

# OPERATOR'S MANUAL

for

## LEADER TIC 3

### *Professional Thermal Imaging Camera for Fire Fighters*



CE certified and RoHS compliant

**CAUTION:**

**THIS OPERATOR'S MANUAL MUST BE READ THROUGH CAREFULLY AND COMPLETELY BY ALL USERS AND MANAGERS. THIS THERMAL IMAGING CAMERA MUST BE HANDLED AND USED ACCORDING TO THE MANUFACTURER'S INFORMATION. THIS IS ESPECIALLY IMPORTANT IN HAZARDOUS SITUATIONS AND ENVIRONMENTS.**

**Version: v1.3 03.11.2017**

This thermal imaging camera is for the use of observing thermal sceneries like fire or other heat sources and is to use within the limits described by this manual.

This thermal imaging camera is subject to the Dual Use Regulation (EC) No.428/2009 in the currently valid version.

A violation of this provision may result in criminal prosecution.

This thermal imaging camera is to be returned to the manufacturer for disposal.

In keeping with our policy of continuously improving our products, we reserve the right to change the camera's technical data without prior information at any time.

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# 1 LEADER TIC 3.1 and 3.3



LEADER TIC 3.1 with 1 button  
(detachable optional pistol grip)



LEADER TIC 3.3 with 3 buttons  
(detachable optional pistol grip)

## LEADER TIC 3.1 small and efficient = 1 Button

Particularly suitable for the first attack. LEADER TIC 3.1 offers unbeatable value and best quality, ideal for firefighting, first attack, search for missing persons and fire.



