BULLARD TXS™ THERMAL IMAGER
INSTRUCTION MANUAL

GENERAL OPERATION

To turn ON your Bullard TXS, depress the green power button located on top of the unit. The screen will display the Splash screen and the green power button will illuminate. A thermal image will appear within a few seconds. This image consists of black, white, and grey elements which indicate heat signatures of objects and scene dynamics. Warmer elements appear as lighter shades, while cooler elements appear as darker shades.

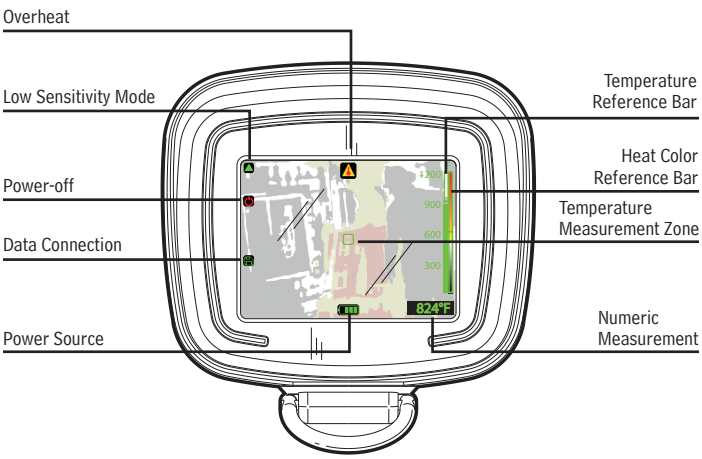
To turn OFF your Bullard TXS, depress and hold the power button until the “red” power icon located in the top left of the display lights up and a countdown timer appears until the imager powers off. When the icon changes from red to green, release and the unit will power off.

LED INDICATIONS

The power button LED will be illuminated when the imager is powered ON. In addition, the same LED changes colors to communicate other system conditions related to charging, as indicated below.

Solid White	Imager is powered ON (not charging)
Pulsing Green	Imager battery is charging
Solid Green	Imager is fully charged
Flashing Orange	Error condition (problem with the TI or charging system)

ON-SCREEN INDICATION



SUPER RED HOT (SRH) COLORIZATION

The Bullard TXS utilizes easy-to-use Super Red Hot colorization which displays heat levels in yellow, orange, and red hues. This feature identifies specific heat layers, thus alerting firefighters to areas of intense heat through visual awareness of the hottest objects in a scene. The SRH feature automatically adds colorization at temperatures above 500°F/260°C.

Temperature	Low	High
< 500°F < 260°C		
500°F - 799°F 260°C - 426°C		
800°F - 999°F 427°C - 537°C		
> 1000°F > 538°C		

The SRH overlay remains semi-transparent, allowing the scene detail such as thermal flows to remain visible under the SRH colorization. SRH has a Heat Color Reference Bar adjacent to the Temperature Bar. The temperature is illustrated by the filled height of the Temperature Bar and by the Numeric Temperature Indicator below the bar. The color reference bar is a visual indicator to quickly allow the user to determine the meaning of the color displayed on the screen. For example, if the Temperature Measurement Zone is pointed to an object at 1000°F/538°C the bar fills to the 1000°F mark.

TEMPERATURE BAR

The Temperature Bar is a bar-graph style temperature gauge in the right portion of the display. The bar/numeric indicator displayed represents the approximate temperature of the object viewed within the Temperature Measurement Zone in the center of the display. Accuracy of indication is dependent on numerous factors including the distance from the object being viewed (accuracy decreases as distance increases) and its emissivity (heat radiation properties). Your Bullard TXS is factory-calibrated to emissivity corresponding with normal construction materials. Objects with emissivity varying greatly from this norm (particularly reflective objects such as metals and shiny materials) will see a reduced accuracy of the temperature indication.

