



FIJI ELECTRICITY AUTHORITY

BIDDING DOCUMENT

MR 199/2017

PREFERRED SUPPLIER FOR

- 1. OFIL Luminar HD CORONA CAMERA**
- 2. FLIR T-SERIES Model T660 THERMOGRAPHIC INSPECTION CAMERA**

Section 1. Instructions to Bidders

- 1. Scope of Bid** The Fiji Electricity Authority (hereinafter referred to as "the Employer"), wishes to receive bids for supply of Corona OFIL Luminar HD and Thermographic FLIR T660 Inspection Camera and Accessories as specified in these bidding documents (hereinafter referred to as "Inspection Camera").
- 2. Eligible Bidders** This Invitation to Bid is open to bidders who have sound financial background and have previous experience and are Agents of FLIR and OFIL Cameras.
- Bidders shall provide such evidence of their continued eligibility satisfactory to the Employer as the Employer shall reasonably request.
- Bidders shall not be under a declaration of ineligibility for corrupt or fraudulent.
- 3. Eligible Materials, Equipment and Services** The Inspection Camera to be supplied under the Contract shall have their origin from reputable companies from various countries. The bidders may be required to provide evidence of the origin of the Inspection Camera.
- 4. Qualification of the Bidder** To be qualified for award of Contract, bidders shall submit proposals regarding work methods, scheduling and resourcing which shall be provided in sufficient detail to confirm the bidder's capability to fulfil the contract.
- 5. Cost of Bidding** The bidder shall bear all costs associated with the preparation and submission of its bid and the Employer will in no case be responsible or liable for those costs.
- 6. Sealing and Marking of Bids** The bidder shall seal the original copy of the technical proposal, the original copy of the price proposal and each copy of the technical proposal and each copy of the price proposal in separate envelopes clearly marking each one as: "ORIGINAL-PROPOSAL", and "COPY PROPOSAL", etc. as appropriate.
- The bidder shall seal the original bids and each copy of the bids in an inner and an outer envelope, duly marking the envelopes as "ORIGINAL" and "COPY".
- The inner and outer envelopes shall be addressed to the Employer at the following address:

The Secretary Tender Committee
2 Marlow Street, Suva, FIJI.
Phone: 679 3224 185 Facsimile: 6793311882
Email: TuvituD@fea.com.fj

And bear the following identification:

Bid for: **Preferred Supplier for Corona Camera
Luminar HD and Thermal Imaging Inspection Camera
FLIR T660**

- Bid Tender Number: MR 199/2017
- DO NOT OPEN BEFORE (**Wednesday, 23rd August, 2017**)

7. Deadline for Submission of Bids

Bids must be received by the Employer at the address specified above no later than 1600 hours (Fiji Time) (**Wednesday, 23rd August, 2017**).

The Employer may, at its discretion, extend the deadline for submission of bids by issuing an addendum, in which case all rights and obligations of the Employer and the bidders previously subject to the original deadline will thereafter be subject to the deadlines extended.

8. Late Bids

Any bid received by the Employer after the deadline for submission of bids prescribed will be rejected and returned unopened to the bidder.

9. Modification and Withdrawal of Bids

The bidder may modify or withdraw its bid after bid submission, provided that written notice of the modification or withdrawal is received by the Employer prior to the deadline for submission of bids.

The bidder's modification or withdrawal notice shall be prepared, sealed, marked and delivered, with the outer and inner envelopes additionally marked "MODIFICATION" or "WITHDRAWAL", as appropriate. A withdrawal notice may also be sent by fax but must be followed by a signed confirmation copy.

No bid may be modified by the bidder after the deadline for submission of bids.

10. Employer's Right to Accept any Bid and to Reject any or all Bids

The Employer reserves the right to accept or reject any bid, and to annul the bidding process and reject all bids, at any time prior to award of Contract, without thereby incurring any liability to the affected bidder or bidders or any obligation to inform the affected bidder or bidders of the grounds for the Employer's action.

11. Notification of Award

Prior to expiration of the period of bid validity prescribed by the Employer, the Employer will notify the successful bidder by fax/email, confirmed by registered letter, that its bid has been accepted. This letter (hereinafter and in the Conditions of Contract called the "Letter of Acceptance") shall name the sum which the Employer will pay the Contractor in consideration of the execution, completion and maintenance of the Works by the Contractor as prescribed by the Contract (hereinafter and in the Conditions of Contract called "the Contract Price").