**long:** ON | OFF

**short:** Freeze  
Change of color schemes\*  
Picture capture\*

\*depending on options

## LEADER TIC 3.3 efficient and versatile = 3 Buttons

### Live Mode



**long:** ON | OFF  
**short:** Picture capture\*



**short:** Color schemes 1 - 5\*  
**long:** Video recording ON | OFF\*



**short:** Zoom 2x | 4x | normal  
**long:** Laserpointer ON | OFF\*  
(automatic off after 30s)

\*depending on options



### Gallery Mode\* = +



**short:** Zoom out | in picture  
Start Video | Pause  
**long:** ON | OFF



**short:** 1 picture to the left  
**long:** Quick scroll to the left



**short:** 1 picture to the right  
**long:** Quick scroll to the right



**Stop video**  
**Exit gallery mode**

## 1.1 Dimensions



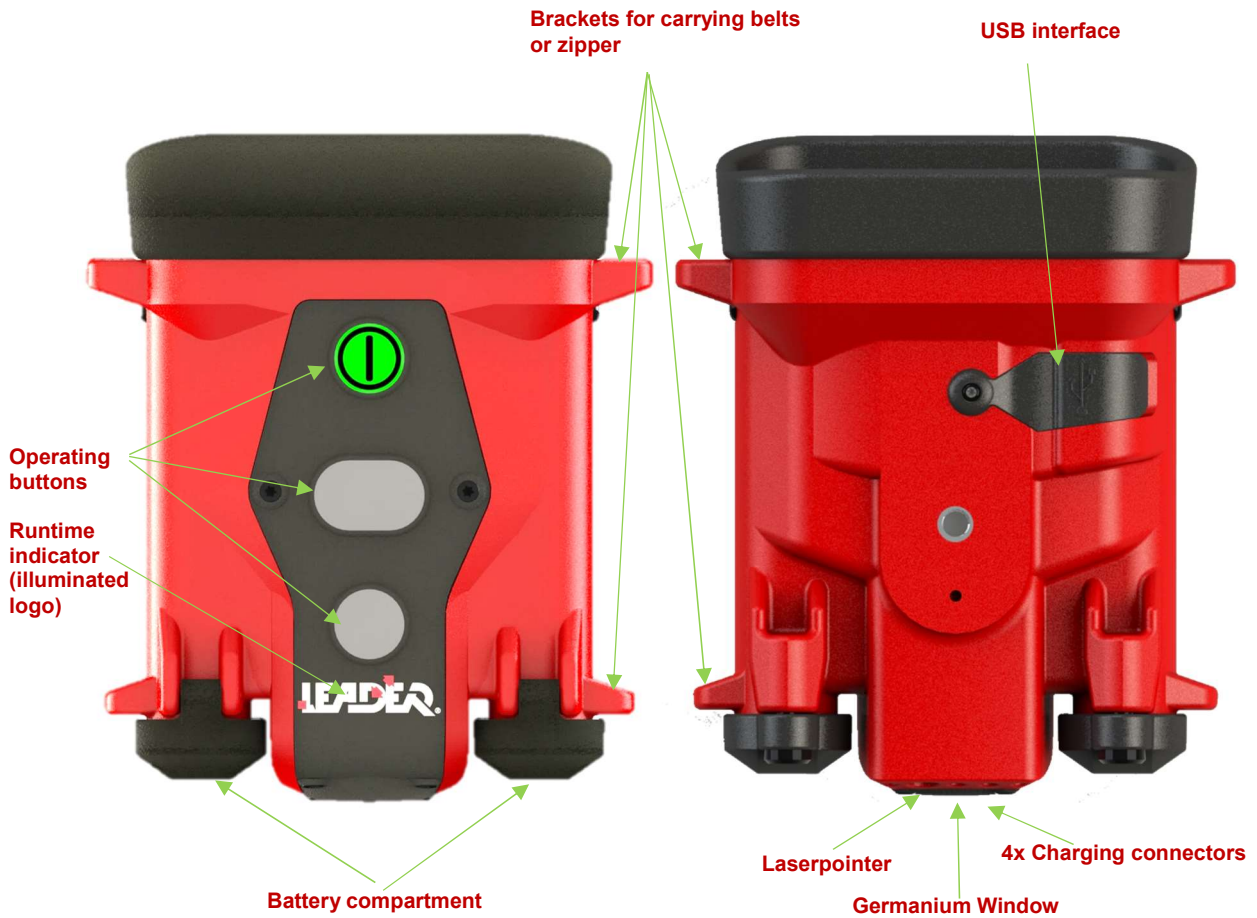
## 1.2 Benefits

- Compact 165 x 140 x 85 mm , 65 x 55 x 35,5 inch (without pistol grip)
- Removable Pistol grip (+110 mm/ + 43,3" in height)
- Lightweight 855g (1,9 lb) with 2 batteries, with Handstraps (+35g / +0,08 lb), with pistol grip (+165g / +0,36 lb)
- Lightweight 770g (1,7 lb) with 1 battery, with Handstraps (+35g / +0,08 lb), with pistol grip (+165g / +0,36 lb)
- Large 3,5" display for details visibility
- Ultra wide temperature range: -40°C to +1150°C
- 1 to 5\* colorization mode
- Image freeze, picture capture\* and video recording\*
- Numerical hot-spot temperature
- 6 years warranty on batteries (Best Energy Concept) 5000 battery charging cycles
- 3.5h running time with 2 batteries (3h with video recording)
- Germanium window to protect the optics
- Large buttons easy to operate even with gloves
- Zoom 2x and 4x \*
- Laserpointer for marking areas of interest\*

\* depending on option and model

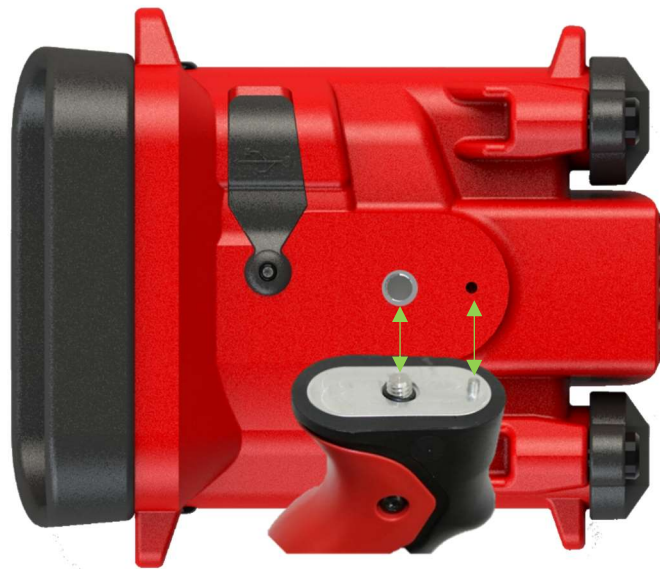


## 2 Camera Setup LEADER TIC 3:



### 2.1 Mounting the Pistol Grip:

The pistol grip is premounted on the camera if ordered with this option. The grip can be easily demounted/mounted within seconds. The necessary tool (standard hex wrench) is part of scope of supply.



## 2.2 Change of Batteries

The camera's energy design is based on the latest **LiFePO<sub>4</sub>** (nanophosphate) batteries. These cells are far superior to the usual NiCd and NiMh batteries with respect to:

- up to > 5000 charging cycles and extreme performance even in frost
- No emission of inflammable POTASSIUM HYDRIDE GASES at high temperature



The batteries are kept ready to the left and right in the battery compartments.

The compartments can be easily opened with a coin within seconds.

Batteries and battery packs are processed to guarantee correct polarity. Please insert them into the shaft such that the "blank" side (*contact face*) points downwards. Protective class IP67 is only guaranteed if the compartment is tightly closed.

## 2.3 Aramid protective cover (option)

Use of the heat resistant aramid protective cover is recommended to lower the effort of cleaning and extend the lifetime and operating time of the camera. The camera is additionally protected against mechanical damage and chemicals.

Pull the protective cover over the camera and close the Velcro fasteners. Protective covers wear out with frequent use and can be ordered as spare parts.

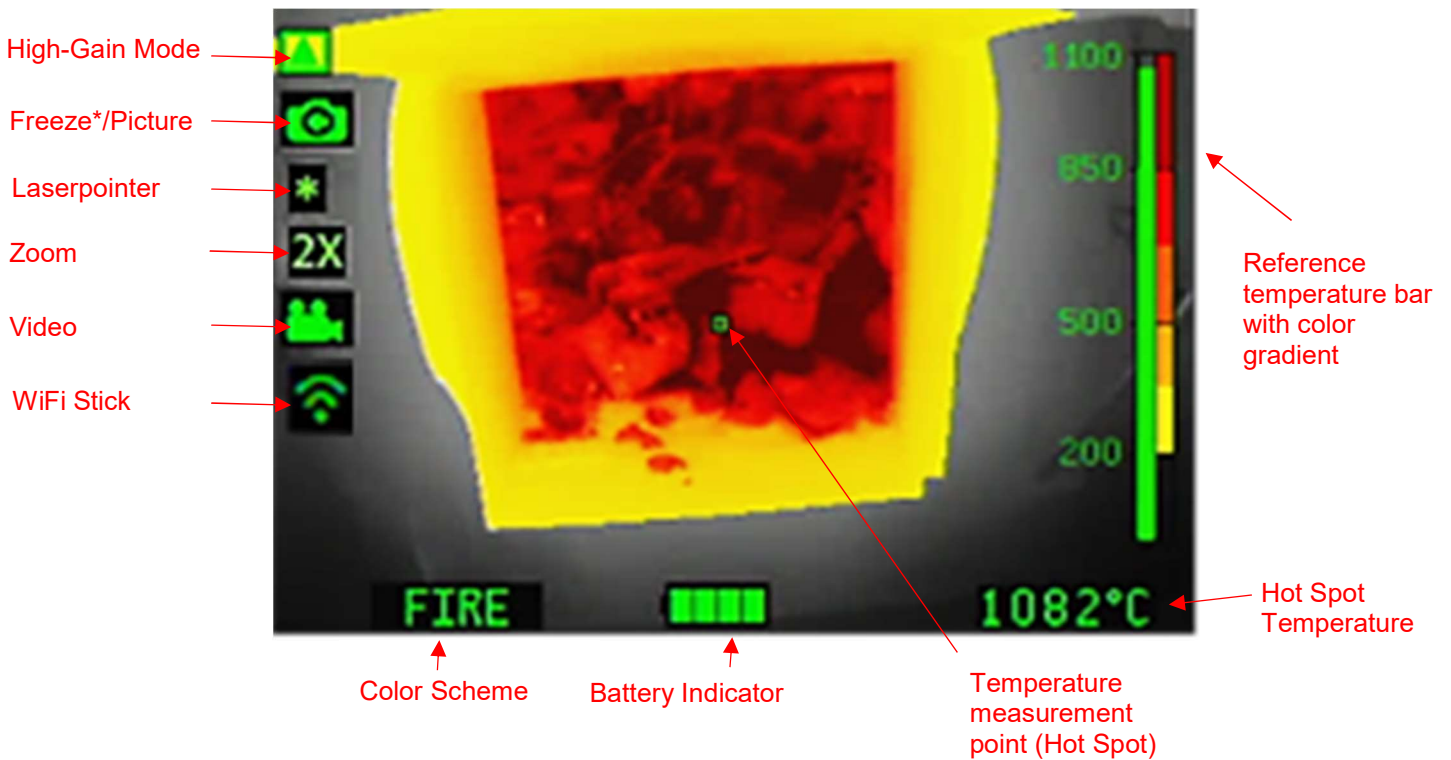
The camera can be charged in the charging bay with or without the protective cover

