submit when done to save the settings. Consult the MSM Enterprise manual for more information.

## 2.6 Configuring the SNMP Settings

In the SNMP Settings block, under the "Basic" heading, set Read and Write Community to "public" and set Location to a meaningful name of your choice. This entry will help you identify the specific BT500 when multiple BT500s are installed on the same subnet. This entry will be read by an SNMP system as "syslocation", OID .1.3.6.1.2.1.1.6. The port used for SNMP may also be changed in this section (161 Default). Be sure to open the SNMP port if accessing SNMP outside your firewall. Below the port number setting, select the trap type (Trap or Inform). Click

the "Submit" button at the bottom of the "Basic" section to save the settings, otherwise you will lose the settings. These settings will take effect after a reboot of the BT500.

The "Security Name" section of the SNMP Settings block allows you to grant only specified computers (by IP address) SNMP v1 and v2 access. Since v1 and v2 do not have password protection, the Security Name settings add security to v1 and v2 access. The web server is password protected and a user must have the web server password in order to setup a computer in the Security Name settings and gain

v1 and v2 access. Multiple source networks can be added to the Security Name Settings block. Be sure to click the "Submit" button to save the settings. The settings will take effect after a reboot of the BT500.

The "V3 User" section of the SNMP Settings block allows for a user to set up an SNMP v3 user name and password. With a user name and password, the BT500 may be accessed from anywhere via the internet by using the SNMP v3 protocol. No security name setup is required for v3 users and multiple v3 users may be set up in the same table. Click the

The screenshot displays the BT500 configuration interface. At the top, there are navigation tabs: Home, Configure, Programming, and Tools. The user is logged in as 'admin' and the version is 0.1.7. The main header shows 'MODEL: BT500-8' and 'Site ID: BitStream BT500-8'. Below this, there are fields for 'Date' (Tue Jun 30 2020) and 'Time' (10:07:55).

The settings are organized into several sections:

- TCP/IP Settings:** Includes fields for Site ID, IP Address (192.168.1.20), Net Mask (255.255.255.0), MAC Address (00:02:AC:56:10:A9), Gateway IP Address (192.168.1.1), DNS0 IP Address (75.75.75.75), DNS1 IP Address (75.75.76.76), and HTTPS Port # (443). There are 'Submit' and 'Restore to factory default Login' buttons.
- Time Settings:** Includes a 'Select timezone:' dropdown menu (set to (GMT-05:00)Eastern Time(US&Canada)), 'Insert Date' fields for Year (2020), Mon (06), Day (30), Hour (10), Min (06), and Sec (43). There are 'Submit' and 'Sync Date/Time with computer' buttons.
- IPV6 Settings:** Includes fields for IPV6 Address (2601:18b:c100:8180:202:acff:fe...), Prefix Lengths (64), Gateway IP Address (2601:18b:c100:8180::), DNS0 IP Address, and DNS1 IP Address. There is a 'Submit' button.
- MSM Settings:** Includes fields for IP Address (192.168.1.199) and Port# (9888). There is a 'Submit' button.
- SNMP Settings:**
  - Basic:** Includes fields for Read Community (publicread), Write Community (publicwrite), Location (LSP), Port # (161), and Trap Type (Trap). There is a 'Submit' button.
  - Security Name:** A table with columns: Name, Source Network, and checkboxes. One entry is 'mynetwork' with source network '192.168.1.0/24'. There are 'Submit' and 'Delete' buttons.
  - V3 User:** A table with columns: User Name, Password, and checkboxes. One entry is 'lsp' with password '12345678'. There are 'Submit' and 'Delete' buttons.
- SNMP Trap Receiver:** Includes fields for IP and Port. There are 'Submit' and 'Delete' buttons.
- Traps Version:** Includes a 'Select Traps Version' dropdown menu (set to V2C). There is a 'Show Inform Log' button.

Figure 8: Top section of the BT500 Configure page



"Submit" button to save the settings, which will take effect after rebooting the BT500.

