



Thermal Imaging Camera

TI9/TI10



Features

- High IR detector resolution, Super resolution mode available
- 4 inch bright **touch screen**, graphical interface operation
- Extra sharp digital camera of 5 Megapixels, dual LED fill light
- With infrared, visible light, picture-in-picture, dual-band image fusion mode
- Laser ranging can automatically focus according to the target distance
- Adapted to Bluetooth headset to transmit audio
- Interchangeable and auto detectable lenses
- Audio / video
- Real time image transmission via wifi

Introduction

TI9/TI10 are a time proven series of Uncooled Thermal Imaging Cameras, which feature a IR resolution of upto 640x480 pixels, super resolution up to 1280 X 960, 4 inch Color touch screen LCD, IR & Visible Image fusion, 5 megapixel CCD camera, high brightness LED light, JPEG Visual Image, Thermal Images (with 14-bit radiometric data) and MPEG Video recording & output, Sound & Light alarm, Text and Voice annotation, Network Interface, built in Laser locator and laser distance meter, Bluetooth, Wi-Fi, GPS etc. These models are suitable for a wide range of applications, such as Industrial inspection and testing, Power plant, Railway, Petrochemical, Metallurgy Application, Steel, Cement etc.



Technical Specifications

Parameter	Description	
Model	T19	T110
DETECTOR CHARACTERISTICS		
Detector type	Uncooled FPA Microbolometer	
IR Resolution	384x288	640x480
Super Resolution(SR)	768x576	1280 X 960
IMAGE CHARACTERISTICS		
Thermal Sensitivity (NETD)	≤50mk, ≤ 0.05degC	
Field of View (FOV)	25°X 19°	
IFOV with Standard Lens (spatial resolution)	1.12 mrad	0.67 mrad
Lens	Standard lens will be supplied unless stated. Unit features Interchangeable lenses with auto detection. Refer to options for additional available lenses	
Min. focus distance	0.1 m	
Frame Rate	50/60Hz	
Focus	Manual & Automatic, both	
Spectral Range	8μm ~ 14μm	
Image adjustment	Automatic, Manual	
Digital Zoom	1....4x times	
Built-in visual camera	5 MP Industrial grade Digital Camera, dual LED	
IMAGE DISPLAY		
LCD	4 inch Touch Screen, TFT color LCD, 640x480 pixels	
Backlit	High brightness, sunlight screen	
Image Mode	Thermal image, Visible image, Picture-in*Picture & Dual band Fusion image	

Toshniwal Industries Pvt. Ltd.

Industrial Estate, Makhupura, Ajmer- 305002, Rajasthan, India
+91 844 844 1044 | info@tipl.com | www.tipl.com





MEASUREMENT	
Temperature Range	-20 °C to 650°C, extendable to 1200 °C
Accuracy	±2 °C or 2% , whichever is greater.(@25 °C ambient temperature)
Measurement mode	Real-time 4 movable points (the hottest and coldest points are independent), 3 movable areas (the highest temperature, the lowest temperature capture, average temperature measurement), line temperature measurement, isothermal analysis, temperature difference measurement, temperature alarm (sound, color)
Color palette	9 color palettes on camera 11 color palettes selectable from software
Picture-in-Picture	Yes
Anchor point display	Laser positioning points are displayed on the image
Atmospheric window correction	Corrected according to infrared window transmittance
Atmospheric transmittance correction	Automatic, according to the input target distance, relative humidity, ambient temperature
Setup functions	Date/time, Temperature units (°C/°F), Language, LCD backlit
Emissivity correction	The emissivity is adjustable from 0.01 to 1.0 (in increments of 0.01), or the emissivity can be corrected through a predefined material emissivity meter
Background temperature correction	Automatically correct according to the entered temperature
WiFi	Real time image transmission
Navigation Satellite	Yes, support GPS system
Electronic compass	Yes
Atmospheric transmission Correction	Automatic correction according to user input object distance, relative humidity, ambient temperature
IMAGE STORAGE	
Memory card slot	TF card slot builtin, TF card 16GB
Image File Formats	Standard JPEG with measurement data included
Video File Formats	Full radiation thermal image video in IRS format; standard MPEG4 non radiation video
Software	Analysis Software provided



Voice Annotation	60 seconds built-in microphone and speaker on still image and video
Text Annotation	Yes (optional)
Data interface	Mini-USB TypeC, picture/video transmission
Video Interface	Micro-HDMI
Microphone	Yes
Bluetooth	Audio, I/P & O/P
Flashlight	2 LED
Buzzer	Yes
Laser	Laser Rangefinder, Laser pointer
POWER SUPPLY	
Battery	Rechargeable lithium ion-battery
Operating time	4 hours
Charging system	Fast charging function(external charger), can be charged randomly
AC Operation	AC operation with included power supply (100 ~ 240VAC, 50/60Hz) / USB
Power Saving	User-selectable sleep and power-off mode
ENVIRONMENT	
Operating Temp.	(-)15°C to 50°C
Storage Temp.	(-)40°C ~ 70°C
Relative Humidity	<95%RH
Encapsulation	IP54
PHYSICAL CHARACTERISTICS	
Weight (Battery included)	≤ 1.1 kg
Dimensions (HxWxL)	W116XD175XH278mm
Tripod	UNC 1/4"-20 interface
Handrail	Can be installed both sides
INTERFACE	
External DC Power Input	Yes

Toshniwal Industries Pvt. Ltd.

Industrial Estate, Makhupura, Ajmer- 305002, Rajasthan, India
+91 844 844 1044 | info@tipl.com | www.tipl.com





Audio/Data Output	Wifi, Bluetooth, Type-C, Micro-HDMI
Safety	
SAFETY	25g (IEC 60068-2-27)
Vibration	2g (IEC 60068-2-6)
Drop	Designed for a 2 meters drop test
Safety	IEC 61010-1
EMC	Meets CE requirements
RoHS	2011/65/EC
Laser	IEC60825-1-2014
Accessories	
Standard accessories	Operating Manual Traceable Calibration Certificate USB Cable & Video Cable 16GB TF Card, Card Reader Power Adaptor, Battery Charger, Rechargeable Battery Lens Cover Analysis Software Hard carry case Hand strap
Optional Accessories	
Optional accessories	Text Annotation feature built-in Bluetooth headphone / earphone 0.5x, wide angle lens (45° x 33°) 2x, telephoto lens (12° x 9°) 3x, ultra telephoto lens (6.9° x 5.2°) High Temperature Option, 1200degC for TI9/TI10 NABL Calibration Certificate 32GB TF card Spare Rechargeable Battery Spare Battery Charger Sunshield Hard carry case, IP67 Industrial Grade Tripod

*The images used are indicative and Technical Specifications & Shape can change without any prior notice
* version T19/10/2023-1.031

Toshniwal Industries Pvt. Ltd.

Industrial Estate, Makhupura, Ajmer- 305002, Rajasthan, India
+91 844 844 1044 | info@tipl.com | www.tipl.com





Toshniwal Industries Pvt. Ltd.

