

USER MANUAL

TOUGHPIX DIGITHERM INTRINSICALLY SAFE DIGITAL IMAGING CAMERA



Congratulations – You are the owner of a TOUGHPIX DIGITHERM CAMERA. A compact pocket sized digital imaging camera capable of capturing true 5 megapixel visual images, along with fully radiometric thermal images.



Intrinsically safe version as follows:

- Class I, Zone 1 AEx ib IIC T4 Gb Ta = -10°C to +40°C
- Class I, Division 2, Groups A, B, C, D, T4 Hazardous Location with ambient temperature -10C to +40C



Please ensure that the certification matches or exceeds the hazardous area characteristics that will be clearly displayed on site.



Whilst in a hazardous area, do not attempt to change batteries. This task should only be undertaken after returning to a safe area.

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OVERVIEW

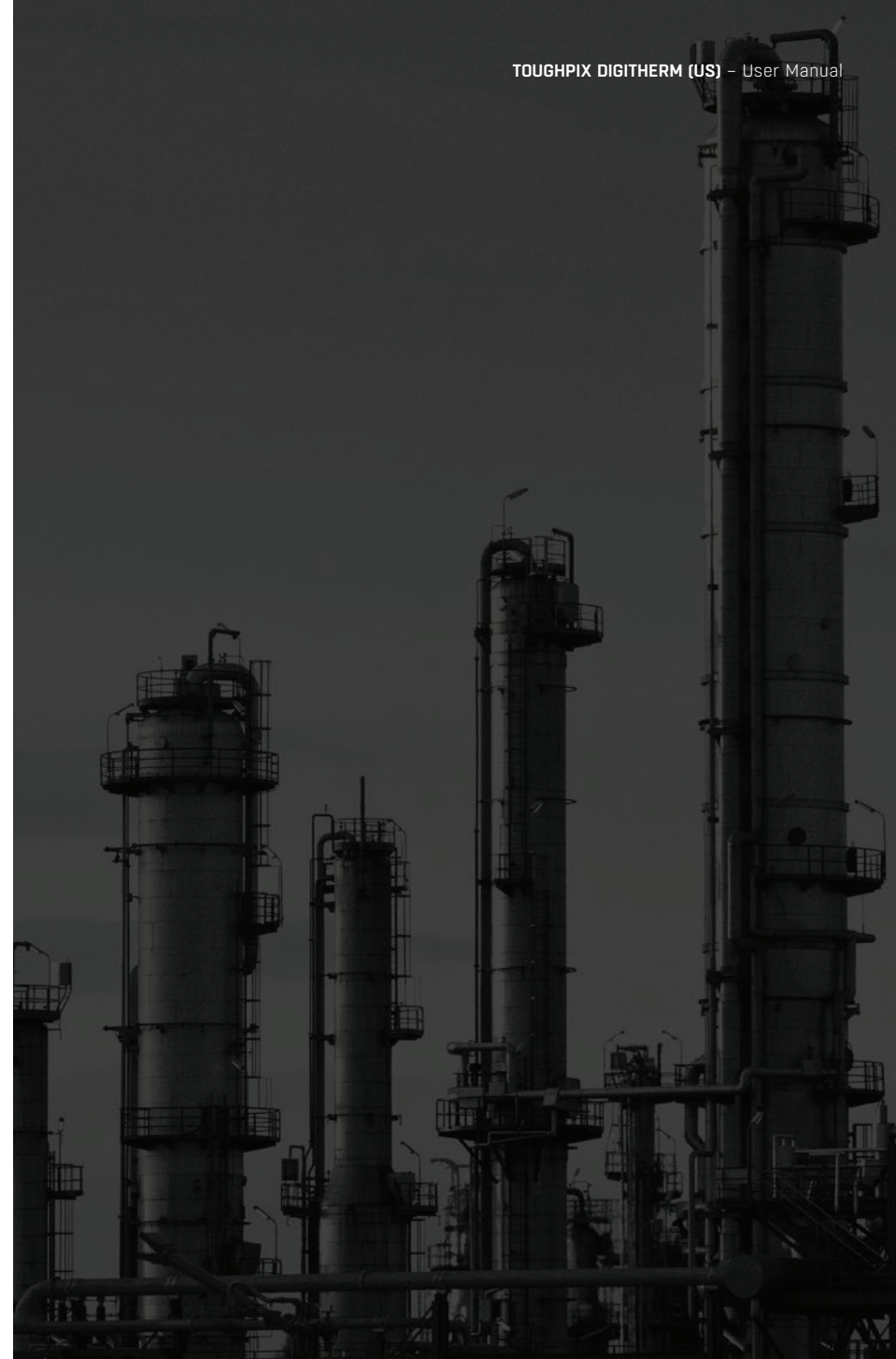
Professional features in a pocket sized package. The TOUGHPIX DIGITHERM is a ruggedized, compact, high resolution digital imaging camera capable of capturing true 5 megapixel visual images along with fully radiometric thermal images, making this camera your go-to tool for fault finding, documentation whether your work is HVAC, building envelope inspections, electrical repair or facility maintenance.



