

## Bullard T4MAX Thermal Imager

### Configuration

#### T4MAX Thermal Imager Camera

- 4,3" Oversized Display with 16:9 Aspect Ratio and Strong Backlight
- Electronic Thermal Throttle: Colours on Demand - the Hottest Objects of the Scene are BLUE
- Automatic High Gain and Low Gain Mode
- Super Red Hot Colours: Automatic Heat Layers and Hot Objects. At 250°C in YELLOW, at 400°C in ORANGE and 500°C in RED
- Temperature Measurement: from -54°C up to 600°C, Sliding Bar Scale and Numeric Display
- Digital Zoom 2x and 4x
- Two Rechargeable NiMH Batteries
- Battery Charger for 230V, 12V and 24V
- 12V Cigarette Lighter Adapter Cable for Charger
- One Wrist/Gear Strap, Two Side Straps
- Instruction and Training CD-ROM
- Hard Case
- Camera Handling and Application Training (minimum 1,5 hours)

### Technical Specifications

Weight.....	Max. 1,7 kg, including battery (1,4 kg without battery)
Dimensions .....	200mm x 148mm x 140 mm (L x W x H)

#### Detector

Type .....	Uncooled Microbolometer with Digital Processing, Pixel Smoothing
Resolution.....	320 x 240 array
Sensing Material .....	aSi Amorphous Silicon
Spectral Response.....	7 - 14 Microns
Update Rate.....	30 Hz
Temperature Sensitivity .....	0,05°C
Dynamic Range.....	Nonimal 600°C
Thermal Stabilization.....	-20°C to 85°C
NETD .....	50mK
Pixel Pitch.....	30 µm
Video Polarity .....	White Hot
Super Red Hot Colorization.....	Colours automatic: YELLOW, ORANGE and RED
Temperature Measurement: .....	Directly from the detector
Temperature Display .....	Sliding Bar Scale and Numeric Display

#### Casing

Shell Material .....	Ultem Thermoplastic
Colour .....	Metallic Blue, scratches will not damage the colour
Warranty.....	Lifetime for camera shell
Sealing .....	Silicon and Neoprene
Heat Test.....	260°C for 8 minutes 150°C for 16 minutes 1000°C for short time Repeated flash over exposures without any damage

Drop Test.....	No functional damage after repeated drops from 2m on concrete
Water Resistance.....	IP 67
Electromagnetic Compatibility .....	No disruption to radios and other electronic devices

## Lens

Material .....	Germanium
Lens Size.....	5,8 mm
Lens Protection .....	2mm Germanium
File of View .....	50° Horizontal x 32° Vertical
Focus.....	Fixed, 1m to infinity

## Electrical System

Power Source .....	NiMH 10V rechargeable battery or alkaline batteries (8 cells)
Operating Time .....	4 hours nominal
Battery Change.....	Possible with gloved hand in the dark
Battery Mounting.....	Only fits one way, no wrong mounting possible
Battery Weight.....	0,3 kg
Battery Capacity .....	2300 mAh
Battery Life.....	1000 charge cycles
Charger .....	12V, 24V and 230V
Start Up Time.....	4 seconds

## Display

Size .....	4,3" diagonal LCD screen
View .....	At arms length in heavy smoke
Display Cover.....	Polycarbonate, replaceable in the field
Pixel .....	130.560
Display Method.....	TFT Active Matrix System
Back Light.....	10 LED
Brightness .....	650 cd/m2
Display Contrast Ration.....	450:1
Viewing Angle.....	Left/Right = 65°, Up = 50°, Down = 60°

## Strap System (field replaceable, adjustable on both sides of the imager allowing left/right hand use)

Material .....	Kevlar with reflective trim including metal D-Rings
Wrist/Gear Strap .....	Kevlar with two metal carabineers and a quick release buckle

## Functional Elements

Handling with standard fire fighter gloves possible for all switches.

The ON/OFF switch is recessed and protected to avoid accidental shut-off. To turn the imager off, the switch must be pressed for three seconds.

Automatic High and Low Gain Mode: above 100°C the camera switches automatically into the Low Gain Mode to avoid distortions. Up to this temperature the imager works in the High Gain Mode and allows a very exact graduation of the image. Over 100°C the Gain is reduced, to guarantee a perfect view of objects near or behind high heat sources.