Positions of keys are additionally marked in color.





## 2.4 Screen Elements:



\* If only image freeze function is available (TIC 3.1) the symbol turns into

Gallery Mode\* = +



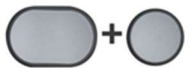
**short:** Zoom out | in picture  
Start Video | Pause  
**long:** ON | OFF



**short:** 1 picture to the left  
**long:** Quick scroll to the left



**short:** 1 picture to the right  
**long:** Quick scroll to the right



Stop video  
Exit gallery mode



The SD card symbol on the top indicates the currently used capacity of the internal 8GB storage. The symbol changes in the following linear manner from 0 to 8 GB.



If the red symbol appears the next recorded video will overwrite the oldest video on the card.

## 2.5 Characteristics of LEADER TIC 3:

<b>LEADER TIC 3</b>	<b>320x240</b>
<b>Display</b>	3,5" LCD / 76.800 Pixel
<b>Frequency</b>	60Hz Fps
<b>T°C Range</b>	-40° to +1150°C
<b>Colorization (1-5*)</b>	Fire/Std, Search*, Inverse*, Cold Finder*, Multi Colour* *Depending on options
<b>Housing</b>	
<b>Material</b>	PUR / Elastomer
<b>Drop Test</b>	2m on concrete
<b>IP</b>	IP67 / 1 Meter 30 Minutes
<b>Heat resistance</b>	150°C for 15min / 260°C for 5min
<b>Sensor</b>	
<b>Type</b>	17µ Amorphous Silicon aSi Resolution 384 x 288
<b>Spectral range</b>	7 – 14 µm
<b>T°C sensitivity</b>	0.05°C ±0.01°C
<b>Optics</b>	
<b>Material</b>	Germanium Carbon Coated Protected by a germanium window
<b>Focus</b>	0,35 m to infinity
<b>Visual field / FOV</b>	H: 51° V: 40°, Diagonal: 72°
<b>General</b>	
<b>Power supply</b>	LiFePo <sub>4</sub> batteries
<b>Boot time</b>	< 5 seconds
<b>Charging voltage</b>	12 / 24 VDC or 100-240 VAC
<b>Charging time</b> (for 2 batt / consider half for 1 batt)	~ 1h30 min with charging bay ~ 2 hours with cable charger
<b>Charging cycles</b>	> 5000
<b>Options</b>	
Removable Pistol grip	Picture capture and/or video recording
Neck strap in flame retardant material	Vehicle charging bay or main charger
1 or 2 Zippers	Carrying case (standard or storm case)
Protection hood	Wireless video transmission to computer, tablet or smartphone

### 3 Get started

#### 3.1 ON / OFF

On/off key (GREEN) must be pressed for more than 2 seconds to start the camera.

The camera is ready if the battery symbol appears in the display, and the LEADER Logo is illuminated.

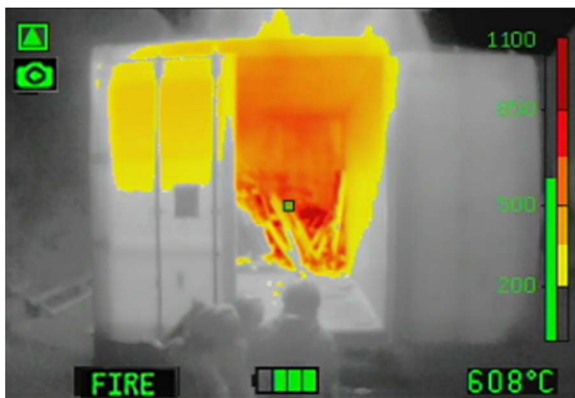
Press the On/Off key for at least 2 seconds (5 sec option) as well to switch off the camera. If the screen goes off, the camera is switched off.



Only for Models with Video/Picture feature: The video/picture function needs about 10-15s more to be ready to use compared to the live thermal image.

#### 3.2 Color Schemes:

##### 3.2.1 The LEADER TIC 3 offers up to 5 color schemes



#### FIRE

- Dark red > 850 °C
- Red > 675 °C
- Orange > 500 °C
- Dark yellow > 350 °C
- Yellow > 200 °C
- White = Hot
- Black = Cold

Switching on any model, the LEADER TIC will automatically start in "fire-fighting mode"



#### SEARCH

The 7 hottest percent of the scene are coloured continuously from Red, Orange to Yellow.