The SNMP Trap Receiver IP and Port settings should be set to the proper address for the SNMP Trap receiver. Click the "Submit" button and reboot the BT500 for the settings to take effect. The SNMP Trap Version may be selected using "Select Trap Version".

## 2.7 Configuring the Email Settings

The BT500 can be configured to send email alerts on user-specified conditions and periodic status reports. Underneath the SNMP Settings block on the Configure page is the Email Settings block (See Figure 9).

Under "Receive Addresses", the email address or addresses to receive the alerts and reports should be entered. Up to four recipient email addresses may be entered.

Under "Sender", the settings of the account to send the emails should be entered. These settings include:

<b>Sender SMTP Server</b>	This is the address of the SMTP server for the email provider. Consult with your email provider for this address.
<b>Email Address</b>	This is the email address which the BT500 will use to send emails.
<b>Email Password</b>	This is the password associated with the Sender's Email account
<b>SMTP Port #</b>	Enter the port number required by your email provider for sending email.
<b>TLS</b>	Check this box if your email provider requires TLS or SSL encryption
<b>Authentication</b>	Choose the proper authentication method for your email provider from the drop-down list. Usually, this is "login". Select "off" to completely disable authentication.
<b>Period</b>	Selects how often the BT500 sends a regular email status report. The period can vary from 1 hour to 6 months or, if you do not want the BT500 to send periodic reports, select "Never". Note that the "Period" setting does not affect the sending of email alerts generated on faults or events selected by the user, only the periodic status report.

**⚠ Note:** *Regarding Microsoft Exchange – By Default, Microsoft Exchange will not accept SMTP connections. To use the BT500's email functions through Microsoft Exchange, the Exchange service must be configured to allow SMTP connections. Consult with the administrator of your Microsoft Exchange Server.*

**⚠ Note:** **Click the "Submit" button to save the settings.**

**TIP:** *Most mobile phone providers have an email address available which will convert an email into an SMS text message. This email address is usually in the form of: (the mobile phone number)@xxxxxx. Consult with your mobile provider for more information. The CSV attachment will be removed, since SMS text messages are not compatible with attachments. Because of this, it is recommended that the SMS email be entered as an ADDITIONAL "Receive Address" on the BT500, so that the CSV file will still be available via regular email.*

### Email Test

Below the Email Settings section is the Email Test section. After configuring the email settings, the Email Test button will send a test email to all Email Receive addresses. Please note that it could take an hour or more to receive the email, depending on the speed of your email server. Clicking the Show Email Log button will show the feedback from the email server. This can be useful for diagnosing email problems.

## 2.8 VPN Settings

The VPN Settings section is for the discontinued MSM-200 hardware VPN (See Figure 9). The MSM-200 has been replaced with MSM Enterprise. If connecting to an existing MSM-200 system, see the MSM-200 manual for more information.



Home    [Configure](#)    [Programming](#)    [Tools](#)



admin [Logout](#)    Ver: 0.1.7

---

**Email Settings**

**Receive Addresses**

E-Mail Address 1:

E-Mail Address 2:

E-Mail Address 3:

E-Mail Address 4:

**Sender**

SMTP Server:

E-Mail Address:

E-Mail Password:

SMTP Port #:

TLS:

Authentication:

Period:

---

**Email Test**

---

**VPN Settings**

EnableRemoteVPNServer

IP Address

User Name

Password

---

**General Settings**

Report Occurrences:     Data buffer interval:     Password Lockout Delay:

---

**User Settings**

**Authorization**

**User Name**

**Password**

**Verify Password**

Password Complexity:

Normal complexity: Password must have at least 1 uppercase letter, 1 lowercase letter, 1 number and total length at least 8 characters.  
Enhanced complexity: Password must have at least 1 uppercase letter, 1 lowercase letter, 1 special character, 1 number and total length at least 14 characters.

Figure 9: Middle Section of the BT500 Configure page



## 2.9 General Settings

---

There are three settings in the General Settings section (See figure 9):

**Report Occurrences** This setting selects how many datapoints are in the CSV file when the BT500 sends an email. Settings can be from 1 to 1000.