The notification of award will constitute the formation of the Contract.

Upon the furnishing by the successful bidder of a performance security, the Employer will promptly notify the other bidders that their bids have been

unsuccessful.

**12. Signing of
Contract
Agreement**

At the same time that he notifies the successful bidder that its bid has been accepted, the Employer will send the bidder the Form of Contract Agreement provided in the bidding documents, incorporating all agreements between the parties.

Within 7 days of receipt of the Form of Agreement, the successful bidder shall sign the Form and return it to the Employer.

**13. Corrupt or
Fraudulent
Practices**

The Employer requires that the Contractor observe the highest standard of ethics during the procurement and execution of such contracts. In Pursuance of this policy, the Employer:

- (a) defines, for the purposes of this provision, the terms set forth below as follows:
 - (i) "corrupt practice" means behavior on the part of officials in the public or private sectors by which they improperly and unlawfully enrich themselves and/or those close to them, or induce others to do so, by misusing the position in which they are placed, and it includes the offering, giving, receiving or soliciting of anything of value to influence the action of any such official in the procurement process or in contract execution; and
 - (ii) "fraudulent practice" means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of the Employer, and includes collusive practice among bidders (prior to or after bid submission) designed to establish bid prices at artificial non-competitive levels and to deprive the Employer of the benefits of free and open competition;
- (b) The FEA will reject a proposal for award if it determines that the bidder recommended for award has engaged in corrupt or fraudulent practices in competing for the contract in question.

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Technical Specifications for Corona and Thermo graphic Inspection Camera

1. General Description

The preferred supplier is to supply the Fiji Electricity Authority with the Corona and Thermal Inspection Camera and Accessories on as per need basis.

Following general specifications are to be met:

1. Single unit camera must support Corona imaging (UV) OFIL Luminar HD
2. Single unit camera must support Thermal (IR) imaging FLIR T660
3. The camera shall be use in daylight/outdoors as well as at night/indoors (Solar Blind Mode and Non Solar Blind Mode)
4. The camera should possess the ability to count the UV radiation (Support corona event counting)
5. The camera(s) should be of high quality, easy to operate, carry and maintain.
6. The model as follows
 - A. OFIL Corona Camera Luminar HD Version
 - B. FLIR Thermal camera T660
7. The bidders proposal shall address all functional and performance requirements within the specification and shall include sufficient information and supporting documentation in order to determine compliance with this specification without further necessary inquiries
8. The manufacturer of the specified product shall have been certified with ISO 9001:2008 standard.
9. Training for the supplied equipment is also to be provided.
10. All bidders shall cite relevant AS/NZS, IEC, IEEE, ANSI standards and provide relevant documents proving and validating the compliance of the product with the mentioned standard.

The required item shall be delivered as per the specifications listed in this specification document. In case of any deviation from the mentioned, the vendor shall bring into notice the same along with its offer. In absence of such deviation, it will be presumed that equipment offered is exactly similar to the specification.

2. Evaluation Criteria

Category of Evaluation Criteria	% Weighting
Supplier should also provide:	
1. Calibration Certificate of instrument along with the traceability	5%
2. Instruction Manual, instructional videos and software's	5%
3. Standard International Two (2) Guarantee /Warranty certificate	5%
4. Service center information	5%
5. Supplier should provide calibration facility	5%
6. Quoted price should a validity of 4 months	5%
7. Bidder to provide following information along with technical data in their technical bid <ul style="list-style-type: none"> Physical dimensions of the instrument. Weight of the instrument. Shock proof hard case for storing the camera List of the customers to whom they have supplied the quoted model. Adherence to the specifications stated 	25%
8. Instrument should be housed in a rugged, transportable carrying case. IP rating of case should prevent moisture and dust ingress complete with hard carrying case with locking arrangement.	5%
9. Bidder must be able to provide back-up service/ repair and recalibration	5%
10. Delivery lead time 6 weeks	5%
11. Training provided	10%
12. Bidder to specify the number of days Training and modules. At least five days Training is required in Fiji	
13. Financial	15%
14. List of Manufacturers Accessories including spare battery	5%

3. General Information

1	Name and Address of the Bidder:	
2	Contacts:	
3	Telephones:	
4	Fax:	
5	E-Mail:	
6	Mobile No:	
7	Name of Chief Executive Office and Telephone No:	
8	Sales Tax/Commercial Tax/CST nos.	
9	Service Tax No.	
10	Income Tax No.	