People or hot-spot searches

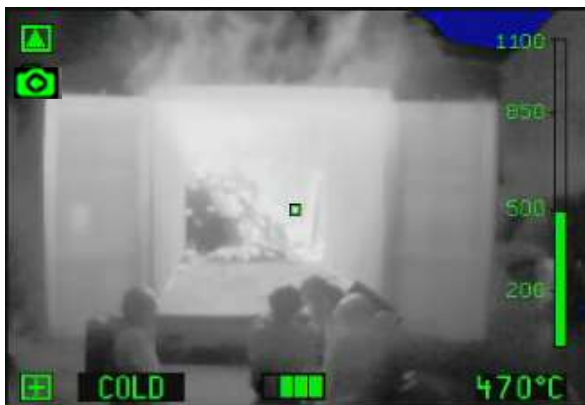


### INVERSE

- White=cold
- Black = hot

Coloring unchanged

For daylight scenes  
For filling level indication



### COLD FINDER

Blue colour for coldest areas



### MULTICOLOR



For Industrial applications

Hazardous material use  
For filling level indication

Color schemes except for FIRE mode are marked by a symbol at the bottom left



### 3.2.2 The 3 sensitivity levels are automatically adjusted:

- Lower temperature range: -40 + 150 °C
- Medium temperature range: -40 + 500 °C (display on screen: )
- Upper temperature range: -40 +1150 °C (display on screen: )

### 3.3 Other screen elements:

#### 3.3.1 Battery display:

This display informs about the charging status of the battery. A fully charged battery is displayed entirely green (4 bars). 2 yellow bars are displayed from about half of battery run-time onward. A red bar is displayed for the last quarter of battery run-time. Before the system shuts down, the battery symbol is blinking at least for the past 5 remaining minutes.

#### 3.3.2 Shutter Symbol:

The shutter is an important mechanical component of the camera, and is needed for recalibration of the sensor. Upon recalibration, a short interruption of the display for less than 1 second is generated, in which a green square is displayed in the upper left screen corner, and a low clicking can potentially be heard.


#### 3.3.3 Overheat Warning (blinking)

Warning against high temperature in the infrared sensor. The camera does not switch off automatically. It is highly recommended, though to put the camera in cooler areas immediately when this symbol appears. Otherwise the camera can be irreversibly damaged.

#### 3.3.4 Zoom

The zoom function is displayed by showing 2X or 4X at the left edge of the display.

#### 3.3.5 Laser pointer

The laser pointer is activated or deactivated by pushing the round grey button  for >2 seconds. In any case it will be deactivated automatically after 30 seconds. If the laser is active it is displayed by a green star at the left edge of the display.

#### 3.3.6 Temperature “measurement point” – Hot Spot

The Hot Spot allows reading out temperature information of objects. The measurement is done automatically and permanently. The sensitive measurement point in the middle of the screen for this purpose is therefore to be directed on to the object. The temperature read out in the measurement point is displayed in the lower right display corner.

A fixed emission coefficient of  $\epsilon=0.97$  is set in the factory. Actual temperatures may differ depending to the density of the material, its surface composition, and distance from the measurement object. Therefore the displayed temperature can only be regarded as an indication.

#### 3.3.7 Temperature bar

The temperature bar is the graphical display of the temperature read out in the hot spot. A temperature bar with 5 color levels is additionally displayed for the color schemes FIRE/STD and INV. Temperature values are displayed in the respective mode to the left near the bar.

#### 3.3.8 Digital temperature



The temperature read out in the measurement point is displayed as a digital value in the lower right corner of the image. This corresponds to temperature measured by the Hot Spot in the middle of the screen. Please note that real temperatures can differ from indicated temperatures due to various thermal emissivity of objects.






### 3.4 Freeze / Picture function (option)

Areas that are difficult to access, e.g., sewer shafts, etc., which make “reading off” displays difficult or impossible, can be evaluated using the freeze or still image function.



It is activated by shortly pressing the On / Off key. The pictures freezes and can be shown to other people. When the still image is displayed, it can be analyzed with different color schemes.

For models without picture function the screen shows , for model with picture function the screen shows  on the left side and the picture will be saved on the internal mass storage camera.

By pressing the On / Off key again it switches back to the live mode. The  /  in the display disappears.


The pictures can be viewed in the Gallery-Mode, directly at the camera by pressing the Buttons  simultaneously, or can be downloaded via the USB Connector (Details see in section [<Download Pictures and Videos>](#))

### 3.5 Video function (option)

Long pressing of the  Button , the video recorder of your LEADER TIC is operating. It is displayed by the symbol  for record on the left side of the screen. If an error appears at this point, the recorder is not working and an error message appears.

To stop the video recording, press the same button long again.

While recording a picture can be taken, the color schemes can be switched and the zoom can be activated as well.

The videos can be viewed in Gallery-Mode, directly at the camera by pressing the Buttons  simultaneously, or can be downloaded via the USB Connector (Details see in section [<Download Pictures and Videos>](#))

Please note: Video recording, Picture capture and Gallery mode are only available about 10-15 seconds after switching the camera on.

The maximum recording time is 8 hours for videos or approximately 1000 pictures. The recorded video is split in 10 minutes sequences. After using up the entire video recording time, the oldest video sequence is automatically overwritten and is lost. In case you take out both batteries when the camera is running or the camera shuts down due to low batteries, the last video sequence is stored.

### 3.6 Downloading Pictures and Videos

For downloading recorded data, connect the LEADER TIC with the USB cable to your computer. The USB cable is scope of supply if the video option is ordered. Start or restart the camera and the camera is installed automatically. If the connection is successful, the camera display shows **USB** after about 10-15s. The camera will appear as a normal mass storage camera named LEADER TIC3 on your computer. The recorded data can be downloaded or deleted from the DCIM folder. The videos and pictures names include the date and time information.

Example:

img-yyyymmddhhmmss  
vid-yyyymmddhhmmss-000

Disconnect the USB camera and remove the cable after download and restart the LEADER TIC 3.