Industrial Estate, Makhupura, Ajmer- 305002, Rajasthan, India
+91 844 844 1044 | info@tipl.com | www.tipl.com





ANALYSIS SOFTWARE

TI3 / TI4 / TI7 / TI8 / TI9 / TI10 / TI708 / TI800 Series

An advanced analysis software


System requirement : Microsoft Windows XP / 7 / 10

Features :

- Menu
- Image Data Analysis
- Data interface
- Report templates - Import / Export / Edit
- Real-time spot - line - rectangle - circle marking, Editing parameters

400kV SubStation Mumbai

Toshniwal Industries Pvt. Ltd.
Ajmer
2022-08-17



NO.1

62

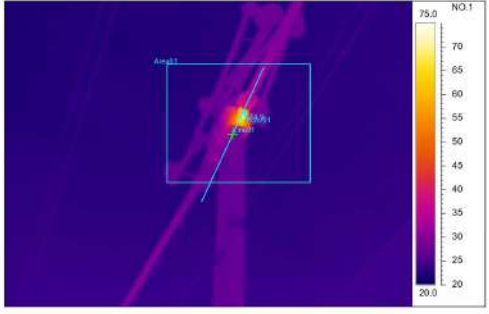
21

A

400kV Sub Station Mumbai
TIPL Demonstration
17th August 2022

Section	Camera type	Created date	Created time
SS-KLW-1	TI708	2022 - 08 - 17	15:03:34

IR Image 003



NO.1

75.0

70

65

60

55

50

45

40


35

30

25

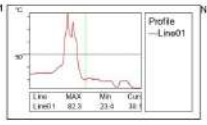
20.0

Histogram



NO.1

Profile



NO.1

Line	MAX	Min	Cur
Line01	82.5	23.6	38.1

Fault Analysis Suggestion

As per site discussions held between TIPL and customer

Sanjiv Sharma

Toshniwal Industries Pvt. Ltd.

Industrial Estate, Makhupura, Ajmer- 305002, Rajasthan, India
+91 844 844 1044 | info@tipl.com | www.tipl.com

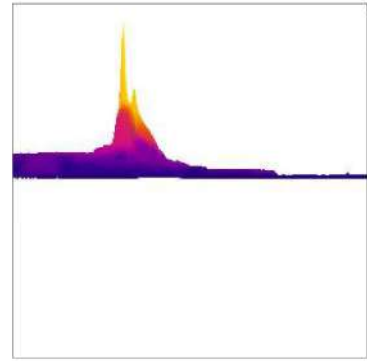
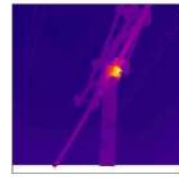




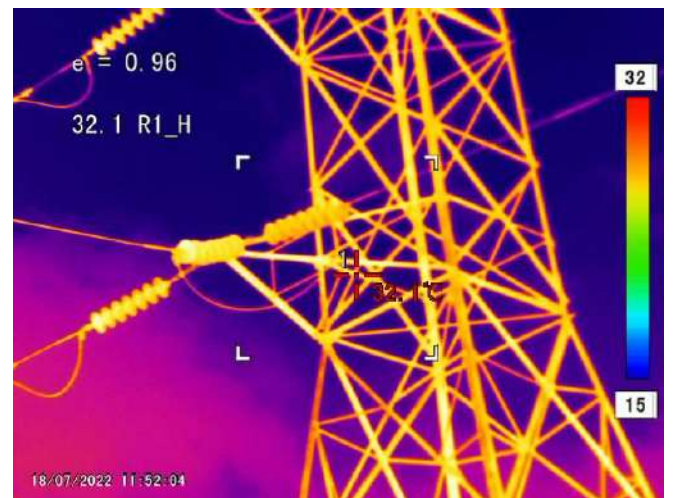
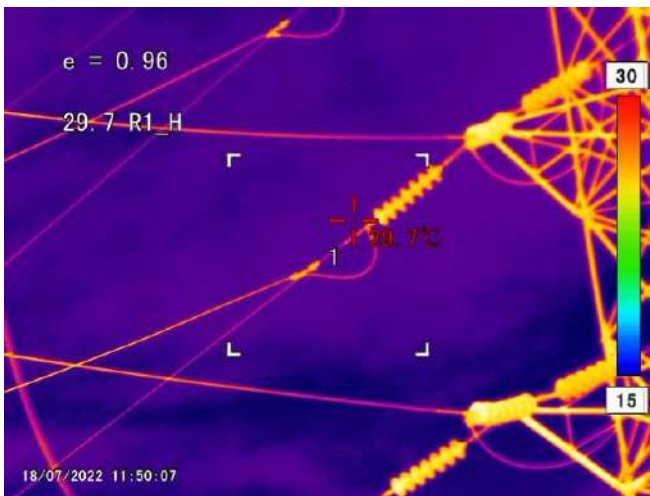
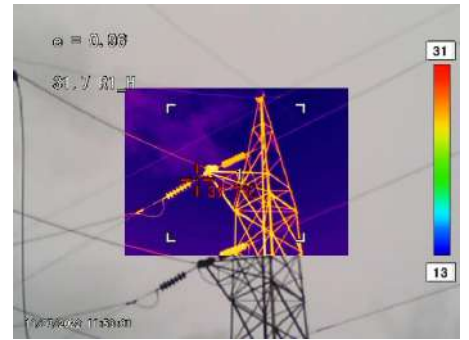
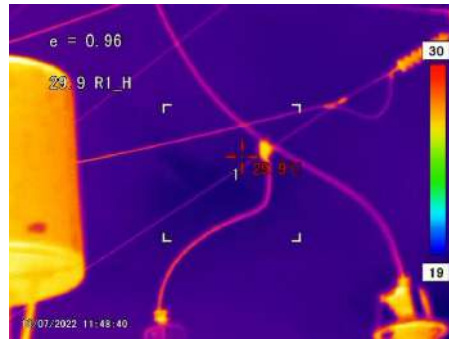
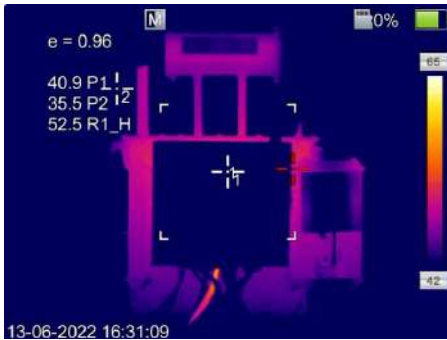
Result table information for spot points, rectangle, line and thermal camera information

Picture info	Value	NO.1
Created date	2022 - 08 - 17	
Created time	15:03:34	
File name	20220817-150329-003.jpg	
Camera info	Value	
Camera type	TF08	
Camera serial	22DL708Z16080	
Camera range max	180.0°C	
Camera range min	-40.0°C	
Lens info	Value	
Len zoom	1XZOOM	
Pic width	640	
Pic height	480	
Parameters	Value	
Emissivity	0.96	
Object distance	5.00m	
Ambient	28.8°C	
Spot analysis	Value	
Point01 Temperature	114.9°C	
Point01 Object distance	5.00m	
Point01 Emissivity	0.96	
Line analysis	Value	
Line01 Max	82.9°C	
Line01 Min	23.4°C	
Line01 Emissivity	0.96	
Area analysis	Value	
Area01 Max	114.9°C	
Area01 Min	22.4°C	
Area01 Distance	5.00m	
Area01 Emissivity	0.96	

3D photo



Sandeep Sharma



Toshniwal Industries Pvt. Ltd.