**Data Buffer Interval** This setting selects how often the BT500 takes a "snapshot" of the data for the report. Settings range from 5 minutes to 24 hours.

**Password Lockout Delay** This sets the lockout time after an incorrect password is entered three times. Settings range from 5 minutes to 24 hours.

## 2.10 User Settings

---

In the User Settings block of the Configure screen (bottom of Figure 9), you can enter the user names, passwords, access levels, and set the password complexity requirements for the BT500.

The default user is "admin" and the default password for this account is also "admin". On first login, the BT500 will force the user to change the default password. Click Submit after making any changes in the User Settings section. Note that there must ALWAYS be at least one admin-level user.

### *Adding a New User*

To add another user, first select the Authorization level desired for the user. Three authorization levels are available:

- **Admin** - Admin-level users have full control over the BT500. There are no restrictions.
- **Manager** - Manager-level users have access to all areas of the BT500 except for the Configure page.
- **Guest** - Guest-level users may only view information on the BT500 screens. No changes can be made and none of the control features are available.

After selecting the Authorization level, enter the new user name in the User Name column and enter the password into the Password column. Passwords must meet the complexity level setting requirements. Re-enter the password into the Verify Password column.

After clicking Submit, the new user will be active and another blank row will appear for entering the next user name.

## 2.11 Certificate Settings

---

The BT500 allows a user-supplied certificate to be used. Click the "Import Certificate" button (Figure 10) to enter the Import Certificate screen. Contact your IT department for more information.

Click the Choose File button to select the certificate to be used, then click Download, then Confirm to download the certificate.

Click the Submit and Test buttons to use and test the certificate.

## 2.12 SSL Protocol and CipherSuite Settings

---

This section allows the user to select which SSL protocol to use. The default setting is Normal. See Figure 10

## 2.13 Certificate Log

---

Click Show Certificate Log to view the certificate activity log. Click Hide Certificate Log to hide the window. See Figure 10

## 2.14 Import and Export Configuration File

---

The BT500 allows the user to export the configured settings to a file. This file can be used as a backup or to transfer these settings to other BT500 devices that require similar settings. The settings exported include: Time Settings, MSM Settings, SNMP Settings, VPN Settings, User Settings, Zone Programming

To export the settings, click the Export Configuration File button (See Figure 10). The exported file saves to the default download location of the browser.

To import a configuration file, click the Import Configuration File button to open the Import Settings screen.

Click the Choose File button and select the configuration file to be imported. Click Download, then Confirm to import the settings.

## 2.15 IEEE802.1x Settings and Log

---

This section allows the user to set up IEEE802.1x authentication, if required. Click Submit after completing this section. The "Show IEEE802.1x Log" button will show or hide the log on screen.

## 2.16 User Login Record

---

Click the Show Login Log button to show the history of login information for the BT500. See Figure 10

The screenshot displays the bottom section of the BT500 Configure Page. At the top, there is a navigation bar with links for Home, Configure, Programming, and Tools, along with an admin Logout link and the version number 0.1.7. The main content area is divided into several sections:

- Certificate Settings:** This section is divided into three columns: PFX Certificate, Certificate Authority, and Default Certificate. Each column has an 'Import Certificate' button and a 'Submit' button. The PFX Certificate column also includes a 'Password:' field and a 'Test' button. A note at the bottom states, 'The current use of the certificate is a default certificate.'
- SSL Protocol and Cipher Suite Settings:** This section contains a dropdown for 'SSL Options' (set to Normal), a text field for 'SSL Protocol' (set to all -SSLv3), and a text field for 'Cipher Suite' (set to HIGH:MEDIUM:MD5:RC4). A 'Submit' button is located below these fields.
- Certificate Log:** This section features a single 'Show Certificate Log' button.
- Import and Export Configuration File:** This section contains two buttons: 'Import Configuration File' and 'Export Configuration File'.
- IEEE802.1x Settings:** This section includes a dropdown for 'EAP Method' (set to EAP-MD5), a checkbox for 'Enable IEEE802.1x', and input fields for 'Username' and 'Password'. A 'Submit' button is positioned to the right of the checkbox.
- IEEE802.1x Log:** This section features a single 'Show IEEE802.1x Log' button.
- User Login Record:** This section features a single 'Show Login Log' button.