Name of Authorised Person	
Signature of the Bidder	
Company Stamp	
Date	

Note: separate sheets may be attached wherever necessary.

4. Relevant Standards

The equipment shall be designed, manufactured and tested/certified in accordance with the requirements for the following standards.

STANDARD	TITLE
IEC 60270:2000	High voltage test techniques – Partial discharge measurements
NEMA107-1987	Methods of Measurement of Radio Influence Voltage (RIV) of High voltage Apparatus
IP54	Ingress Protection – Limited protection against dust ingress and protected against splash water from any direction

IEC 1010-1	Standard for electrical and electronic test equipment
ISO 9001:2008	Standard for Quality Management System

All bidders, shall cite relevant standards and submit applicable documents proving and substantiating the compliance of the products in their bids with the relevant standards.

All bidders, shall cite relevant standards and submit applicable documents proving and substantiating the compliance of the existing quality control measures implemented at the factory in the manufacturing of the products for which bids are to be submitted.

6. Operating Conditions

The Inspection Camera will be used to examine LV, MV and HV lines and infrastructure (ranging from 240V AC to 132000V AC at 50Hz) at tropical (fairly humid, rainy and hot) conditions with temperatures ranging from 0 to 50 Degrees Celsius.

The equipment shall be water resistant, dust resistant and deliver exceptional results in both day time as well as night time situated either indoors or outdoors.

The range of the distance effectively covered by the Inspection camera shall be up to 30 meters.

7. User Operation Manual

Complete overview and detail are to be provided for each function, configuration detail and onscreen option.

8. Accessories

The bidder shall state the recommended accessories that are supplied with the Inspection camera and also clearly state the prices of optional accessories and spare parts that may be considered for purchase.

9. Training

The bidder shall provide training consisting of both theoretical and practical skills at no cost to the Employer at the Employer's Kinoya Depot, Fiji Islands. The details of this training shall be provided and outlines clearly with the tender bid.

Training shall be provided on:

- a. Handling and usage of the camera
- b. Generation of reports using the data obtained
- c. Software hands on practice
- d. Analysis and interpretation of data given by the camera
- e. Practical training on field at FEA 6 nominated nominated Zone substation and switchyard

10. Warranty

The bidder is to specify the Warranty details and coverage period. All costs relative to the warranty coverage in terms of repair, transportation and freight costs shall be paid fully by the bidder. A minimum of 12months warranty shall be provided with the equipment and all accessories.

11. Bid Prices

All non-exempt duties, taxes and other levies payable by the Contractor under the Contract/Purchase Order, or for any other cause shall be included in the rates, prices and total Bid price submitted by the Bidder.

Unless otherwise specified, the unit rates and prices shall be quotes by the Bidder in Fijian Dollars (FJD).

No	Description	Quantity	Price (Unit)	Total Price
1	Corona camera – OFIL Lumina HD model	1		
2	Training Days - OFIL camera Lumina HD model	5 days		
3	Accessories and spare battery Bidder to provide list	1 set		
4	Prepare reports for 6 Zone Substations			
5	Thermal Camera – FLIR T660	2		
6	Training Days - – FLIR T660	5 days		
7	Accessories and spare battery Bidder to provide list			
8	Prepare reports for 6 Zone Substations			
Total				

12. Period of Validity of Goods

Unless otherwise specified, bids shall remain valid for a period of 120 days after the deadline for the receipt of Bids. A Bid valid for a shorter period shall be rejected by FEA as noncompliant. In exceptional circumstances, FEA shall may solicit the Bidders' consent to an extension of the period of validity. The request and the responses thereto shall be made in writing.

Tender Submission - Instruction to bidders

It is mandatory for Bidders to upload a copy of their bid in the **TENDER LINK** Electronic Tender Box no later than **4:00pm, on Wednesday 23rd August, 2017**.