## Electronic Thermal Throttle<sup>®</sup> (with Manual ON/OFF Switch)

This special colorization mode is activated only if needed by the user. By pressing the activation button, the hottest objects in the scene are coloured in BLUE, leaving other hot objects in WHITE. This colour is unique to this mode. When pressing the button again, filtration reduces, and the blue colour is extended to



# T4MAX Thermal Imager & Accessories Tender Specification

cooler objects. The hotter objects will be coloured in dark blue and the colder ones in a lighter blue to ensure a clear differentiation. The blue colorization is transparent and allows a clear view of all objects and their contours in a scene.

With the second button, filtration graduation can be reduced, and fewer objects will be coloured blue. Pressing both buttons at the same time for two seconds switches off the Electronic Thermal Throttle mode.

This unique Bullard feature helps the user identify hidden heat sources up to 250°C. Saving fire fighters valuable time with the help of this feature, because their attention is directed immediately to the hottest objects in a scene. By choosing the colorization in BLUE the fire fighter's safety is ensured and confusion with other colours in the Super Red Hot Mode above 250°C will be avoided.

The Electronic Thermal Throttle was designed to avoid mistakes which can appear because of the automatic colorization at the lower temperature ranges!

## Temperature Reading

From -54° - 600°C directly from the detector. Sliding bar on the right side of the display with a scale in °C and numeric display above the scale bar.

## Super Red Hot

Super Red Hot is the automatic colorization mode active in the Low Gain Mode. Colours items in three colours based on their temperatures. The system activates at 250°C with YELLOW then ORANGE at 400°C and RED over 500°C. Colorization occurs in graduations meaning that each colour appears in multiple shades based on the actual temperature of the object. It helps detecting the heat layers and find quickly danger zones.

The imager has one LED indicator system that displays battery life via 5 LEDs (3 green, 1 yellow, 1 red)

Frequency Switch for wireless remote transmitter system (optional)

Video-out Adapter (optional)

External Power Supply (optional)

## Zoom

Digital 2x or 4x. The zoom is switched ON/OFF with a separate button.

## Accessories



### NOTE

Shall be retrofitable at a later time in the field.

## Wireless Remote Transmitter System

Housed in the quick attach handle with ON/OFF switch and channel switch. Retrofittable without additional labour cost.

### Technical Specifications

Frequency & Output .....	According to European R&TTE Directive
Switch .....	2 channel switch
Distance.....	Inside buildings (200m) Outside buildings (500m)

## Mobile Link Handheld Receiver

Battery operated with built in 3.5 display, channel switch and Video-out plug.

### Technical Specifications

System .....	NTSC/PAL
Power.....	NiMH Battery
Relative Humidity .....	10% to 90%
Weight.....	863 grams including battery (581 grams without battery)
Dimensions .....	15,3 x 10,7 x 11,4 cm (with battery installed without antenna) Antenna adds another 8 cm in height

**OPTIONAL: one rechargeable NiMH batter and charger for 230V, 12V and 24V**



## T4 Alkaline Battery Case

Power your T4 with standard AA Alkaline Batteries, 8 batteries required

## T4 Handle Quick Attach Handle (Retrofittable in the Field)

## T4 Retractable Strap

Extendable strap to be mounted on your gear, designed to keep the T4 out of the way while crawling and working (hands free working)

## T4 Powerhouse (Truck Mount Direct Charge System)

Charges the T4 camera, as well as a spare battery (for 12V or 24V) automatically

**OPTIONAL: 230V Adaptor Kit (T4 Powerhouse Kit)**

## T4 SceneCatcher DVR

Digital Video Recorder built-in the quick attach handle. Records 300 photos and five hours of video in 640 x 480 resolution. One button operation: one short push of the button and one photo is captured. If you press and hold the button two seconds longer, a video is recorded. Includes Download Software for PC and USB cable. Each photo and video has a time and date stamp. **The Scene Catcher can be combined with the wireless remote transmitter in the same handle! Both can be retrofitted at any time!**

## TacPort

Video-out Adaptor provides video-out over a BNC plug with an RCA adaptor included. Allows 12V DC operation (car cigarette lighter plug adaptor included) or 230V use with the cameras AC adaptor. For use in extended surveillance operations.

## T4 Glareshield

Provides maximum visibility during size-up and other bright light conditions.

## T4 Akkucare

Charger for charging and discharging batteries (for 24V and 230V use).

## Warranty

Thermal Imager.....2 Years  
Camera Shell .....Lifetime

## Service

Guaranteed turnaround time within 48 hours! Service Station based in Europe (South Germany)

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