Figure 10: Bottom Section of the BT500 Configure Page



## 2.17 The Programming Page

Figure 11 shows the Programming page of the BT500.

The programming page allows users to set "Disable on FAI" and optional upper and lower limits for the measured voltage and current of each port. If any of these limits are exceeded, and the "E-Mail Alert" box is checked for the port, an email will be sent to the address configured in Section 2.7 of this manual. This email includes an attached CSV file containing fault details as well as historical data. **NOTE:** The email settings must be configured properly. See Section 2.7 of this manual.

**"Fill All" Button** (top) - This button will take all settings from Zone 1 and copies them to all other zones.

**"Fill All" Buttons** (column) - Each column has a "Fill All" button. This button takes the setting from Zone 1 of that column only and copies it to all other zones.

**"Import Settings" Button** - This button opens a page allowing you to select a BT500 Configuration file to import. Click

the Browse button to select the file, then click open. After selecting the file, click "Download" then "Confirm".

**"Export Settings" Button** - This button saves the configuration of the BT500 to a file, which may be imported to other BT500s. If prompted after clicking, select "Save File".

**NOTE:** The upper and lower limits entered must be within the allowed range. For voltage limits, the range is 0 to 60V. For current limits, the range is 0 to 1.15A.

**NOTE:** Disable on FAI should **ONLY** be selected as "Yes" on zones connected to a BX50 PoE splitter. Selecting "Yes" on other devices will result in incorrect operation.

The screenshot shows the BitStream Power System Manager interface. At the top, there are navigation tabs: Home, Configure, Programming (selected), and Tools. The user is logged in as 'msm'. The site ID is 'BitStream BT500-8', the date is 'Tue Jun 30 2020', and the time is '12:17:28'. Below this, there are buttons for 'Save Settings', 'Fill All', 'Import Settings', and 'Export Settings'. The main part of the page is a table with columns for Port No., Channel, Disable On FAI, Voltage Lower Limit (V), Voltage Upper Limit (V), Current Lower Limit (A), Current Upper Limit (A), and E-Mail Alert. Each row represents a port and its two channels. The 'Disable On FAI' column has a dropdown menu with 'No' or 'Yes' selected. The 'E-Mail Alert' column has a checkbox. Below each column header, there is a 'Fill All' button.

Port No.	Channel	Disable On FAI	Voltage Lower Limit (V)	Voltage Upper Limit (V)	Current Lower Limit (A)	Current Upper Limit (A)	E-Mail Alert
1	Channel A&B	No	0.00	60.00	0.00	1.15	<input type="checkbox"/>
2	Channel A		0.00	60.00	0.00	1.15	<input type="checkbox"/>
	Channel B	No	0.00	60.00	0.00	1.15	<input type="checkbox"/>
3	Channel A		0.00	60.00	0.00	1.15	<input type="checkbox"/>
	Channel B	No	0.00	60.00	0.00	1.15	<input type="checkbox"/>
4	Channel A		0.00	60.00	0.00	1.15	<input type="checkbox"/>
	Channel B	No	0.00	60.00	0.00	1.15	<input type="checkbox"/>
5	Channel A		0.00	60.00	0.00	1.15	<input type="checkbox"/>
	Channel B	No	0.00	60.00	0.00	1.15	<input type="checkbox"/>
6	Channel A		0.00	60.00	0.00	1.15	<input type="checkbox"/>
	Channel B	No	0.00	60.00	0.00	1.15	<input type="checkbox"/>
7	Channel A		0.00	60.00	0.00	1.15	<input type="checkbox"/>
	Channel B	Yes	0.00	60.00	0.00	1.15	<input type="checkbox"/>
8	Channel A		0.00	60.00	0.00	1.15	<input type="checkbox"/>
	Channel B	No	0.00	60.00	0.00	1.15	<input type="checkbox"/>

Figure 11: Programming page of the BT500-8R (BT500-16R similar)

## Section 3 – Using the BT500

### 3.1 Viewing Parameters on the BT500 Home Page

The Home Page is shown in Figure 12. To access the Home Page, click "Home" in the menu bar at the top of the page.