To register your interest and tender a response, view 'Current Tenders' at:
<https://www.tenderlink.com/fea>

For further information contact The Secretary Tender Committee, by e-mail
TDelairewa@fea.com.fj

In additional, hard copies of the tender, one original and one copy must be deposited in the tender box located at the FEA Head Office, 2 Marlow Street, Suva, Fiji no later than **4:00pm, on Wednesday 23rd August, 2017**- Addressed as

Tender – MR 199/2017 – Preferred Supplier for OFIL Luminar HD Corona Camera and FLIR T-Series Model T660 Thermographic Inspection Camera

**The Secretary Tender Committee
Fiji Electricity Authority
Head Office
Suva
Fiji**

- **Hard copies of the Tender bid will also be accepted after the closing date and time provided a soft copy is uploaded in the e-Tender Box and it is dispatched before the closing date and time.**

Tenders received after **4:00pm** on the closing date of **Wednesday 23rd August, 2017**

- will not be considered.
- Lowest bid will not necessarily be accepted as successful bid
- **It is the responsibility of the bidder to pay courier chargers and all other cost associated with the delivery of the hard copy of the Tender submission including any Duties/Taxes. Hard copies of the Tender submission via Post Box will not be considered.**
- **Local Bidders are requested to submit a:**
 - **Valid Tax Compliance Certificate**
 - **FNPF Compliance Certificate**

DayCor® LUMINAR^{HD}



HANDHELD HIGH DEFINITION CORONA CAMERA



Luminar^{HD} is the top line handheld corona camera boosted with features that enhance inspection process. **Luminar^{HD}** implements Ofil's benchmarked DayCor® proprietary technology ensuring accurate detection, recording and displaying of UV radiation emanated by corona. Perceived GPS, text & audio annotations, ambient temp & humidity are marked on captured media and saved as meta data for post processing and reporting. Wi-Fi, LAN and Bluetooth communication protocols support remote control and efficient data transfer. Strict ergonomic design ensures aesthetics and user friendliness. **Luminar^{HD}** has an easy grip; large lit control buttons; pictorial menu, a large bright & adjustable

display, powerful zoom, continuous interchangeable wide to narrow fields of view. **Luminar^{HD}** is built for extended uninterrupted operation powered by a rechargeable battery. **Luminar^{HD}** supports corona management systems and includes an interface to **coronaWise** software with auto-detect and automatic data transfer.

>> Highest sensitivity to corona and RIV sources

>> Powerful continuous optical & digital zoom

>> Adjustable high resolution TFT LCD

>> Uninterrupted continuous operation

>> HD 720p videos & high resolution images

>> Built-in GPS with internal antenna

>> Bluetooth & Wi-Fi communications

>> Powerful LED flashlight

>> Temperature & Humidity plug

>> Interface to **coronaWise** - Corona Management SW

TESTED & CERTIFIED SENSITIVITY TO UV & RIV

Luminar^{HD}, the top line sensitive corona camera, was tested and certified by RWE Germany for detecting 1pC from 15 meters, 3.6dBμV (RIV) @ 1MHz @ 10m in outdoors & indoors. UV photons emanating from corona are counted and presented as values that designate corona severity. **Luminar^{HD}** enables frames integration as an additional means to enhance detecting corona sources.

PRECISE LOCATION OF EMITTING SOURCES

The concurrently captured UV and visible images are merged accurately portraying a true pinpointed imaging of the electrical fault. Auxiliary data such as GPS, ambient conditions, narrations etc. are embedded and added as meta data.

ERGONOMIC AND PRACTICAL

Spacious and big illuminated control buttons activate the most frequently used functions and accommodate for working-with gloves. A large adjustable TFT LCD guarantees good view in sunny conditions, while a built-in powerful LED flash light enables inspection tasks in darker conditions. A pictorial easy to navigate menu adds multiple operational features such as defining users preset profiles with personalized default settings.

EFFECTIVE POWERFUL ZOOM

A continuous interchangeable optical wide to narrow fields of view of both the visible and UV channels provide powerful zooming. The high definition high resolution video recording adds significant digital magnification enabling excellent post processing possibilities of closer view into imperfections involved with corona discharges.

DAYCOR® TECHNOLOGY INSIDE



Luminar^{HD} is a high fidelity bi-spectral solar blind camera implementing Ofil's proprietary DayCor® technology [Registered Patent EP1112459B1]. **Luminar^{HD}** offers over 3 hours ongoing continuous battery run time operation without overheating.

Wi-Fi, BLUETOOTH, ETHERNET

Luminar^{HD} supports wireless and wired communication through either communication protocol. As such, **Luminar** can be fully controlled from remote control centers, streaming recording to external monitors.