PACKAGE CONTENTS

Check the contents of your TOUGHPIX DIGITHERM, it should include the following items:

- TOUGHPIX DIGITHERM
- Mains charger
- Battery charging dock
- User manual
- Access key
- CoDEX memory card
- USB card reader
- Wrist strap
- Global adapters
- Lithium-ion battery



GETTING TO KNOW YOUR TOUGHPIX DIGITHERM



1 LED flash

With two modes of operation; Wide Area Burst mode and Close-up mode, you have the ability to control the flash to suit your requirements, helping prevent image washout.

2 5MP sensor

Motorised auto focus, capable of resolving both fine close up detail and wide area shots without the need for macro-modes or additional lenses.

3 80x60 thermal sensor

Allowing Infrared vision with its super sensitive 80x60 thermal array as standard, provided 4800 individual measurement points on screen with a temperature range of -10°C (14°F) to +380°C (716°F).

4 WiFi enabled

No more messy cables, with the TOUGHPIX DIGITHERM, wirelessly transfer both Infrared and visual images efficiently, even in the hazardous area.

5 Removable rechargeable battery

Rechargeable lithium ion battery pack providing a huge four hours runtime plus the ability to switch packs and keep working if you need to (only in a safe area).

6 Ruggedized aluminium body

Manufactured from lightweight aircraft grade aluminium, the TOUGHPIX DIGITHERM is both rugged and tough with one goal in mind, quality that's built to last.

7 2.8" LCD backlit display

Compact enough to fit into any work pocket but rugged enough to take the hits, the TOUGHPIX DIGITHERM still has a screen big enough to view images taken in real time; day or night.

8 Simple joystick navigation

With its simple joystick navigation, the menus are quick and easy to navigate, saving time on the task in hand.

9 Wrist strap point

Not only is the TOUGHPIX DIGITHERM small and compact we have made it really easy to carry with our FSE wrist strap, which can be worn on either the right or left hand side of the camera.

GETTING STARTED

Battery Pack

Please ensure the battery pack is fully charged where possible for optimum results and maximum runtime. The battery pack is removed* and inserted* via the access door on the base of the camera. The battery pack is charged using the docking station supplied. Refer to the section on battery pack operation for details.

*Only to be done in a safe area

Turning the Power ON/OFF

Use the power button on the top of the camera to turn the camera on and off. The on button is identified on the top of the camera with the ON/OFF symbol located next to the shoot button.

Please refer to Time and Date section if setup is required before operation.

Camera Interface Menus

All camera settings and features are navigated and selected using the joystick:

Short press enters the [camera menu](#)

Long press enters the [analysis menu](#)

CAMERA MENU

This menu has the following icons:



Visible Imaging



IR Imaging



Image Review



WIFI



Time and Date



Firmware

ANALYSIS MENU

This menu has the following icons:



SPOT & BOX Configuration



GLOBAL IR parameter

TAKING PICTURES

Visible Imaging

Controls the VISIBLE imaging and capture modes.