Industrial Estate, Makhupura, Ajmer- 305002, Rajasthan, India
 +91 844 844 1044 | info@tipl.com | www.tipl.com





**Toshniwal
Industries Pvt. Ltd.**
Experience • Expertise
MG Toshniwal Group

THERMAL IMAGING CAMERA

TI340 Series



Features

- Two versions : A - Auto & Manual Focus
M - Manual Focus
- Minimum focus distance up to 0.1 meters
- Super Resolution up to 1280 x 960
- Up to 640 x 480 pixels, Uncooled FPA detector
- Wide temperature range up to 1550°C
- Image Annotation through voice, text
- Text tags, QR code scan, Favorite tag
- 5" LCD touch screen display
- 13 MP digital camera for extra sharp images
- Advanced features: GPS, Wifi & FTP, Bluetooth, AI programmable key, Image fusion, Picture-in-Picture, TWB image balancing, IRedge
- Upto 30mK thermal sensitivity
- Interchangeable, Autodetectable lenses
- > 20 ROI's

Introduction

TI340 series is a time proven series of Uncooled Thermal Imaging Cameras, having two versions in M - manual focus and A - auto focus, IR resolution upto 640 x 480 pixels, super-resolution of upto 1280 x 960, 5-inch color touch screen LCD, IR & Visible Image fusion, Picture in Picture, 13 megapixel CCD camera, high brightness LED light, JPEG Visual Image, Thermal Images, and MPEG Video recording & output, Sound & Light alarm, Text and Voice annotation, Network Interface, built-in Laser, Bluetooth, Wi-Fi, FTP, GPS, etc. These models are suitable for a wide range of applications, such as Industrial inspection and testing, Power Plant, Railway, Petrochemical, Metallurgy, Oil and Gas, Renewable Energy, Medical, Aviation, Automotive applications, etc.



Technical Specifications

Parameter	MODELS				
Model	TI345M	TI345A	TI346A	TI347A	TI348A
DETECTOR CHARACTERISTICS					
Detector Type	Uncooled FPA Infrared Detector				
IR Resolution	320x240	320x240	384x288	480x360	640x480
Super Resolution (SR)	640x480	640x480	768x576	960x720	1280x960
IMAGE CHARACTERISTICS					
Thermal Sensitivity (NETD) @30°C	40mk	30mk	30mk	30mk	30mk
Frame Rate	30Hz				
Detector Pitch	17µm				
Focus	Manual	TurboFocus Speedy Intelligent Autofocus & Manual focus			
Spectral Range	7µm ~ 14µm				
Digital Zoom	1x.....8x	1x.....10x, continuous			
Built-in Visual Camera	13 MP Industrial grade digital camera				
LED Light	Torch & Flash lamp				
LENS					
Lens - Field of View (FOV)	25° x 19° Lens is interchangeable and auto-recognizable				
Minimum Focus Distance	0.1 mtrs	0.1 mtrs	0.1 mtrs	0.25 mtrs	0.25 mtrs
IFOV	1.36 mrad	1.36 mrad	1.14 mrad	0.91 mrad	0.68 mrad
Focal Length	15 mm			24.8 mm	
Other Lenses - FOV	44° x 34°	44° x 34°	44° x 34°	44° x 34°	44° x 34°
Minimum Focus Distance	< 0.1 mtrs	< 0.1 mtrs	< 0.1 mtrs	< 0.1 mtrs	< 0.1 mtrs
IFOV	2.40 mrad	2.40 mrad	2.0 mrad	1.6 mrad	1.20 mrad
Focal Length	8 mm	8 mm	8 mm	13.7 mm	13.7 mm

Toshniwal Industries Pvt. Ltd.

Industrial Estate, Makhupura, Ajmer- 305002, Rajasthan, India
+91 844 844 1044 | info@tipl.com | www.tipl.com





FOV	12° x 9°	12° x 9°	12° x 9°	12° x 9°	12° x 9°
Minimum Focus Distance	< 1 mtrs	< 1 mtrs	< 1 mtrs	< 1 mtrs	< 1 mtrs
IFOV	0.65 mrad	0.65 mrad	0.55 mrad	0.44 mrad	0.33 mrad
Focal Length	24.8 mm	24.8 mm	24.8 mm	51.2 mm	51.2 mm
FOV	-	7° x 5°	7° x 5°	7° x 5°	7° x 5°
Minimum Focus Distance	-	< 3 mtrs	< 3 mtrs	< 3 mtrs	< 3 mtrs
IFOV	-	0.38 mrad	0.32 mrad	0.25 mrad	0.19 mrad
Focal Length	-	51.2 mm	51.2 mm	87.5 mm	87.5 mm
IMAGE DISPLAY					
LCD	5" landscape, 1280x720 pixels Gorilla glass explosion proof IPS LCD				
Image Mode	Thermal image, Visible image, Picture-in-Picture & Image Fusion Picture-in-Picture: Resizable and Adjustable Image fusion : 0% - 100%, selectable TWB Non-linear thermal color display IRedge				
MEASUREMENT					
Temperature Range	-20 °C to +650°C 345A - high temperature option		-20 °C to +1550°C (-20 to 120, 0 to 650, 300 to 1550)		
Accuracy	±2°C or 2% , whichever is greater (@15°C to 35°C ambient temperature)				
Measurement Mode	Spot: 12 Line: 4 Rectangle/Circle: 8		Spot: 16 Line: 8 Rectangle/Circle: 12		
	Line profile, Isotherm analysis Color temperature alarm (High / Low / Interval Isotherms) High / Low temperature alarm, Area alarm Temperature Rise Test Temperature Differentiation Test Center point and center box Highest / Lowest temperature spot mark				
Color Palette	16 standard palettes				
Inverted Palette	16 inverted palettes				
AI Key	Yes, programmable for quick operation				
Temp. Scale	Touch scale, Autoscale, Manual scale				
Min. Temp Span	2°C Manual				



Setup Functions	Date/time, Temperature units (°C/°F), Language	
Emissivity Correction	Variable from 0.01 to 1.0	
Navigation Satellite	GPS system	
Atmospheric Correction	Automatic correction according to user input for emissivity, partial emissivity, ambient temperature, reflected temperature, relative humidity, IR window compensation, distance Distance is directly measured using laser*	
Laser Meter*	-	Distance, Length and Area
Laser Pointer	Independent key activation	Independent key activation Level 2, 635nm, Power <1mW Laser distance 0.1 to 50 mtrs, accuracy $d*0.01\pm 2\text{mm}$
IMAGE STORAGE & ANALYSIS		
Capture Mode	Single frame auto capture and time lapse 2 sec to 60 min 59 sec adjustable interval 1Hz to 12Hz frame rate adjustable	
Analysis	Radiometric Image data and Radiometric Video data	
Gallery	Image & Video preview and analyze	
On-screen Analysis	Emissivity, partial emissivity, ambient temperature, reflected temperature, relative humidity, distance, IR window compensation	
Software	Analysis and report generation software included	
Remote Display & Analysis	Available	
Storage Card	128GB SD card, SD 3.0 compliant (Option 2TB)	
Image File Format	Standard JPEG with measurement data included (Radiometric thermal), Visible image	
Video File Format	Full radiation thermal image video in IRS format Standard MPEG4 non-radiation video Video recording available	
Voice Annotation	200 seconds via built-in microphone and speaker on still image and video or bluetooth set	
Text Annotation	Available	
Tags	QR code scan Favorite tag and Autonoming	
Remote Operation	Remote display and control operation through software	