HD VIDEO & IMAGE RECORDING & PLAYBACK

HD 720p video & stills are stored onto a micro flash card and displayed on the LCD. Media can be exported automatically to Ofil's **coronaWise** software, as plug-N-play.

TECHNICAL SPECIFICATIONS

UV - OPTICAL PROPERTIES

Minimum Discharge Detection	1pC @ 15 m Tested & certified by RWE: IEC 60270:2000. Real results
Minimum RIV Detection	3.6dBµV (RIV) @1MHz@10m Tested & certified by RWE: NEMA107-1987. Real results
Minimum UV Sensitivity	2.2x10 ⁻¹⁸ watt/cm ²
Fields of View	H: 10° - 1.6° V: 5.6°-0.9° Synchronized with visible channel, optic & digital, continuous
Focus	Full manual and auto focus for both channels
UV Zoom	Optical & digital, slaved to the visible channel
Spectral Range	240-280nm
UV Frames Integration	On Off
UV Display Colors	Polychromatic: Red, Green. White, Black, Yellow

VISIBLE - OPTICAL PROPERTIES

UV/Visible Overlay Accuracy	Deviation < 1 miliradian
Minimum Visible Light Sensitivity	0.1 Lux
Video Standard	HD, 720p ,1280X720px
Fields of View	H: 10° - 1.6° V: 5.6°-0.9° Synchronized with UV channel, optic & digital, continuous
Focus Range	0.5m 1.6ft automatic & manual
Rapid Visible Zoom	12x optical, 12x digital (144 optical X digital) attained within 1 sec
UV & Visible Channels Display Modes	Combine (UV & Visible), UV only, visible only

DISPLAY

Type	Color, sun readable, TFT LCD
Brightness	1000 cd/m ² , adjustable backlight
Resolution	WVGA, 800 x 480 pixels RGB
Size	5"
Tilting	Adjustable angles

I/O & CONTROLS

Input	Keypad, menu, automatic feed, mic, GPS, temperature & humidity
Output	HDMI, Aux, 1GB Ethernet, Bluetooth, Wi-Fi, Mini USB, speaker (int. + ext.)
Functions Activation	Buttons & menu
GPS	Built-in, internal antenna
Text Editor	Built-in
Data Export	Auto detect, auto transfer interface to coronaWise software
Flashlight	Built-in, Led, 2 steps

ENVIRONMENTAL

Storage and Operation Temp	-20°C up to +55°C -4°F up to +131°F, fanless
IP Rating	IP 54

MEDIA CAPTURE & DATA STORAGE

Video & Stills Capture & Playback	Internal, gallery display & playback video, audio & still pictures
Video Format	AVI \ MOV res. 720p
Stills Format	JPG
Audio	M4A\1099
Digital Storage	Memory flash card Micro SD

PHYSICAL CHARACTERISTICS & POWER SOURCE

Weight	2.2 Kg 4.85 lb
Dimensions L x W x H	L29 x W13 x H11.7cm 11.4" x 5.1" x 4.6"
Nominal Power Consumption	15 Watts
Power Source	Rechargeable (int & ext) battery run time >3 hours, Universal AC/DC 9.5V adapter
Mounting Point	Standard 1/4" X20 thread tripod mount
LED Indicators	On/Off, sleep mode, recording mode, power source

ACCESSORIES

Close-up Lens; coronaWise Software; Temp & Humidity Meter plug, Remote Control wired or wireless

Specifications are subject to change without notice | Imagery used for illustration purposes only | Copyright 2017 Ofil Ltd ver 17.01

T-SERIES

THERMAL IMAGING CAMERAS FOR
PREDICTIVE MAINTENANCE

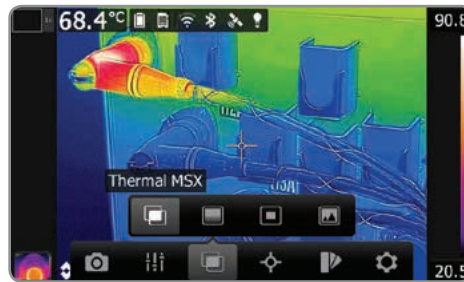
UNLEASH THE ULTIMATE POWER OF FLIR



The World's **Sixth Sense™**

T-SERIES THE ULTIMATE THERMAL IMAGER

To keep equipment running reliably, you need dependable troubleshooting tools that can help you find and report problems fast. That's why FLIR infrared cameras are indispensable. They let you see invisible heat caused by electrical resistance, mechanical wear, and other issues early enough to help you keep things operating safely and head off expensive downtime. And no other line of thermal imagers makes it easier to capture and share findings than T-Series.