- **LED:** flash operation options.
DISABLED: LED flash turned OFF.
ENABLED: LED flash turned ON.
AUTO: LED flash enabled dependent on ambient light.
- **FLASH CHARGE STATUS:** the top right of the display shows:
GREEN indicates fully charged.
RED indicates charging in progress.
- **SCENE:** Sets the auto-modes for a particular situation:
NORMAL: Default exposure using all the image area.
CLOSE-UP: Auto-exposure is determined by the central region of the image with the edge regions used less. In close-up mode a rectangle is overlaid to show the central area from which exposure is determined.
Note that the object being imaged doesn't have to be contained within this area even though the image exposure is determined by metering this area.
- **TIME LAPSE:** Sets time period for delay from shoot-button activation.
TIME LAPSE PERIOD: single, 30 sec, 1 min, 2 min, 5 min.
ACTIVATION: Started and stopped by the shoot-button.
INDICATOR (top left): Shows current setting (in seconds).
When running shows the time to next image.
- **TL THRESHOLD:** Sets the temperature threshold for the time lapse to start.
TEMPERATURE: Sets the threshold temperature (-10°C disables).
ACTIVATION: Started and stopped by the shoot-button.
- **BRIGHTNESS:** Adjusts the visible image brightness.
BRIGHTNESS: -4, -3, -2, -1, 0 (default), 1, 2, 3, 4. Normal operation 0.
- **CONTRAST:** Adjusts the visible image contrast.
CONTRAST: -4, -3, -2, -1, 0 (default), 1, 2, 3, 4. Normal operation 0.

TAKING PICTURES

- **SATURATION:** Adjusts the visible image saturation.

SATURATION: -4, -3, -2, -1, 0 (default), 1, 2, 3, 4. Normal operation 0.

To focus an image, point the camera at the target of interest and the camera will automatically focus. Once the camera is focused and the image is clear, press the shoot button whilst the camera takes the shot.

IR Imaging

Controls the IR imaging and display modes.

- **IMAGE TYPE:** sets the IR display modes.
 HIGHLIGHT: Overlays highest temperatures only for hot spot locating.
 ATB: Overlays Adaptive Thermal Blending areas determined by ATB high and ATB low settings.
 THERMAL ONLY: IR image only is displayed.
 VISIBLE ONLY: VISIBLE image only is displayed.
- **COLOURISATION:** Configures the IR image colour palette (as displayed on the colour bar for reference). Industry Standard colour palettes are available:
 Rainbow, Amber, Sepia, Grey positive, Grey negative, Iron, Hot metal.
- **ATB HIGH:** Selects the temperature threshold above which the ATB overlay is active.
 ATB HIGH ACTIVATE: Enable, Disable, T6, T5, T4, T3, T2.
 T6, T5, T4, T3, T2: selects preset threshold for EN60079-0 Group II temperature class.
 TEMPERATURE: selects the temperature threshold.
 Note: Temperature selection overrides and deactivates T class selection.
- **ATB LOW:** Selects the temperature threshold below which the ATB overlay is active.
 ATB LOW ACTIVATE: Enable or Disable.
 TEMPERATURE: selects the temperature threshold.
- **RANGE:** Selects IR temperature range.
 Low: low range -10°C to 140°C
 High: high range -10°C to 380°C
- **UNITS:** Selects the global temperature units.
 TEMPERATURE UNITS: Celsius, Fahrenheit, Kelvin.

THERMAL ANALYSIS

SPOT Configuration

Configures the active temperature measurement SPOTS & BOX operation.