POWER SUPPLY	
Battery	Lithium-ion rechargeable batteries, 7.4V, 3500mAh
Operating Time	≥ 4 hours
Charging Time	2.5 hrs to 90% full charge
Charging System	Two bay battery charger with LED display (12V, 3A)
AC Operation	AC operation with included power supply (100 ~ 240VAC, 50/60Hz)
Power Saving	User selectable screen-off modes
ENVIRONMENT	
Operating Temperature	(-)20°C ~ 50°C
Storage Temperature	(-)40°C ~ 70°C
Relative Humidity	<95%RH
PHYSICAL CHARACTERISTICS	
Weight (Battery included)	≈1.0 Kgs (without lens)
Dimensions (HxWxL)	≈312.8 * 123.3 * 139.2 mm
Tripod	UNC 1/4 - 20 threaded hole
INTERFACE	
Wifi & FTP Transfer	Wifi 2.4GHz & 5GHz, 902.11a/b/g/n/ac FTP rapid data transfer accessible through Wifi or Hotspot
Bluetooth	BT4.2LE, for connection to bluetooth headset
USB	USB Type C, 2.0 /3.0 compliant Device interface via USB 3.0
GPS	Available
HDMI	Micro HDMI, 1.4 compliant, supports 1080p image video transmission
SAFETY	
Safety	EN 62368-1:2014 + A11:2017
Vibration	2g (IEC 60068-2-6, GB/T2423.10)
Drop	Designed for a 2 meters drop test
Shock	25g (IEC 60068-2-27, GB/T2423.5)



EMC	EN 61326-1 (immunity), EN 61326-1 Class A (emission) FCC 47 CFR Part 15 Class A (emission)
Enclosure	IP 54
CE	Compliant
ACCESSORIES	
Standard	<p>Operating Manual Traceable Calibration Certificate USB Type C Cable, Micro HDMI Cable SD Card, SD Card Reader, USB drive Power Adaptor, Battery Charger, Rechargeable Battery Lens with lens cover (select any one or multiple lenses) Analysis Software Wriststrap, 2M4*8 screws, Lanyard, Allen wrench Soft carry case Hard carry case: PC+ABS, Soft rubber - TPE, Magnesium alloy, Flame retardant grade UL94 HB</p>
Optional	<p>Built-in Compass NABL Calibration Certificate Spare Rechargeable Battery Bluetooth speaker Battery Charger 2TB SD card Hard carry case, IP67 High Temperature for 345A (built-in)</p>

*The images used are indicative and Technical Specifications & Shape can change without any prior notice
Version TI-P-R1.032A-TI340Sr



Toshniwal Industries Pvt. Ltd.

Industrial Estate, Makhupura, Ajmer- 305002, Rajasthan, India
+91 844 844 1044 | info@tipl.com | www.tipl.com





ANALYSIS SOFTWARE

320F / 320M / 340 Series

An advanced analysis software to control the thermal imager through PC, analyze data, print reports, create templates, etc.

System requirement: Microsoft Windows XP / 7 / 10

Features:

- Menu
- Data analysis
- Thermal imager real-time display
- Report templates
- Batch processing
- Data interface
- Report templates - Import / Export / Edit
- Real-time spot - line - rectangle - circle marking, Editing parameters

TIPL Campus 200kVA Transformer Report

Report Number: TIPL-325F-0132

1. Basic Information

Company	Toshniwal Industries Pvt. Ltd.	Department	TI - Portable
Contact	Bhawana Rathore	Phone	09116635028
Address	Industrial Estate, Makhupura, Ajmer, Rajasthan - 305002		

2. Inspection Information

a. Inspection Images

Infrared thermal image

Visible light reference photo



IR_20220721_0004.jpg

b. Test Environment

Test instruments	TI325F-L49	Lens configurations	49.5 degrees
Weather	Tropical	Ambient temperature	68.00F

Distance	3.28	Relative humidity	68.00
Emissivity	0.95	Shooting Time	2022-07-21 14:14:24

c. Test Data

Target	Max. temperature (F)	Temperature rise (F)	Note
Sp1	100.82	32.82	OK
Sp2	98.95	30.95	OK
Sp3	108.46	40.46	OK
Ar1	107.62	39.62	OK
Li1	106.78	38.78	OK

3. Test purpose

Audit of Transformer

4. Diagnosis and analysis

Transformer is working ok, however, there is a load on one of the cables, which is heated at approx. 17degF higher.