The top of the home page shows general information:

**Model Number**

This field displays the model number of the BT500 being accessed.

**Site ID**

This field is a descriptive name for the BT500 unit being accessed and is set by the user on the Configure page.

**Date and Time**

This field shows the date and time as set up by the user in the Configure page.

**Total Power**

This field shows the total power being drawn from all outputs of the BT500.

Below the top section, there are eight buttons. Their functions are described below:

**Enable selected ports**

Clicking this button enables any ports whose checkbox in the "Port" column is checked. After the button is clicked, any ports selected in the "Port" column will be deselected.

**Enable all ports**

Clicking this button will enable all output ports of the BT500 midspan.

**Disable selected ports**

Clicking this button disables any ports whose checkbox in the "Port" column is checked. After the button is clicked, any ports selected in the "Port" column will be deselected. This function is useful for disabling unused zones or devices.

The screenshot shows the BT500 Home Page interface. At the top, there are navigation tabs: Home, Configure, Programming, Tools, and msm Logout. The current page is 'Home'. The interface displays the following information:

- MODEL:** BT500-8
- Site ID:** BT500-8 Demo Unit
- Date:** Sun Sep 13 2020
- Time:** 17:38:07
- Total Power:** 127.86W

Below this information are eight buttons:

- Enable Selected Ports (Green)
- Disable Selected Ports (Red)
- Reset Selected Ports (Green)
- View Data (Blue)
- Enable All Ports (Green)
- Disable All Ports (Red)
- Reset All Ports (Green)
- Save Settings (Blue)

MCU VER: 1.60

Port	Ext.Control	Priority	Channel	Device	Enabled	FAI State	Voltage	Current	Power	Class	Status
<input type="checkbox"/> 1	<input type="checkbox"/> 1	0	Channel A&B	Camera 1	Yes	N/A	54.42V	0.53A	28.73W	4	Normal
<input type="checkbox"/> 2	<input type="checkbox"/> 2	0	Channel A&B	Door 1	No	N/A	0.00V	0.00A	0.00W	N/A	Disabled
<input type="checkbox"/> 3	<input type="checkbox"/> 3	0	Channel A&B	Door 2	Yes	N/A	54.47V	0.53A	28.70W	4	Normal
<input type="checkbox"/> 4	<input type="checkbox"/> 4	0	Channel A	Door 3: System Power	Yes	Active	54.45V	0.03A	1.47W	4	Normal
			Channel B	Door 3: Lock Power			0.00V	0.00A	0.00W	N/A	Disabled
<input type="checkbox"/> 5	<input type="checkbox"/> 5	0	Channel A	BX75	Yes	N/A	54.23V	0.07A	4.01W	8	Normal
			Channel B	BX75			54.37V	0.07A	4.02W		
<input type="checkbox"/> 6	<input type="checkbox"/> 6	0	Channel A&B	Door 5	Yes	N/A	54.37V	0.53A	28.98W	4	Normal
<input type="checkbox"/> 7	<input type="checkbox"/> 7	0	Channel A&B	Door 6	Yes	N/A	54.30V	0.52A	28.34W	4	Normal
<input type="checkbox"/> 8	<input type="checkbox"/> 8	0	Channel A	Door 7 A	Yes	N/A	54.43V	0.03A	1.80W	8	Normal
			Channel B	Door 7 B			54.44V	0.03A	1.80W		

**Battery Status Monitoring**

Battery Status: ■ Connected

Battery Voltage: 54.65 VDC

Figure 12: Home page of the BT500-8R

**Disable all ports**

Clicking this button will disable all output ports of the BT500 midspan.