### 3.7 Wireless Video transmission (optional)

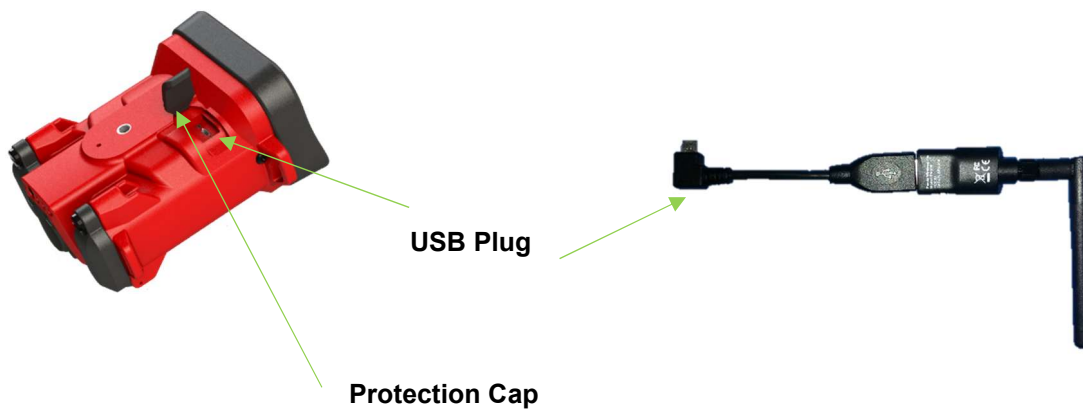
Use the heat resistant protection cover to mount the WiFi antenna to the LEADER TIC. Insert the Antenna into the stripes in the cover:



Then mount the protection cover on the handstrap:



Shut down your LEADER TIC, then connect the Wifi antenna by opening the protection cap and plug it into the USB port. After the USB Wifi Stick is properly mounted, the Camera can be switched on, then it is ready to transmit the live video and a WiFi symbol appears 



### 3.8 Establish the Live Video Transmission

The live Video can be viewed on a cell phone (Android, iOS) with Wifi connectivity, or a PC/Notebook equipped with a Wifi antenna. An USB Wifi antenna for i.e. PC is available as an accessory if needed.

As soon as the LEADER TIC is ready it can be found as a WiFi access point in your Wlan list: By default the values are as follows:

**SSID** : LEADER TIC xxxxxxx  
**Password** : TICxxxxxxx

xxxxxx=Serial number of camera

Up to 3 client's may establish a connection simultaneously. To view the live-stream connect your client to the access point and open an appropriate application (e.g. VLC media player (freeware)).

Once the VLC player is installed on you smartphone, tablet or computer it needs to be configured to establish a connection:

1. Open the menu Media/
2. Open Network Stream
3. Within the combo-box labeled "Please enter a network URL: **udp://@:1234** and hit "Play".

Please note: The menus can slightly differ depending on hardware, operating system and player version.

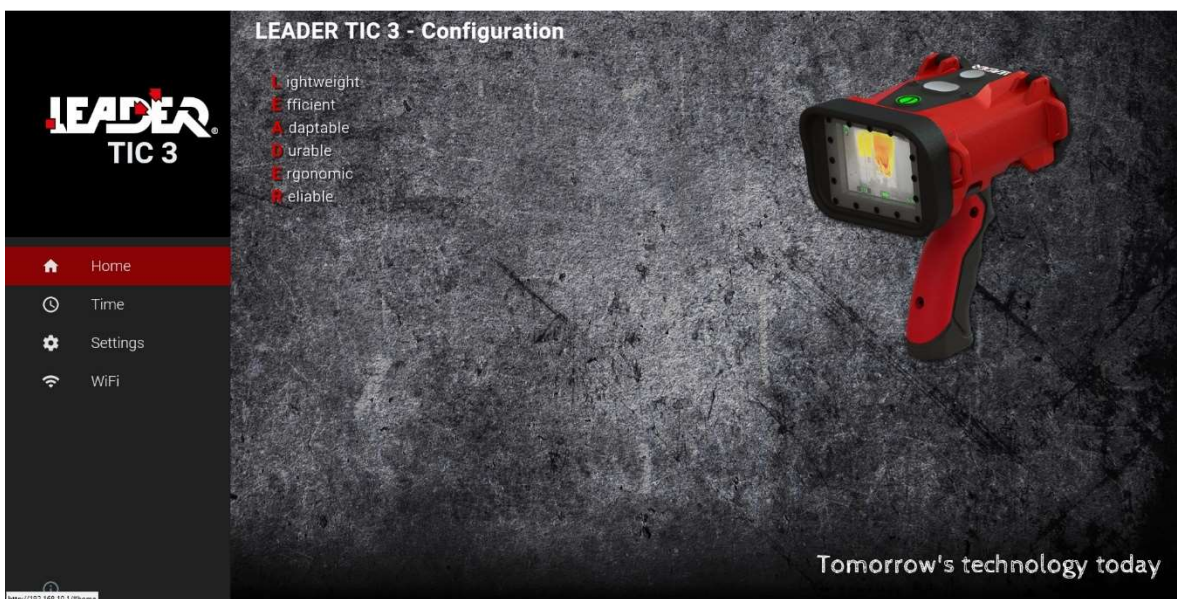
While streaming the gallery cannot be accessed. In order to stop streaming turn of the TIC and unplug the WiFi-stick.

### 3.9 Configuration of the LEADER TIC (Date/Time/SSID/Password/°C/F)

To configure the LEADER TIC please install the Software provided on the camera or download the latest version from our webpage.

Connect the LEADER TIC with an USB cable to your PC, turn on the LEADER TIC and open the camera named LEADER TIC 3 on your Explorer.

In the folder named "LEADER TIC 3 Configuration" you can find the install files for Mac and Windows 32bit and 64bit version. Please install the correct version and restart your computer. After successful installation you will find the entry LEADER TIC 3 in your program list. Start the TIC 3 Configuration and a browser window with the start screen will appear.