PRODUCTIVITY BOOST

- Touchscreen tools as intuitive as a smartphone's
- Simple buttons to access the interface with gloved hands
- GPS & Compass embed pointing direction and geo-location
- LEDs to light darker areas and a laser pointer to mark locations
- Easy voice, text, and sketch annotations, stored in radiometric images

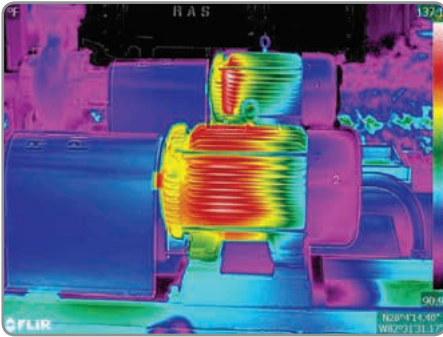
FAST COMMUNICATION

- FLIR Tools Mobile app links T-Series to smartphones & tablets for immediate image analysis and sharing from the field plus streaming video and remote control for safer monitoring
- MeterLink® transmits FLIR T&M data to the camera, for instant integration into images and reports
- FLIR Tools software for PC & Mac provides extra documentation power and camera firmware updates
- Radiometric recording to memory card



OPTIMUM ERGONOMICS

- Rotating optical block points 120° up and down for easier aiming and viewing
- Auto Orientation switches onscreen temperature data to portrait or landscape
- The fastest auto focus and manual control for precision imaging
- T640 & T660 feature Continuous Auto Focus for automatic clarity wherever you aim



ULTIMATE RESOLUTION & SENSITIVITY

- Up to 640 x 480 native resolution
- Up to 1.2 MP thermal resolution with UltraMax™ – a 4x improvement
- MSX® Enhancement on live video, stored images, and UltraMax images
- Class-leading sensitivity of up to $<0.02^{\circ}\text{C}$ for outstanding image quality
- Temperature calibrations up to $2,000^{\circ}\text{C}$



VIEWFINDER FOR BRIGHT CONDITIONS

HELPFUL ACCESSORIES

- A range of interchangeable advanced optics
- Additional batteries and chargers
- Spare cables and SD cards
- Camera pouches and tripod adapters
- FLIR IR Windows



T-SERIES

THE ULTIMATE FEATURES

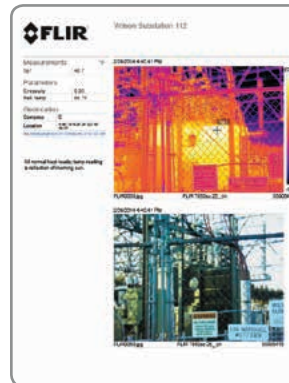


INTUITIVE TOUCHSCREEN

Tap the screen or buttons to quickly access temperature measurement tools, parameters, image modes, and more.



METERLINK



FLIR TOOLS FOR PC & MAC OS

Included software for in-depth image analysis, report generation, and more.



Joystick & large backlit buttons for gloved operation.

3.5" bright touchscreen for quick access to images, camera tools, & analytics.

T460



T640 viewfinder makes surveys in the brightest environments even easier.

Large 4.3" capacitive touchscreen puts fast tools at your fingertips.

T660

METERLINK



FLIR TOOLS MOBILE APP

BRIGHT 3.5" TOUCHSCREEN



MANUAL FOCUS

AUTO FOCUS/IMAGE CAPTURE

LED LIGHT & LASER POINTER



3.1 MP VISIBLE LIGHT CAMERA

T420, T440 & T460

FLIR T420, T440, and T460 cameras deliver 76,800 pixels of vivid thermal resolution, UltraMax image enhancement, advanced interchangeable lenses to fit the view and spot size you need, and more productivity features than ever to help ease your demanding workload.