NUMERIC TEMPERATURE INDICATOR

The indicator displays next to the Temperature Bar and indicates the measured temperature of an object in the Temperature Measurement Zone (center of the display).

NOTE

The indicators provide a quick reference to compare objects of similar emissivity to assist with identification of intense heat sources. Due to the inherent issues with accuracy, use these features with caution and verify indicated heat levels through traditional means, whenever possible.

SENSITIVITY (GAIN) MODES

The imager automatically switches between high and low sensitivity (gain) modes based on ambient scene temperatures to avoid image saturation in high-temperature situations. The low sensitivity mode activates in high heat situations and deactivates as ambient heat decreases (i.e. lower temperatures). The low sensitivity mode indicator consists of a green triangle located in the upper left of the viewing area.

OVERHEAT INDICATOR

A visual warning flashes to indicate the thermal imager might cease to operate due to internal overheating. After prolonged overheating, the imager will switch off automatically and could become damaged.

SHUTTER

You will periodically observe a momentary freeze in the imager. This is normal and is a function of the self-calibration shutter, the frequency of shuttering may depend on the environment and temperature.

POWER

1. During operation the bar will deplete from left to right.
2. The Bullard TXS's lithium-ion battery pack is designed for maximum life when the battery is kept fully charged. Bullard recommends leaving the TXS connected to your preferred charging system when the unit is not in use.
3. Power off the imager during charging.

Indicator		Time Remaining
	Full Green	4h30 - 6h00
	75% Green	3h00 - 4h30
	50% Yellow	1h30 - 3h00
	25% Red	0h05 - 1h30
	Flashing Red	<5 Minutes

CHARGING THE BATTERY

Your Bullard TXS's battery can be charged with the Bullard USB Wall Charger or with the Bullard XS Charger. One of these chargers is supplied with your camera depending on the configuration you ordered.

To charge the battery in the Bullard XS Charger, place the imager or single battery pack on the charger and secure in place using the rubber strap. Use the optional AC adapter and plug the power cord into a dedicated wall outlet, or use the wiring harness for installation in a vehicle.

NOTE

More detailed information is available in the user's manual for this charging device.

To charge with the USB Wall Charger, open the USB cover located on the rubber boot at the top of the display side of the imager. Plug the USB power cord into a dedicated wall outlet using the included AC adapter. The battery pack must be at moderate temperatures to support charging.

Charge Status	Light
Charging	Flashing
Fully Charged	Steady
Error	Flashing

NOTE

If your Bullard TXS has been stored in extremely cold temperatures for an extended period of time, especially with a depleted battery, it may not boot. To avoid this behavior, Bullard recommends leaving the unit attached to a charging system when not in use.

NOTE ON BATTERY CHARGING

1. Connection to a computer via USB is intended for the purpose of communicating with the imager. Charging with USB may be slow.
2. The battery's charging temperature range is 32°F (0°C) to +113°F (+45°C).
3. Power off the imager during charging.

CARE INSTRUCTIONS

The Bullard TXS Thermal Imager requires little maintenance. For best results, after each use:

- Clean and disinfect the outside of the unit with mild soap or detergent.
- Wipe the lens with a soft cloth.
- Clean the display with a soft cloth.
- Always ensure the contacts on battery and imager are dry to avoid corrosion or malfunction.

NOTE

Spare batteries are best charged before storing.

NOTE

You may place department and/or company information on your Bullard TXS. When adding stickers or other markings, ensure that you do not cover the information label, the thermal imager lens, cover window, or the display. Do not engrave in the plastic material as this can damage the unit and jeopardize sealing.

NOTE

As an option, the Bullard TXS may be ordered with the Bullard XS Charger for installation into a vehicle. This charger is designed to be mounted in a vehicle and securely charge and store the imager in accordance with NFPA. 1901-14.1.11.2. The Bullard XS Charger is designed for permanent vehicle installation. Consult the Bullard XS Charger instruction manual for detailed instructions of installing in a vehicle.