5. Notes

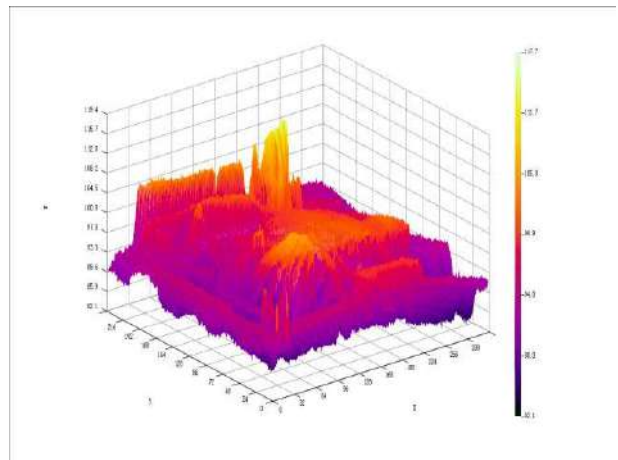
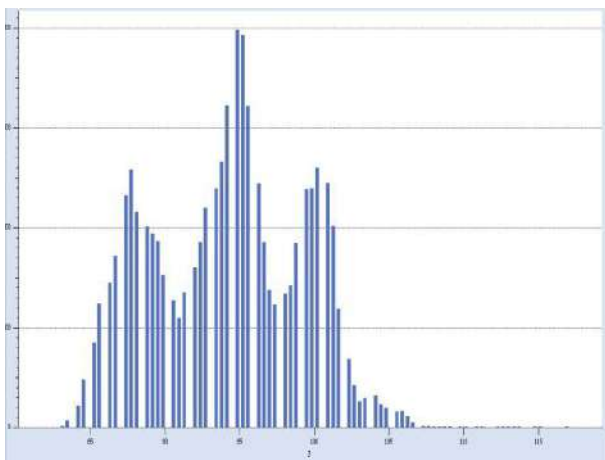
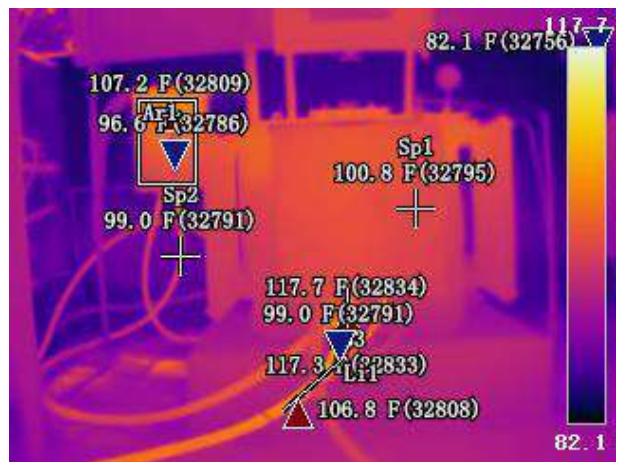
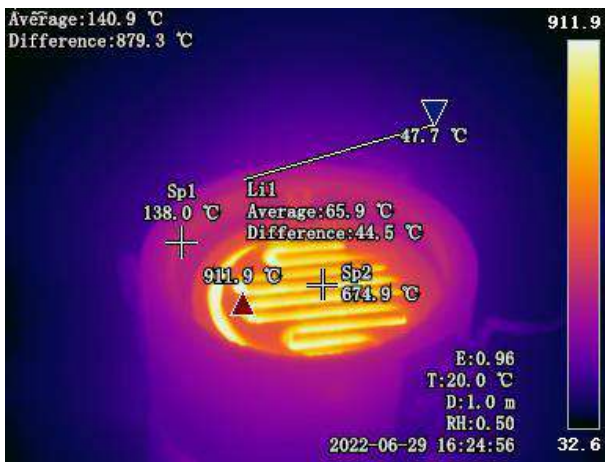
Functionally found okay.

Inspector : Bhawana Rathore	Time :2022-07-21	Other photographs as per enclosed details
-----------------------------	------------------	---

Toshniwal Industries Pvt. Ltd.

Industrial Estate, Makhupura, Ajmer- 305002, Rajasthan, India
+91 844 844 1044 | info@tipl.com | www.tipl.com

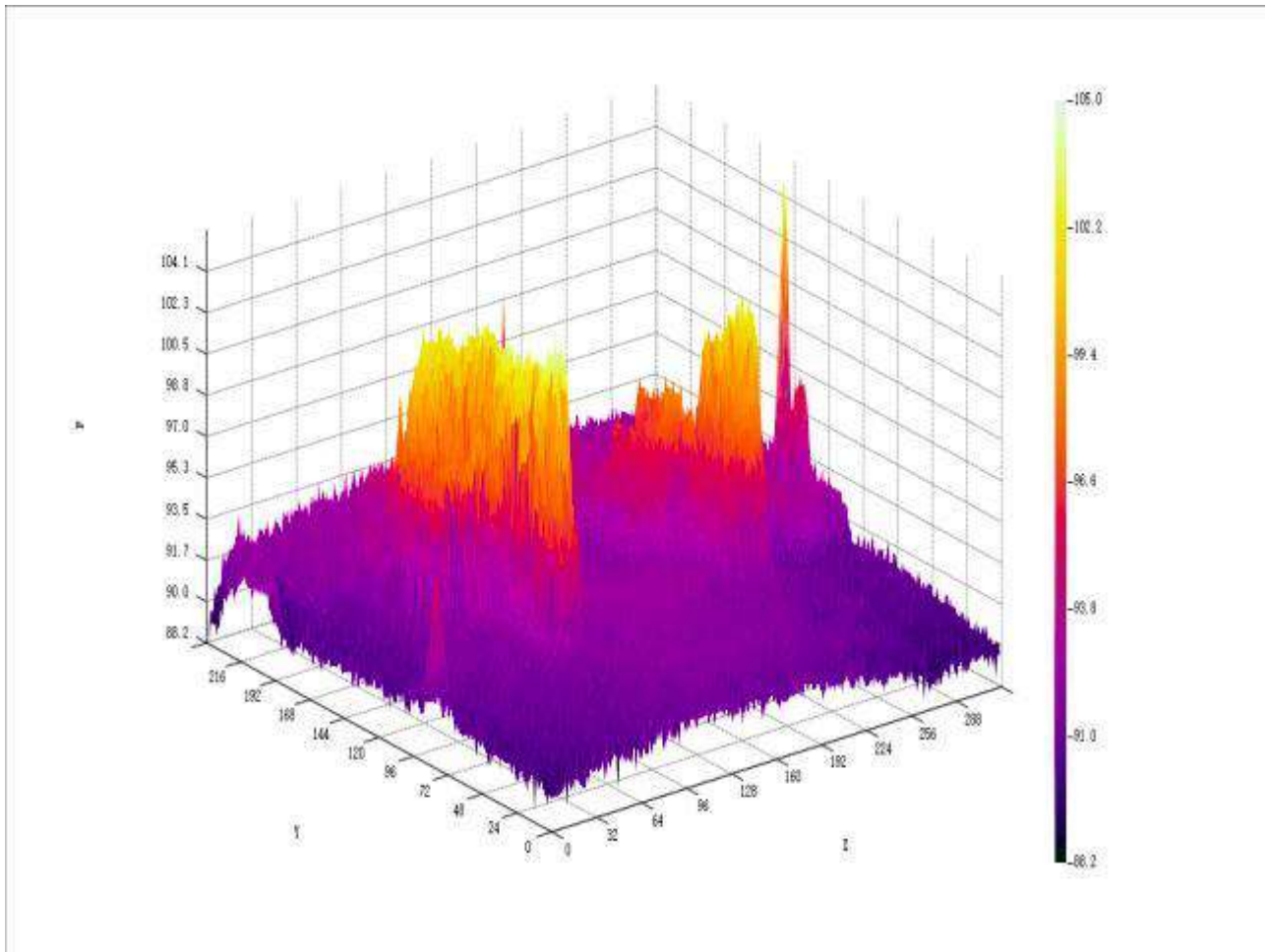




Toshniwal Industries Pvt. Ltd.

Industrial Estate, Makhupura, Ajmer- 305002, Rajasthan, India
+91 844 844 1044 | info@tipl.com | www.tipl.com





Toshniwal Industries Pvt. Ltd.