LARGE 4.3" CAPACITIVE
TOUCHSCREEN

VIEWFINDER ON T640 AND T660

AUTO FOCUS/IMAGE
CAPTURE

5 MP DIGITAL CAMERA

LED LAMPS & LASER POINTER

MANUAL FOCUS

T600, T620, T640 & T660

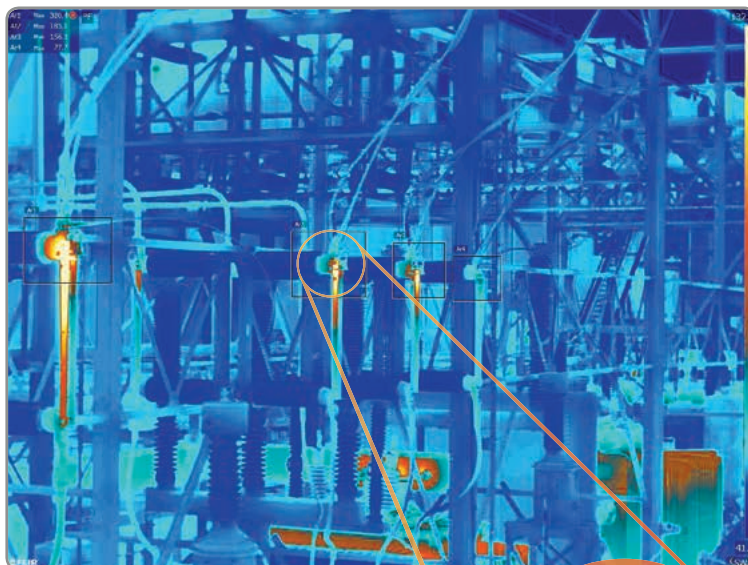
The T600 produces crisp 480 x 360 thermal imagery, while T620, T640, and T660 cameras offer the highest FLIR handheld IR precision at 640 x 480 resolution delivering 307,200 pixels, plus UltraMax image enhancement. The greater the resolution, the easier it is to see, find, and reliably measure heat issues on smaller, distant components.



T-SERIES

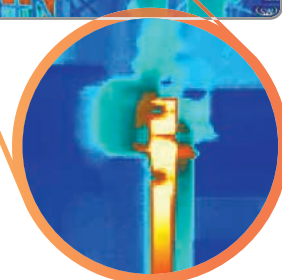
THE ULTIMATE RESOLUTION

UltraMax and MSX combine to turn T-Series cameras into the most powerful infrared imaging and non-contact temperature measurement tools on the planet, all in a compact, easy-to-use design.

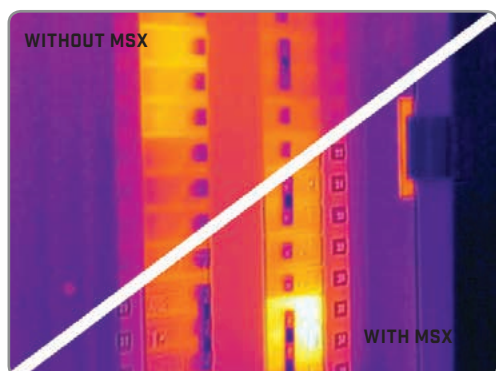


ULTRAMAX

FLIR's new UltraMax is a unique image processing technique that allows you to generate reports with images that have four times as many pixels, and 50% less noise, so you'll be able to zoom in on smaller targets and measure them more accurately than ever.



**UNMATCHED RESOLUTION AND
MEASUREMENT PERFORMANCE
EVEN AT 8X ZOOM**



MSX ENHANCEMENT

FLIR's patented multi-spectral dynamic imaging (MSX) etches vital image detail from the visible light image onto the thermal image to help you see where problems are quickly and easily without compromising any of your temperature measurement data.