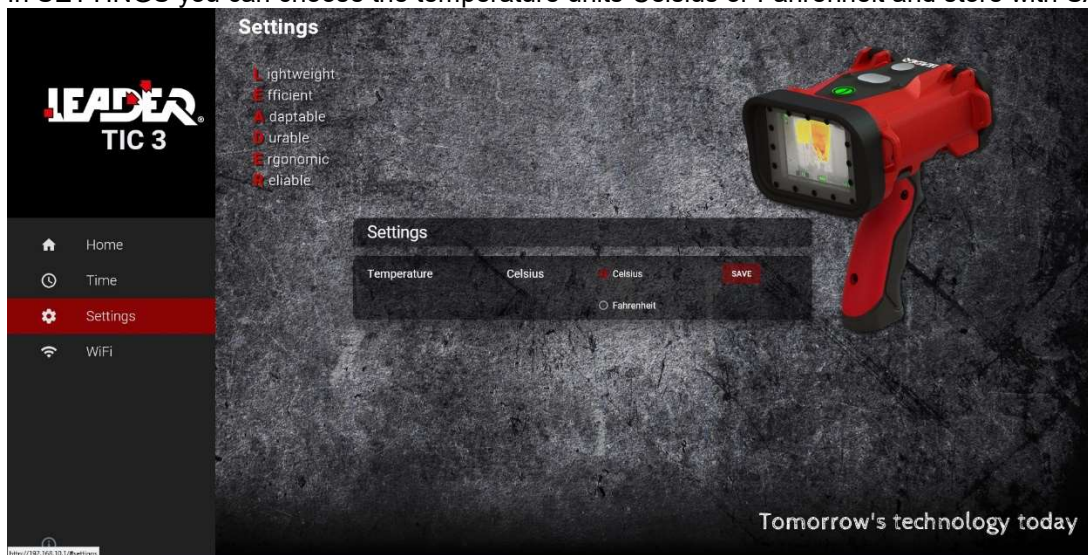




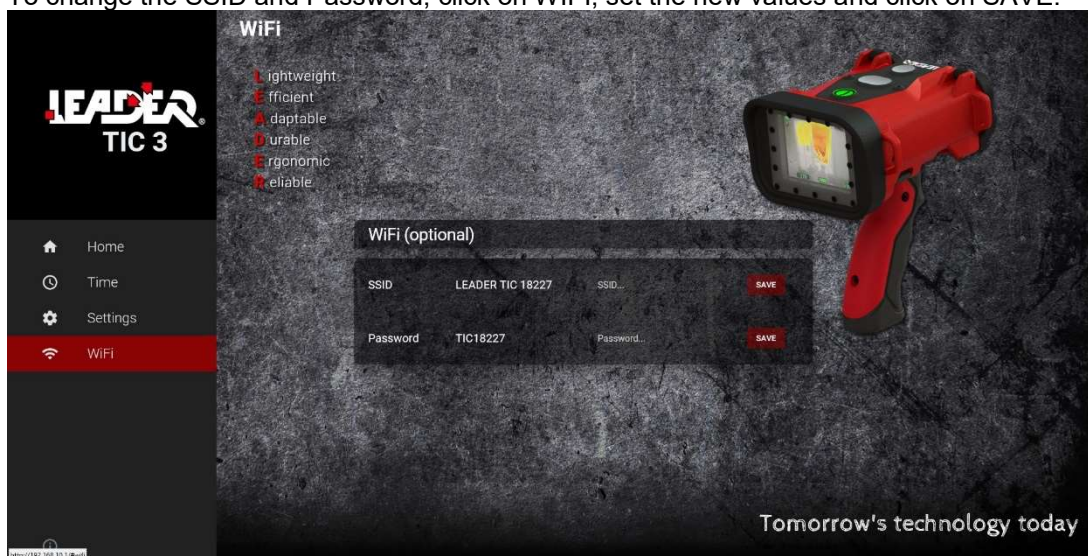
To adjust the time and date click on TIME, change the values in the framed box and click on SAVE.



In SETTINGS you can choose the temperature units Celsius or Fahrenheit and store with SAVE.



To change the SSID and Password, click on WIFI, set the new values and click on SAVE.



## 4 Charging the batteries:

The batteries can be comfortably charged in the camera! Only the charger delivered with the camera is to be used. It has the required electronics and software to charge the batteries safely, quickly and carefully. Similar chargers meant for other cells destroy the batteries and may cause consequential damage. The manufacturer does not assume any liability for and does not provide any guarantee against damage resulting from using other chargers.

### SAFETY RULES:

SAFETY RULES ARE ALWAYS TO BE RESPECTED IN ORDER TO GUARANTEE THE FUNCTION AND SAFETY OF THE CHARGER. THE MANUFACTURER DOES NOT ASSUME ANY LIABILITY OR GUARANTEE FOR NON-COMPLIANCE

- THE BODY OF THE CHARGER WORKS AS A HEAT RADIATING SURFACE. PLACE IT SUCH THAT HEAT CAN BE DISSIPATED FROM ITS SURFACE.
- IF THE CHARGER OR BATTERIES BECOME TOO HOT, THEY NEED TO BE REMOVED FROM THE POWER SUPPLY IMMEDIATELY. AN OPERATING TEMPERATURE OF 45 °C IS ABSOLUTELY NORMAL FOR QUICK CHARGE.
- THE CAMERA IS TO BE OPERATED ONLY WITH ORIGINAL BATTERIES (LIFEPO4) FROM THE MANUFACTURER, BATTERIES OF OTHER MANUFACTURERS ARE NOT PERMITTED.
- THE CHARGER IS ONLY CONFIGURED FOR CHARGING THE CAMERA'S BATTERIES. NEVER CHARGE OTHER BATTERIES WITH THE CAMERA.
- DO NOT CHARGE IN WET ENVIRONMENTS (E.G., ON WET GRASS).
- DO NOT OPEN THE CHARGER, IF THERE ARE MALFUNCTIONS, CONTACT YOUR SERVICE CONTACT.
- NEVER CLEAN THE CHARGER WITH AGGRESSIVE SUBSTANCES CONTAINING SOLVENTS.

### 4.1 Rechargeable battery technology LEADER TIC

#### ***LiFe-PO<sub>4</sub>***

(Lithium iron phosphate battery)

Properties:

- intrinsically safe
- no flammable degassing when heated up
- extremely tolerant to overcharging / deep discharging
- no memory effect
- minimum self-discharge
- extremely tolerant against vibration/knocks/shocks
- very high readiness of operation even at temperatures < -20 °C
- very high life cycle > 5000 loading cycles without maintenance



The LEADER TIC is fully functional even with a single rechargeable battery.