Industrial Estate, Makhupura, Ajmer- 305002, Rajasthan, India
+91 844 844 1044 | info@tipl.com | www.tipl.com





**Toshniwal
Industries Pvt. Ltd.**
Experience • Expertise
MG Toshniwal Group

THERMAL IMAGING CAMERA

TI320F Series



Features

- Super Resolution up to 768 x 576
- Image Annotation through voice, text
- Text tags, QR code scan, Favorite tag
- Upto 384 x 288 pixels, Uncooled FPA detector
- 8 Megapixels digital camera for extra sharp images
- Advanced features: Geographic location (GPS), Wifi & FTP, Bluetooth, AI programmable key, Image fusion, Picture-in-Picture

Introduction

TI320F series is a time proven series of Uncooled Thermal Imaging Cameras, which feature IR resolution upto 384 x 288 pixels, Super-resolution of upto 768 x 576, 3.5-inch color touch screen LCD, IR & Visible Image fusion, Picture in Picture, 8 megapixel CCD camera, high brightness LED light, JPEG Visual Image, Thermal Images, and MPEG Video recording & output, Sound & Light alarm, Text and Voice annotation, Network Interface, built-in Laser, Bluetooth, Wi-Fi, FTP, GPS, etc. These models are suitable for a wide range of applications, such as Industrial inspection and testing, Power Plant, Railway, Petrochemical, Metallurgy, Oil and Gas, Renewable Energy, Medical, Aviation, Automotive applications, etc.



Technical Specifications

Parameter	MODELS				
Model	TI321F	TI322F	TI323F	TI325F	TI326F
DETECTOR CHARACTERISTICS					
Detector Type	Uncooled FPA Infrared Detector				
IR Resolution	128x96	160x120	264x198	320x240	384x288
Super Resolution(SR)	256x192	320x240	528x396	640x480	768x576
IMAGE CHARACTERISTICS					
Thermal Sensitivity (NETD)	60mk	60mk	40mk	40mk	40mk
Lens - Field of View (FOV)	46.5° x 35°	46.5° x 35°	49°x 36.8°	49°x 36.8°	49°x 36.8°
Focal Length	f3.3	f3.3	f7.5	f7.5	f7.5
IFOV (spatial resolution)	6.44 mrad	5.15 mrad	3.40 mrad	2.78 mrad	2.78 mrad
Min. Focus Distance	0.5m	0.5m	0.5m	0.5m	0.5m
Frame Rate	30Hz				
Detector Pitch	17µm				
Focus	0.5mtrs Focus Free				
Spectral Range	7µm ~ 14µm				
Digital Zoom	1x.....8x, continuous				
Built-in Visual Camera	8 MP Industrial grade digital camera				
LED Flash Lamp	Available				
IMAGE DISPLAY					
LCD	3.5 inch Touch Screen				
Image Mode	Thermal image, Visible image, Picture-in-Picture & Image Fusion Picture-in-Picture: Resizable and Adjustable Image fusion : 0% - 100%, selectable TWB Non-linear thermal color display				

Toshniwal Industries Pvt. Ltd.

Industrial Estate, Makhupura, Ajmer- 305002, Rajasthan, India
+91 844 844 1044 | info@tipl.com | www.tipl.com





MEASUREMENT		
Temperature Range	-20 °C to +550°C (-20-120 / 0-550) Intelligent range auto-fit	-20 °C to +650°C (-20-120 / 0-650) Intelligent range auto-fit
Accuracy	±2°C or 2% , whichever is greater (@25 °C ambient temperature)	
Measurement Mode	Spot : 4 Line : 1 Rectangle/Circle : 4	Spot : 6 Line : 1 Rectangle/Circle : 4
	Line profile, Isotherm analysis, Isotherm / Color Alarm ROI sound alarm via speaker or Bluetooth headset	
Color Palette	8 (Grey, Iron, Rainbow, Grey-Red, Rain, GlowBow, Medical, Prism)	
AI Key	Yes, programmable for quick operation	
Temp. Scale	Touch scale, Autoscale, Manual scale	
Min. Temp Span	Auto : 3°C, Manual: 2°C	
Setup Functions	Date/time, Temperature units (°C/°F), Language	
Emissivity Correction	Variable from 0.01 to 1.0	
Navigation Satellite	GPS system	
Atmospheric Correction	Automatic correction according to user input for emissivity, ambient temperature, relative humidity, measurement distance	
IMAGE STORAGE & ANALYSIS		
Capture Mode	Single frame capture and time lapse	
On-screen Analysis	Available	
Software	Analysis and report generation software included	
Remote Display & Analysis	Available	
Storage Card	TF card, 64GB	
Image File Format	Standard JPEG with measurement data included (Radiometric thermal), Visible image	
Video File Format	Full radiation thermal image video in IRS format Standard MP4 non-radiation video Video recording available	

Toshniwal Industries Pvt. Ltd.

Industrial Estate, Makhupura, Ajmer- 305002, Rajasthan, India
+91 844 844 1044 | info@tipl.com | www.tipl.com





Voice Annotation	120 seconds via built-in microphone or bluetooth headset	
Text Annotation	Available	
Tags	QR code scan Manual input, Favorite tag	
Remote Operation	Remote display and control operation through software	
Laser Pointer	Level2, 635nm, Power <1mW	
POWER SUPPLY		
Battery	3.6V, 5000mAh Li-battery	
Operating Time	≥5 hours	≥4 hours
Charging System	3.5 hrs through battery charger & 3 hrs through power cable	
Charging System	Battery dock adaptor or Type-C interface	
AC Operation	AC operation with included power supply (100 ~ 240VAC, 50/60Hz) Chargeable through PC also	
Power Saving	Auto screen off	
ENVIRONMENT		
Operating Temperature	(-)20°C to 50°C	
Storage Temperature	(-)40°C ~ 70°C, batteries to be removed	
Relative Humidity	<95%RH	
PHYSICAL CHARACTERISTICS		
Weight (Battery included)	≈730g	
Dimensions (HxWxL)	≈243 * 95 * 142 mm	
Tripod	UNC 1/4 - 20 threaded hole	
INTERFACE		
Wifi & FTP Transfer	Wifi 2.4GHz & 5GHz, 802.11a/b/g/n/ac, For transferring images to PC	
Bluetooth	BT4.2LE, for connection to bluetooth headset	
USB	USB Type C, 2.0 /3.0 compliant, USB OTG	
GPS	Available	
HDMI	Micro HDMI, 1.4 compliant, supports video streaming	

Toshniwal Industries Pvt. Ltd.

Industrial Estate, Makhupura, Ajmer- 305002, Rajasthan, India
+91 844 844 1044 | info@tipl.com | www.tipl.com





SAFETY	
Safety	SELV (IEC 60950-1 / GB4943.1)
Vibration	2g (IEC 60068-2-6, GB/T2423.10)
Drop	Designed for a 2 meters drop test (IEC 60068-2-32, GB/T2423.8)
Shock	25g (IEC 60068-2-27, GB/T2423.5)
EMC	IEC 61000-4-2, GB/T17626.2
Collision	10g (IEC 60068-2-29, GB/T2423.6), inclusive of packing
Enclosure	IP 54
RoHS	Compliant
CE	Compliant
ACCESSORIES	
Standard	Operating Manual Traceable Calibration Certificate USB Type C Cable, Micro HDMI Cable TF Card, TF Card Reader Power Adaptor, Battery Charger Dock, Rechargeable Battery Analysis Software Wriststrap Carry Box
Optional	NABL Calibration Certificate Bluetooth Headset Spare Rechargeable Battery Hard carry case, IP54 Hard carry case, IP67

*The images used are indicative and Technical Specifications & Shape can change without any prior notice
Version TI-P-R1.032A-TI320FSr



Toshniwal Industries Pvt. Ltd.