NOTE

The Bullard XS Charger is also designed to be used on a desktop with an AC power cable that can be ordered as an option with the charger.

NOTE

The Bullard TXS Thermal Imager is sensitive to intense, radiant heat sources. Avoid pointing the Bullard TXS Thermal Imager at the sun or any other source of extreme radiant heat for long periods, as this could cause damage.

CLEANING THE LENS

The Bullard TXS Thermal Imager lens is recessed in an impact resistant bezel covered with a germanium lens. The lens can be cleaned with a soft cloth and soapy water as required. The protective window is designed such that when necessary, it can be easily cleaned in operation with a cloth or glove.

SHIPMENT

As with all electronics with internal lithium-ion batteries, special considerations must be observed when shipping the Bullard TXS.
The Bullard TXS must be shipped according to UN3481 standards. Additionally, further regulations stipulate that the imager must not have greater than two bars of battery charge if shipping by air.

TROUBLESHOOTING

If you experience any problems with your TXS, please refer to our website (www.bullard.com/txs) for the latest information on fixes, updates, and best practices.
If the imager appears unresponsive, it may require a hard power off. To accomplish this, depress and hold the Power button for 10 seconds. If the hard power off does not solve the issue, removing and reinserting the battery pack is another way to force a camera reset.

The Bullard TXS is also equipped with a safety feature which provides automatic shutoff to protect the electronics if they experience prolonged excessive temperatures.

SERVICE

If your Bullard TXS is not performing properly and you have tried the troubleshooting section on www.bullard.com/txs, contact Bullard Customer Service at 877-BULLARD (285-5273) or at info@bullard.com. Outside the US and Canada, call +1-859-234-6611. Describe the problem to the Bullard representative as completely as possible. For your convenience, your representative will attempt to help you diagnose or correct the problem over the phone.
Before returning your Bullard TXS, you should verify with your representative that the product should be returned to Bullard. Bullard Customer Service will provide you with written permission and a Return Authorization (RA) number.

SAFETY CONSIDERATIONS AND LIMITATIONS OF USE

⚠ WARNING

Only use original Bullard batteries (P/N: XSBATT) and chargers (P/N: XSCHARGER or P/N: XSUSBCHARGER) and refer to the manufacturer's instructions for proper charging instructions. Retain the original product literature for future reference. Contact your distributor or visit www.bullard.com to find your nearest authorized reseller for purchasing original Bullard batteries, chargers and other replacement parts.

⚠ WARNING

EXPLOSION HAZARD. Do not connect or disconnect the equipment to any charger in an hazardous location.

Do not short circuit, crush, incinerate, or disassemble.

Risk of fire, explosion, or burns.

⚠ WARNING

Do not attempt to disassemble the Bullard TXS Thermal Imager. If the unit is not functioning properly, return it to the Bullard service center for evaluation.

⚠ WARNING

Battery Pack must be recycled or disposed of properly.

⚠ WARNING

The Bullard TXS thermal imager is extremely sensitive to intense, radiant heat sources. Never point the Bullard TXS thermal imager at the sun or any other source of extreme radiant heat, as this may damage the sensor.

⚠ WARNING

Thermal Imaging is not a technology designed to replace current firefighting tactics. Rather, it is a tool which allows the firefighter to be more effective and to make better decisions. Firefighters cannot stop using basic firefighting safety tactics. All firefighters should receive proper training on: How thermal imagers work, their uses and limitations, image interpretation, and safety considerations for thermal imaging use.

⚠ WARNING

Do not use solvents or paint thinners to clean the Bullard TXS thermal images as the could permanently mark the surface or degrade the protective properties of the casing. Do not intentionally submerge the unit underwater or subject the unit to high pressure water. Follow care instructions (See care instructions).

California Proposition 65 ⚠ WARNING

Cancer and Reproductive Harm- www.P65Warnings.ca.gov.

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