If the thermal image camera (TIC) is operated with 2 rechargeable batteries, you can remove one rechargeable battery and replace it in operation without having to switch the TIC off.

The runtime highly depends on camera model and options but can be indicated from 3 to 4,5h with two batteries.

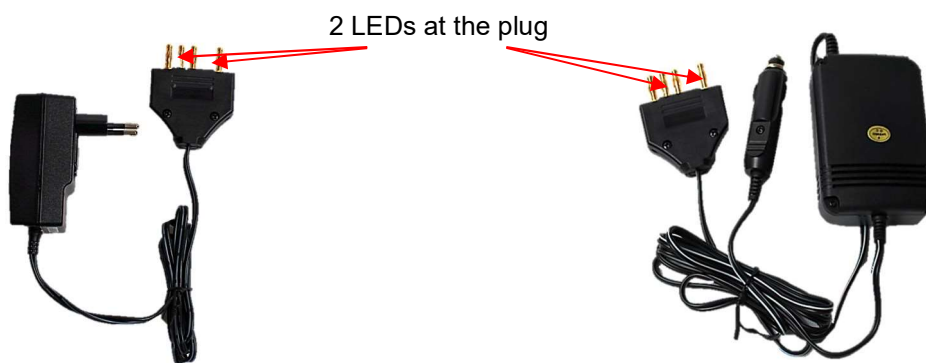
Charging time:

- ~ 1.5 hours with charging bay
- ~ 2 hours with charging cable

Charging Temperature: 0°C – 45°C (32°F – 113°F)

## 4.2 Charging with the cable charger 100-240V or 12-24V (option)

1. Use only the delivered original charger.  
Connect the power supply to the charging bay. Two LEDs at the plug are lit GREEN or ORANGE.



2. Connect the charging cable to all **4 charging contacts** of the camera as shown. If turned on, the camera will switch off automatically.



3. The charger will automatically start charging. The two LEDs at the plug will light up **ORANGE**.
4. Charging is automatically terminated and the LEDs at the plug will light up **GREEN** after charging is complete.
5. The system switches to the trickle charge mode and remains in it as long as the charging cables are disconnected. The battery voltage is monitored continuously in this mode, and the battery automatically recharged without any memory effect, so that fully charged batteries can be guaranteed at any time.

Each rechargeable battery has its own LED status lamp at the plug:



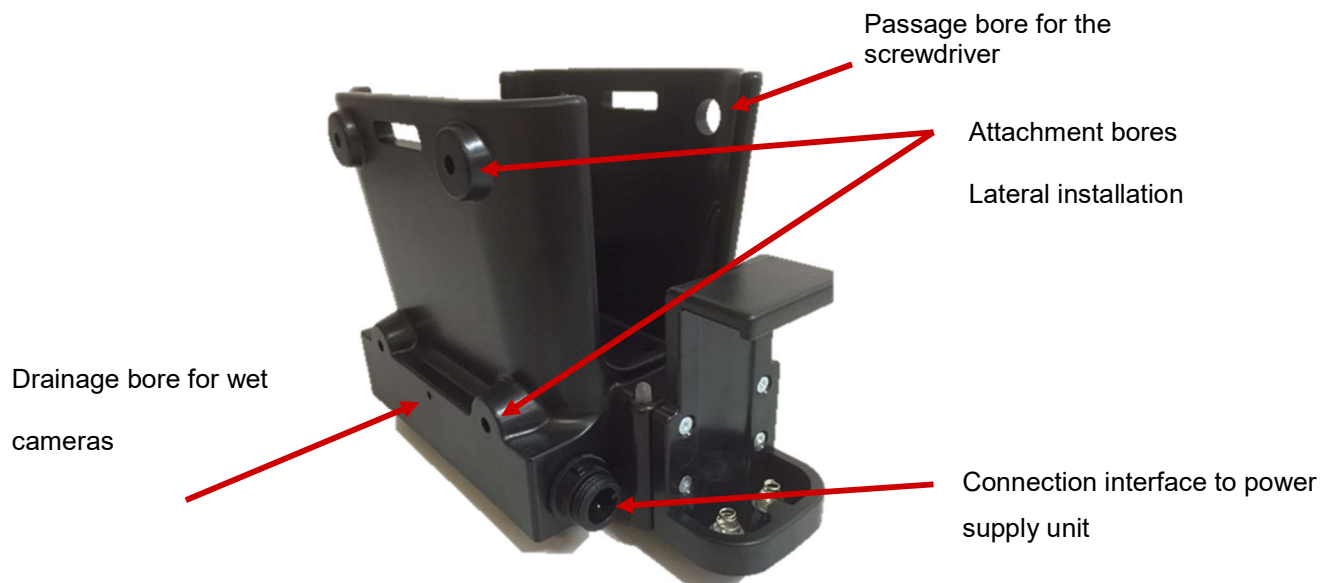
	LED left battery	LED right battery	Information
Cable charger connected to power supply	green	green	Camera is not connected
The cable charger is connected to the power supply and the camera	green	green	Both rechargeable batteries are completely charged
	orange	orange	Both rechargeable batteries are being charged
	orange	green	Rechargeable battery left is being charged Rechargeable battery right is completely charged
	green	orange	Rechargeable battery left is completely charged Rechargeable battery right is being charged

### 4.3 Vehicle Charging Station (option)

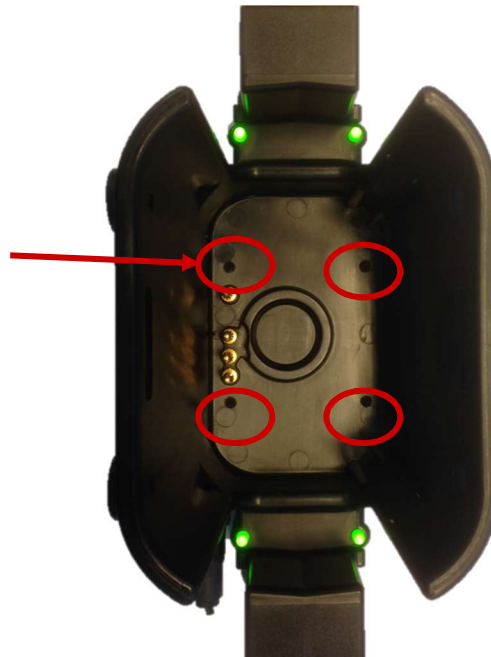
The vehicle charging station has an integrated smart charger for charge maintenance. 4 x LED display the charging process (1 x per rechargeable battery). Simultaneous charging of 1 or 2 spare rechargeable batteries on the left and right side is possible.