**Reset Selected Ports**

Clicking this button will disable any ports whose checkbox in the "Port" column is checked for 10 seconds. After 10 seconds, the ports will be reenabled.

**Reset All Ports**

Clicking this button will disable all ports for 10 seconds. After 10 seconds, the ports will be reenabled.

**View Data**

Clicking this button will show the history data buffer. Up to 1000 datapoints may be displayed. This data can be manually exported to a CSV file.

**Save settings**

Clicking this button will save the settings on the page.

Below the buttons is the port information and control area:

**Port**

This column lists the port numbers with a checkbox to the left of each number. The port numbers in this column refer the port numbers on the front panel of the BT500. Click the checkboxes to select one or more ports for enabling or disabling. Click the checkboxes again to deselect the port.

**Ext. Control**

This column allows users to select which ports will be controlled by the "External Control" input terminals on the front panel of the BT500. When the External Control terminals are activated (by an access control panel, switch, or other device), the ports that are selected will disable. After checking the ports, save the selection by clicking the "Save settings" button at the top of the page.

**Priority**

This column allows users to set a priority for each port. For each port there is a corresponding priority drop-down list where a priority between 0 and 3 can be selected (where "0" is the highest priority and "3" is the lowest priority). After the priorities are set, the "Save settings" button at the top of the page must be clicked to save the priority settings.

When the total power drawn from the BT500 exceeds the rated value (500W), the lowest priority ports will begin disabling to prevent the BT500 from overloading. **NOTE:** Each port can supply a maximum of 90W of power per the IEEE 802.3bt standard provided that the total power drawn does not exceed the rated power.

**NOTE:** If two or more ports have the same priority selected, the BT500 will disable the lowest number port first (i.e. Port 1 will disable, then Port 2 if both are set to the same priority).

**Channel**

This column shows the channel configuration for the port. This configuration is auto-selected by the BT500 based on the type of device connected. Single signature PoE devices will appear as "Channel A&B" on a single line. Dual signature devices will show Channel A and Channel B as separate lines.

**Device**

This column allows the user to enter names for the PoE devices connected to each output port of the BT500. The maximum length of the entry is 30 characters. After entering the names, click the "Save settings" button at the top of the page.

**Enabled**

This column shows the enable/disable state of each port. If a port is enabled, the display shows "Yes". If a port is disabled, the display will show "No". See the Enable, Disable, and Reset button descriptions in this section for more information.

**FAI State**

This column shows the FAI status for each zone as follows:

<b>N/A</b>	FAI is not enabled for the zone
<b>Inactive</b>	FAI is enabled for the zone, but the FAI input is not active. The lock power on the BX50 for this zone is ON
<b>Active</b>	FAI is enabled for the zone and the FAI input is active. The lock power on the BX50 for this zone is OFF.

**Voltage**

This column displays the measured PoE port output voltage for each port in volts.

**Current**

This column displays the measured PoE port output current for each port in milliamps.

**Power**

This column displays the calculated power output of each PoE port in watts.

**Class**

This column displays the power class of each port. The "power class" information is provided by the connected Powered Device (such as a PoE compatible IP camera) during the power interface between the BT500 and the Powered Device. When a port is not connected to a load

(Powered Device), or when a port is disabled, the class display shows "N/A".

### **Status**

This column displays the status of each output port. When a port is normal (a Powered Device is drawing power within the specified limits), the corresponding status will display "Normal" with a green background. If there are any fault conditions or the port is disabled by the "External Control" signal, the corresponding status will display "Fault" with a yellow background. If a port is disabled by the browser interface, the corresponding status will display "Disabled" with a grey background. Ext. Control and Device columns.