SPECIFICATIONS

Model	T420	T440	T460
Thermal Resolution	76,800 (320 × 240)		
Thermal Sensitivity	<0.04°C @ 30°C		<0.03°C @ 30°C
Accuracy	+/-2°C (+/-3.6°F) or +/-2% of reading, whichever is greater, at 25°C (77°F) nominal		+/-1°C (+/-1.8°F) or +/-1% of reading for limited temperature range; ±2°C (±3.6°F) or 2%, whichever is greater, at 25°C (77°F) nominal.
Temperature Range	-4°F to 1,202°F (-20°C to 650°C) Optional: to 2,192°F (1,200°C)	-4°F to 2,192°F (-20°C to 1,200°C)	-4°F to 2,732°F (-20°C to 1,500°C)
Measurement Modes	7 presets: center spot; hot spot (box max); cold spot (box min); 3 spots; hot spot - spot (box max + spot + delta); hot spot - temperature (box max + ref temp + delta); no measurements	6 presets: center spot; hot spot (box max); cold spot (box min); no measurements; 2 user presets	
UltraMax	•	•	•
Radiometric Recording			CSQ to memory card
User Presets		•	•
Frame Rate	60 Hz		
Lens Choices	6°, 15° Tele, 45° & 90° Wide; Close up: 100 µm, 50 µm		
Focus	Manual & Automatic		
Display Size	3.5"		
Touchscreen	•	•	•
Viewfinder			
Built-in Visual Camera	3.1 MP		
Digital Zoom	4x	8x	
Compass	•	•	•
GPS			
Sketch on IR/Visual Image		Draw or add predefined stamps	

SEE FULL T-SERIES SPECIFICATIONS AT WWW.FLIR.COM/THERMOGRAPHY

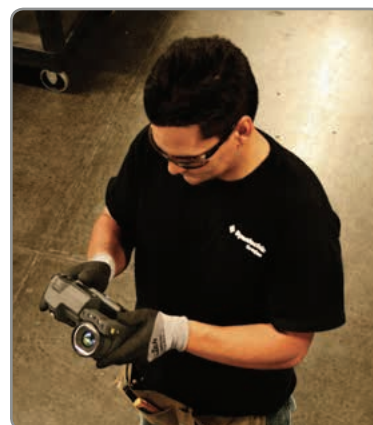


FLIR 2-10 WARRANTY

All T-Series cameras are covered by our revolutionary FLIR 2-10 Warranty when registered within 60 days of purchase.

- 2 Years on Camera Parts & Labor
- 10 Years on Infrared Detector

Only FLIR can provide peace of mind like this because only FLIR makes all of the camera's critical components from the ground up.



T600	T620	T640	T660
172,800 (480 × 360)	307,200 (640 × 480)		
<0.04°C @ 30°C		<0.03°C @ 30°C	<0.02°C @ 30°C
+/-2°C (+/-3.6°F) or +/-2% of reading, whichever is greater, at 25°C (77°F) nominal			+/-1°C (+/-1.8°F) or +/-1% of reading for limited temperature range; ±2°C (±3.6°F or 2%, whichever is greater, at 25°C (77°F) nominal.
-40°F to 1,202°F (-40°C to 650°C)	-40°F to 1,202°F (-40°C to 650°C) Optional: to 3,632°F (2,000°C)	-40°F to 3,632°F (-40°C to 2,000°C)	
6 presets: center spot; hot spot (box max); cold spot (box min); no measurements; 2 user presets			
	•	•	•
			CSQ to memory card
•	•	•	•
30 Hz			
25°, 7° & 15° Tele, 45° & 80° Wide; Close up: 100 µm, 50 µm, 25 µm			
Manual & Automatic		Manual, Automatic, and Continuous	
4.3"			
Capacitive touch screen			
		•	•
5 MP			
4×		8×	
	•	•	•
	•	•	•
Draw or add predefined stamps			



SUPPORT FROM ITC

Expand your expertise, enhance your career, and get the most out of your camera with valuable courses from the Infrared Training Center. At ITC, you can get initial training and certified as a Level 1 Thermographer, or receive advanced training in specialized fields of thermography. ITC training is a vital investment to help you get the most out of your thermal camera.



ABOUT FLIR

All infrared cameras are not created equal, because infrared camera manufacturers are not all the same. FLIR stands above the rest.

The largest commercial infrared company in the world, FLIR has nearly 50 years of experience building and integrating high-performance infrared cameras, giving us a command of these specialized technologies that no one else can touch. FLIR's products are at work every day saving lives, protecting troops, and helping to keep borders and facilities safe.

Now, FLIR's cameras are available for your personal use, too. You can have a FLIR on your boat, your car, or even as a home security camera. The same FLIR technology in your maintenance camera is in Audi and BMW cars as a pedestrian detection system. And if you enjoy hunting and outdoor activities, there's an inexpensive FLIR for you, too. You might not know FLIR by name, but you have seen our products at work since the 1960's.

If you are looking for infrared camera products, you've come to the right place.

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NASDAQ: FLIR

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