The charging tray can be bottom or wall mounted via the prepared bores. Screws are not within scope of supply. The maximum tightening torque is 2 Nm.



4 x Attachment bores  
 for front installation



Charging Bay	Characteristics
Material	PC/ABS
Weight	ca. 600g
Temperature	-20°C to 80°C (-4°F to 176°F) <i>(While charging the batteries, the temperature of the batteries should be in the range between 0 and +45°C)</i>
Dimensions for charging bay with extra battery charger	ca. 230(L) x 105 (W) x 125(H) mm, (90,5"(L) x 41,3" (W) x 49,2" (H))
Dimensions for charging bay without extra battery charger	ca. 170(L) x 105 (W) x 125(H) mm, (67"(L) x 41,3" (W) x 49,2" (H))
Power	<50W
Power supply	100-240 VAC or 12/24V VC
Protection Class	IP42

#### 4.4 Connection of the vehicle charging station to the supply voltage:

The connection to the supply grid in the vehicle is established via the enclosed connection cable. Depending on supply voltage, the corresponding mains unit/cable must be used.

THE DELIVERY INCLUDES EITHER THE 12/24VDC OR THE 100-240VAC POWER SUPPLY UNIT



Power supply unit 12/24 VDC  
(incl. melt fuse)



Power supply unit 230 VAC  
(short-circuit-proof, protective insulation, protective low voltage <50V)

Different plugs available on option.

#### 4.5 Charging with the vehicle charging station:

Push the TIC into the charging tray to the stop (lens first). The charging contacts of the camera are automatically connected to the charging plugs of the charging tray and the corresponding LEDs light up red.



4 x charging contacts and charging plug





The TIC can be inserted into the charging tray either with or without the protective hood.

Once the TIC has been inserted, charging will start automatically.

Once all rechargeable batteries are charged, the system will switch to maintenance mode.

The battery voltage is monitored continuously in this mode, and the battery automatically recharged if required.

**LED display:** A total of 4 rechargeable battery packs at most can be charged at the same time (2 in the TIC and 2 others outside of it)

**GREEN** Supply voltage is pending, no rechargeable battery present or fully charged

**RED** Charging

## 5 MAINTENANCE

- Clean the camera with water or mild soapy water.
- Clean the germanium protective disc with a soft cloth
- Clean the display with a soft cloth
- Keep the camera in a suitable, safe place, e.g., in the carry case or the vehicle charging tray

### NOTE:

Do not use any solvents or acids to clean the camera. Use of such substances may permanently damage the camera and destroy the body's properties and the functionality in general. Do not intentionally submerge the camera under water or subject it to high water pressure. Follow the cleaning instructions of this user's manual. Damage due to contravention are not covered under the warranty claim.

### WARNING

Do not disassemble your thermal imaging camera yourself. In case of a malfunction, the camera needs to be sent to the manufacturer for inspection immediately. Disassembly causes any warranty claims to lapse.

The thermal imaging camera is not an independent safety system. Thermal imaging technology is not a replacement for common fire-fighting measures. It needs to be understood as an accessory that enables the user to make effective decisions.

User must be trained in: Uses and limitations of technology, its application, interpretation of thermal images.

Contravention may lead to death and damage health, the equipment and other objects.

## 6 WARRANTY

Active photonics & LEADER guarantee the first buyer with delivery of defect-free equipment, and correct design, and gives the following guarantees (material plus labor) with proper use and services, valid from the delivery date:

**5 years on the thermal imaging camera plus charging system**

**6 years on the batteries as per the physical aging characteristic\***

**10 years on the thermal image detector**

LiFePO<sub>4</sub> battery cells are subject to natural aging like any other battery technology. The associated natural loss of charging capacity can be indicated at about 5% per year. Thus, battery cells must show at least 70% of the original charging capacity after 6 years.

Active Photonics & LEADER reserves the right to check parts returned within the warranty period and only to repair or replace them if the following conditions are fulfilled:






The object must be sent to active photonics.

The object may not be changed with respect to its original configuration.

The object may not be misused, operated wrongly, overloaded or damaged during transportation.

Active photonics & LEADER is not responsible under any circumstances for damage or loss and is not answerable for any consequential damage and indirect or incidental losses that the client may suffer. This also applies to the case where active photonics was informed about the possibility of these eventualities.

## 7 SAFETY INSTRUCTIONS

	Important guidelines for safe and efficient operations.
	Carefully read through the User's Manual before operating the device.
	Familiarize yourself thoroughly before the initial use of the device.
	Please continue to observe all normal standard operating procedures and safety measures while fighting a fire.
	Shift the camera off before storing in the transport case. Loss of energy and dangerous overheating would be the consequence of storing running equipment in insulated
	Recharge batteries after every use.
	Observe the battery charge indicator during operation
	Perform regular and periodic function checks.
	Do not throw the device
	Never look directly into the sun with the device.
	Do not use the device in environments which are susceptible to explosions.
	Do not open the device or attempt to disassemble it.
	Do not use liquid cleaners or chemical dusters to clean the device.
	Do not immerse the device into liquid cleaners.
	Do not use a brush or any other hard type of cleaning material (sharp corners, rough surface) to clean the device.
	Handle the device carefully and always store it in a dry and clean environment at room temperature.
	The safety guidelines apply to all of active photonics' products. If a device does not work properly, please send it to an authorized partner or directly to active photonics.