## **3.2 The Tools page**

### **Upgrading Firmware**

The Upgrade Firmware section is at the top left of the Tools page (See Figure 13). To upgrade the firmware, use the following steps:

1. Ensure that the new firmware file is available on your computer. The latest firmware file is available from the LifeSafety Power website.
2. Click the "Upgrade" button. The Upgrade window will appear.
3. Click "Browse..." and locate the new firmware file with the file extension ".bin" on your computer.
4. Once the file is selected, click "Open".
5. Click the "Download" button to temporarily download the new firmware into the RAM of the BT500. This process will take from 30 seconds to one minute, depending on network speed and traffic. The message box will display "Downloading...".
6. Once the firmware is loaded into the BT500's RAM, verify the correct file name and click the "Confirm" button to confirm the upgrade.
7. Click "Burn" to begin burning the firmware to the BT500's processor. This process may take up to 12 minutes - **DO NOT REMOVE POWER TO THE BT500 DURING THIS PROCESS** or the BT500 will be rendered nonfunctional.

Once the update is complete, a message will appear in the message box indicating "Update Finished". The BT500

must be rebooted in order to start the new firmware.

### **Rebooting the BT500**

The "Reboot" section is on the top right of the Tools page (See Figure 13). To reboot the BT500, click the "Reboot Midspan" button.

A message will appear asking if you are sure you want to reboot. Click YES to Confirm the reboot. The rebooting process will take approximately 1 minute, during which time you will lose communication with the BT500. Communication will be restored once the yellow front panel LEDs light steady.

### **User Notes**

The bottom of the Tools page contains a User Notes section where important information about the installation, service history, etc can be saved. Up to 1000 characters can be entered. After entering the notes, click "Submit" to save them. The "Clear" button will remove the notes.



The screenshot shows the 'Tools' page of the BitStream Power System Manager. At the top left is the LifeSafety Power logo. The top right features the BitStream logo and the text 'POWER SYSTEM MANAGER'. Below the logo is a navigation bar with links for 'Home', 'Configure', 'Programming', and 'Tools'. On the right side of the navigation bar, it says 'msm Logout' and 'Ver: 0.1.7'. The main content area has a dark blue header with 'MODEL: BT500-8' on the left. To the right, 'Site ID' is set to 'BitStream BT500-8' (highlighted in yellow), 'Date' is 'Tue Jun 30 2020', and 'Time' is '16:45:12'. Below this header, there are two sections: 'Upgrade Firmware' and 'Reboot'. Under 'Upgrade Firmware' is a blue 'Upgrade' button. Under 'Reboot' is a blue 'Reboot Midspan' button. Below these buttons is a section titled 'User Notes(up to 1000 characters)' with a large empty text area. At the bottom of the page are two buttons: 'Save' and 'Clear'.

Figure 13: The Tools page of the BT500

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# Appendix 1 – Software Agreement - continued

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## Appendix 1 – Software Agreement - continued

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(i) Corporate Headquarters, Mailing Address: LIFESAFETY POWER INC., 49 Range Road, Windham, NH, 03087 USA.

(ii) Website Address: [www.lifesafetypower.com](http://www.lifesafetypower.com)

(b) Independent Contractors. The parties are independent contractors and will so represent themselves in all regards. Neither party is the agent of the other and neither may bind the other in any way. Nothing in this AGREEMENT is intended or shall be construed to create between the Parties a relationship of principal and agent, partners, joint venturers, or employer and employee. No Party shall hold itself out to others or seek to bind or commit another Party in any manner inconsistent with this AGREEMENT.

(c) No Waiver. Neither party will be deemed to have waived any of its rights under this AGREEMENT by lapse of time or by any statement or representation other than (i) by an Authorized Representative and (ii) in an explicit written waiver. No waiver of a breach of this AGREEMENT will constitute a waiver of any prior or subsequent breach of this AGREEMENT.

(d) Force Majeure. To the extent caused by force majeure, no delay, failure, or default will constitute a breach of this AGREEMENT.

(e) Choice of Law & Jurisdiction. This AGREEMENT shall be governed solely by the internal laws of the State of Illinois, without reference to such State's principles of conflicts of law. The parties consent to the personal and exclusive jurisdiction of the federal and state courts of Illinois, United States of America.

(f) Severability. All of the provisions of this AGREEMENT are intended to



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