- **SPOTS/BOX:** Configures the number of active SPOTS in the display/BOX display.
 Options selectable: 1-SPOT, 2-SPOT, 3-SPOT, BOX.
- **MOVE SPOT/BOX:** Selects the ACTIVE SPOT or BOX corner to be moved by the joystick in the preview display.
 Options selectable: 1,2,3 to select the active SPOT (displayed in bold in the preview display).
- **SPOT1/BOX EMISSIVITY:** Configures emissivity of SPOT1 and also the BOX area.
 Options selectable: 0.5 to 1.0 in steps on 0.05.
- **SPOT2 EMISSIVITY:** Configures emissivity of SPOT2.
 Options selectable: 0.5 to 1.0 in steps on 0.05.
- **SPOT3 EMISSIVITY:** Configures emissivity of SPOT3.
 Options selectable: 0.5 to 1.0 in steps on 0.05.

Global IR Parameter

Configures the GLOBAL IR parameters used by the IR radiometric analysis. These parameters are shared by all the SPOTS and the BOX area are displayed on the preview display.

- **REFLECTED T:** Configures the GLOBAL reflected temperature.
 Options selectable: -10C to 380C.
- **ATMOSPHERIC T:** Configures the GLOBAL atmospheric temperature.
 Options selectable: -10C to 380C.
- **HUMIDITY:** Configures the GLOBAL humidity.
 Options selectable: 0% to 100% in steps of 1%.
- **DISTANCE:** Configures the GLOBAL distance of the object from the camera.
 Options selectable: 1m to 100m in steps of 1m.

IMAGE REVIEW

Image Review

Displays the stored CAPTURED, VISIBLE and IR images for review.

- View mode review shows the actual CAPTURED image with overlay
- Temperature scale and colour bar displayed for images with IR content

The memory card empty icon is displayed when no memory card is present. Image identification is shown for the minimised views. Removed on the full screen views

The joystick is used to navigate the stored images.

- RIGHT and LEFT: moves through the stored images as CAPTURED.
- UP and DOWN: selects either CAPTURED, VISIBLE or IR image.
- PRESS (short): selects full screen display of the currently displayed image.
UP and DOWN: selects CAPTURED, VISIBLE or IR image
CAPTURED image shows temperature min/max with any user SPOT or BOX.
- PRESS (long): enters the Delete Image menu.
CANCEL: re-enter the Image Review.
DELETE: deletes the image from the memory card.

WIFI

WIFI access point activation.

- **ENABLE WIFI:** select NOW to enable, PRESS (short) to exit WIFI access point.
When WIFI access point is enabled the display shows the following:
- **CAMERA SSID IS DISPLAYED:** used to identify the camera for selecting WIFI connection.
- **CAMERA IP ADDRESS:** used by browser to display web-page.
- **FW:** WIFI firmware revision.

WIFI image review and download can be performed in Zone 1 and Zone 2 areas with certified equipment. Refer to the section on the Web browser for image review using a browser.

CAMERA SETUP

Time and Date

Used to setup the cameras date and time.

- **YEAR:** select current year.
- **MONTH:** select current month.
- **DAY:** select current day.
- **HOURL:** select current hour.
- **MINUTE:** select current minute.
- **SECOND:** select current second.
- **TIME ZONE:** select current time zone offset (hours).

Firmware and Alignment

Both WIFI and camera system firmware are uploaded form this menu.

Displays the current FIRMWARE for the camera. See WIFI for the module firmware.

Displays the camera serial number: 8-digit Hexa-decimal number.

- **UPDATE FIRMWARE:** Camera system firmware update.
Press NOW to update firmware.
- **UPDATE WIFI:** WIFI firmware update.
Press NOW to update firmware.
- **ALIGN:** IR and VISIBLE image alignment.
Arrows are used to align the IR and VISIBLE images.

Separate instructions for firmware updates will be issued along with the firmware update file.

CAMERA STATUS

Battery Status

Shows current battery charge status as a percentage.

Calibration Notification:

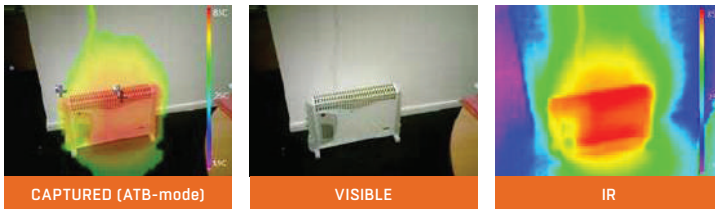
Lower right of screen when activated to indicate calibration is due.