Industrial Estate, Makhupura, Ajmer- 305002, Rajasthan, India
+91 844 844 1044 | info@tipl.com | www.tipl.com





ANALYSIS SOFTWARE

320F / 320M / 340M Series

An advanced analysis software to control the thermal imager through PC, analyze data, print reports, create templates, etc.

System requirement: Microsoft Windows XP / 7 / 10

Features:

- Menu
- Data analysis
- Thermal imager real-time display
- Report templates
- Batch processing
- Data interface
- Report templates - Import / Export / Edit
- Real-time spot - line - rectangle - circle marking, Editing parameters

TIPL Campus

200kVA Transformer Report

Report Number: TIPL-325F-0132

1. Basic Information

Company	Toshniwal Industries Pvt. Ltd.	Department	TI - Portable
Contact	Bhawana Rathore	Phone	09116635028
Address	Industrial Estate, Makhupura, Ajmer, Rajasthan - 305002		

2. Inspection Information

a. Inspection Images

Infrared thermal image

Visible light reference photo



IR_20220721_0004.jpg

b. Test Environment

Test instruments	TI325F-L49	Lens configurations	49.5 degrees
Weather	Tropical	Ambient temperature	68.00F

Distance	3.28	Relative humidity	68.00
Emissivity	0.95	Shooting Time	2022-07-21 14:14:24

c. Test Data

Target	Max. temperature (F)	Temperature rise (F)	Note
Sp1	100.82	32.82	OK
Sp2	98.95	30.95	OK
Sp3	108.46	40.46	OK
Ar1	107.62	39.62	OK
Li1	106.78	38.78	OK

3. Test purpose

Audit of Transformer

4. Diagnosis and analysis

Transformer is working ok, however, there is a load on one of the cables, which is heated at approx. 17degF higher.

5. Notes

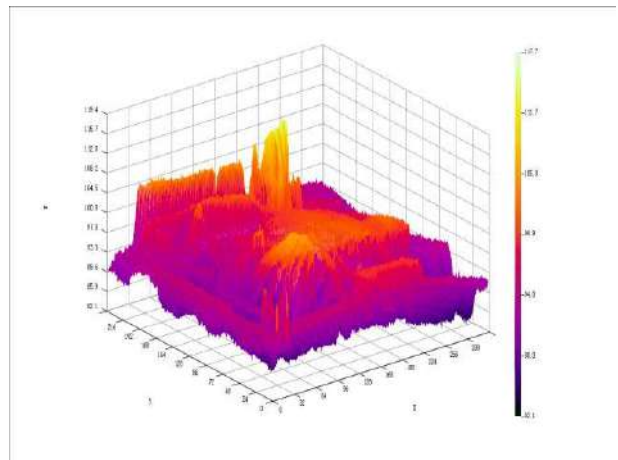
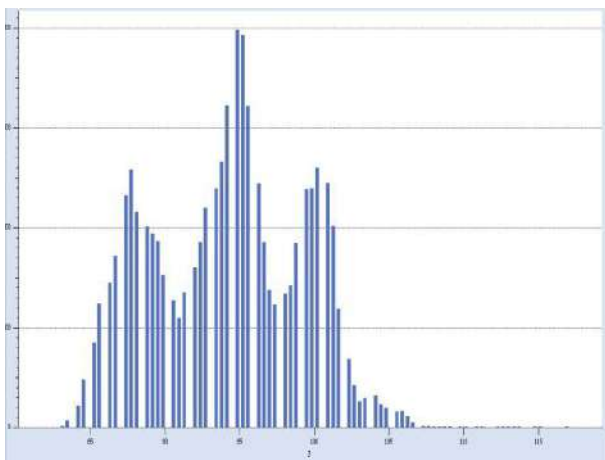
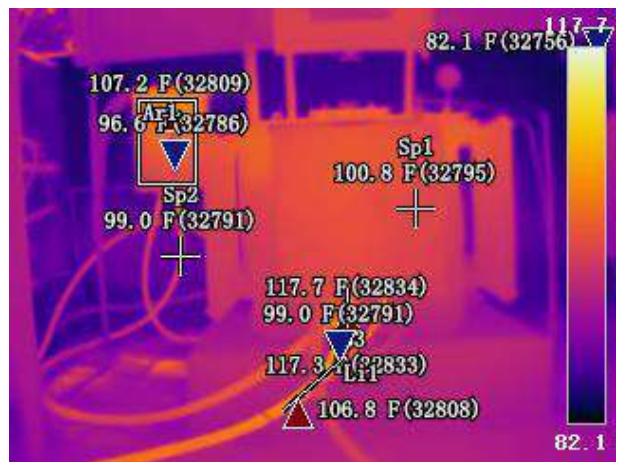
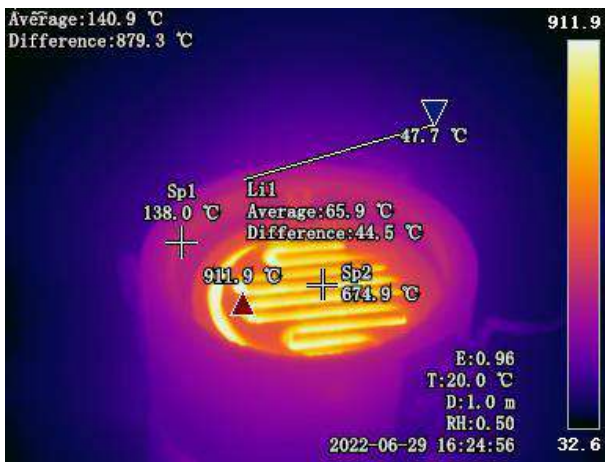
Functionally found okay.

Inspector : Bhawana Rathore	Time :2022-07-21	Other photographs as per enclosed details
-----------------------------	------------------	---

Toshniwal Industries Pvt. Ltd.

Industrial Estate, Makhupura, Ajmer- 305002, Rajasthan, India
+91 844 844 1044 | info@tipl.com | www.tipl.com