Memory Card Empty:

Top left of screen when activated indicates no memory card is present.

IMAGE EXAMPLE

The following is an example of a **CAPTURED** image with its **VISIBLE** and **IR** views.



DOWNLOADING FILES

Images can be downloaded from the TOUGHPIX DIGITHERM via the removable memory card or via the WIFI access point.

Removable Memory Card

TOUGHPIX DIGITHERM is supplied complete with a memory card**.

- Open* the Battery Pack door of the camera with the supplied access key.
- Remove* the Battery Pack from the camera.
- Remove* the memory card from the camera.
- Insert* the memory card in to the memory card reader supplied.
- Remove the other end of the memory card reader which will reveal a USB dongle, insert this in to your PC/Laptop.

* Only to be done in a safe area.

** Only compatible with the TOUGHPIX DIGITHERM.

WIFI Access Download

TOUGHPIX DIGITHERM comes complete with built in WIFI to enable users to wirelessly view and download images directly from the camera.

To access images over the WIFI:

- Activate the DIGITHERM WIFI access point (refer to the WIFI icon description).
 - Access and view files via DIGITHERM web browser operation or CorDEX DIGITHERM application*.
- Refer to the section on web browser operation.

* Refer to FSE for current camera application support details.

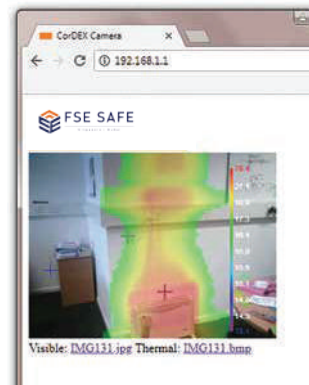
WEB BROWSER OPERATION

The integrated DIGITHERM web browser enables display and download of on-camera images in the original view-mode via the DIGITHERM's WIFI access point.

Basic Operation

The web browser displays thumbnail images for quick transfer with download access to the full resolution images. Once downloaded, images can be viewed and processed in CONNECT Software to adjust the view mode.

- WIFI: Web server enables fast application and browser access to display images.
- Image view mode displayed on web-server shows captured images including colour bar and temperature scale.
- Active BOX or SPOTS and temperature min/max locations are displayed without temperatures. The colour bar can be used to get the approximate temperature for these locations.
- Direct linked full resolution downloads available as shown in the example.
RIGHT CLICK: the link to download the VISIBLE or IR image.



LEFT CLICK: to open full resolution image.

Note: the IR and VISIBLE are not completely aligned in the browser views.

Please note

- Both VISIBLE and IR images are required for full analysis in CONNECT and these need to be downloaded separately.

BATTERY PACK

Removing the Battery Pack*

- Open* the Battery Pack door of the camera with the supplied access key.
- Remove* the Battery Pack from the camera.

Inserting the Battery Pack*

- Open* the Battery Pack door of the camera with the supplied access key.
- Slide* the Battery Pack into the camera.
- Secure the Battery Pack in place using the supplied access key.
- Ensure the access door is securely closed before entering any restricted areas.

Charging the Battery Pack*

- Plug the charger into a wall socket/outlet. The GREEN LED will illuminate showing mains power is connected and that the charger is ready.
- Insert DIGITHERM Battery Pack into the charging station. Care must be taken to ensure that the battery is inserted in the correct orientation, otherwise battery or charger damage may occur.
- If the battery is properly located in the charging station, the RED LED on the charger will illuminate to indicate charging. Once the charge cycle is complete, the LED will change to GREEN.

* Only to be done in a safe area.

[illegible]

This image shows a single sheet of white paper with horizontal blue or grey ruling lines, typical of notebook paper. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