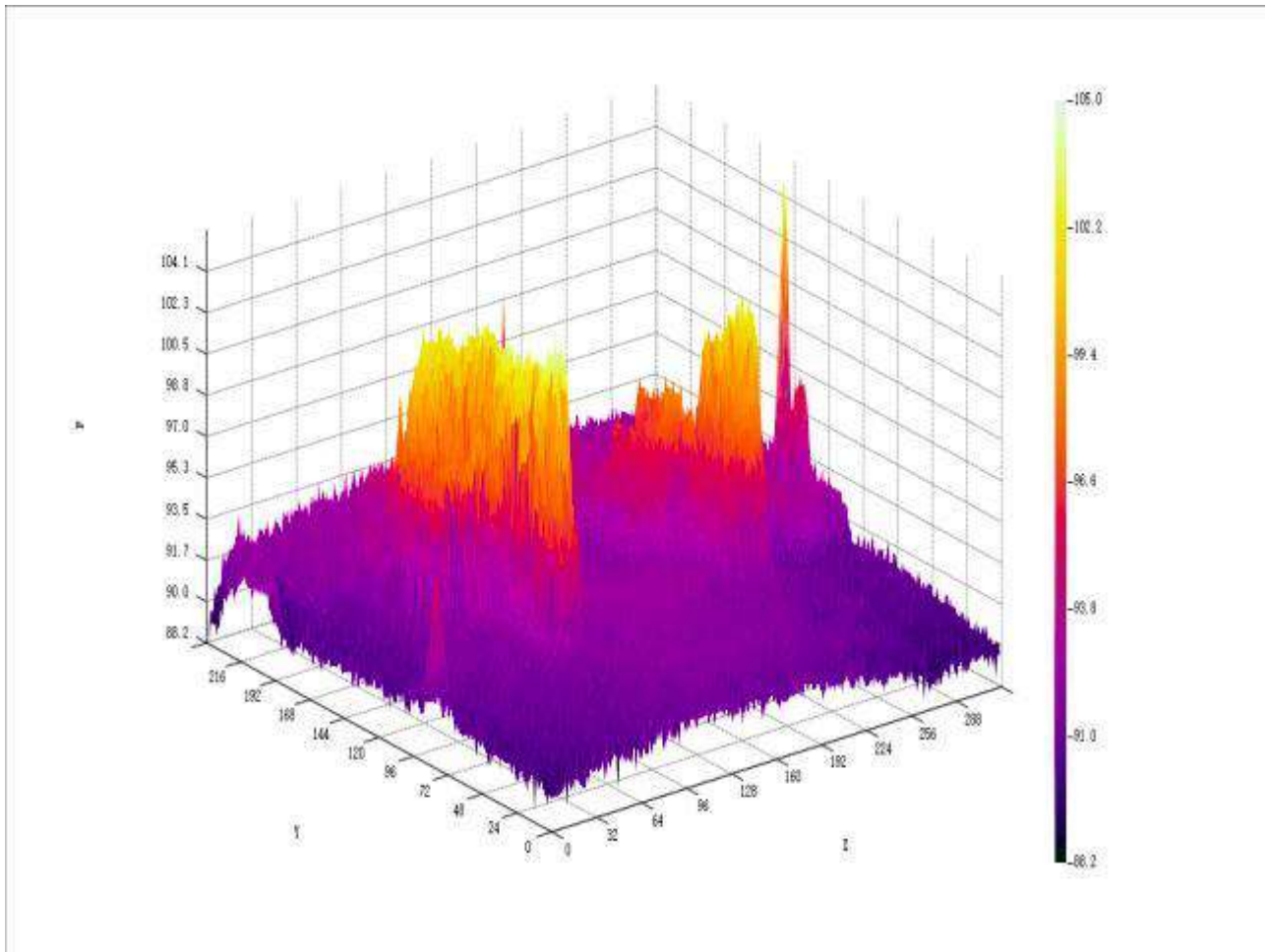




Toshniwal Industries Pvt. Ltd.

Industrial Estate, Makhupura, Ajmer- 305002, Rajasthan, India
+91 844 844 1044 | info@tipl.com | www.tipl.com





Toshniwal Industries Pvt. Ltd.

Industrial Estate, Makhupura, Ajmer- 305002, Rajasthan, India
+91 844 844 1044 | info@tipl.com | www.tipl.com





**Toshniwal
Industries Pvt. Ltd.**
Experience • Expertise
MG Toshniwal Group

Thermal Imaging Camera

TI3 / TI7



Features

- Manual focus
- 3.5 inch TFT LCD, 640x480 pixels LCD display
- Thermal & Visible Image
- Wide temperature range
- Laser pointer
- Zoom 2X, 4X
- Built-in CCD camera of 3.1 Megapixels
- Fast change between IR image and Visual image, Voice annotation, USB data transfer, Video output, Audio alarm, Self defined shortcut key

Introduction

TI3 / TI7 are a time proven series of Uncooled Thermal Imaging Cameras, which feature a IR resolution of 160x120 and 384x288 pixels respectively, 3.5 inch TFT LCD display, IR & Visual image, CCD camera, Voice annotation etc. These models are suitable for a wide range of applications, such as Industrial inspection and testing, Power plant, Railways, Metro, Petrochemical, Metallurgy, Renewable energy, HVAC applications etc.



Technical Specifications

PARAMETER		
Model	T13	T17
DETECTOR CHARACTERISTICS		
Detector Type	Uncooled FPA Microbolometer	
IR Resolution	160x120	384x288
Image Processing	Automatic / Manual / Auto-enhancement	
IMAGE CHARACTERISTICS		
Thermal Sensitivity (NETD)	≤60mK (≤0.06 @30 °C)	≤50mK (≤0.05 @30 °C)
Field of View (FOV)	25° x 19°	
IFOV (spatial resolution)	2.72 mrad	1.36 mrad
Min. Focus Distance	0.1 m	
Frame Rate	50/60Hz	
Focus	Manual	
Spectral Range	8μm ~ 14μm	
Digital Zoom	2X, 4X	
Built-in CCD camera	3.1 MP industrial grade digital camera	
IMAGE DISPLAY		
LCD	3.5 inch TFT LCD, 640x480	
Image Mode	Thermal image, Visible image (fast shifting) Visual image over thermal image, through software, resizable & movable	
MEASUREMENT		
Temperature Range	-20°C to +350°C Option : upto +650°C	-20°C to +650°C Option : upto +1200 °C
Accuracy	±2°C or ±2% of reading, whichever is greater	
Measurement Correction	Automatic / Manual	

Toshniwal Industries Pvt. Ltd.

Industrial Estate, Makhupura, Ajmer- 305002, Rajasthan, India
+91 844 844 1044 | info@tipl.com | www.tipl.com





Measurement Mode	4 movable spots 3 movable areas 2 movable lines (Maximum, Minimum & Average) Line profile Isotherms Temperature Difference Alarm (voice, color)
Color Palette	9 color palettes, selectable on thermal imager 11 color palettes, selectable on thermal image through software
Image Adjustment	Auto / Manual gain and Brightness
Atmospheric Correction	Automatic, according to user input values for Object distance, relative humidity, ambient temperature
Background Temperature Correction	Automatically corrected according to user input values
Setup Functions	Date/time, Temperature units (°C/°F), Language
Emissivity Correction	0.01 to 1.0, variable
Laser	Laser Pointer, Class 2, 1 mW, 635nm, red, IEC 60 285
IMAGE STORAGE	
Memory card slot	TF card slot, built-in
Storage Card	8GB TF card, optional 16GB
Storage Mode	Manual/Auto single file saving, IR and Visual image link saving
Image File Format	Standard JPEG with measurement data included
Software	Analysis software provided
Voice Annotation	60 seconds, per image. Input via built-in microphone
Text Annotation	- Available
Microphone	Yes
POWER SUPPLY	
Battery	Rechargeable lithium ion-battery
Operating time	4 hours, continuous
Charging system	Intelligent charger or 12V car power adaptor or AC power
External Power	10 - 15V DC



Power Saving	Auto-sleep and auto-shut down
ENVIRONMENT	
Operating Temp.	(-)15°C ~ 50°C
Storage Temp.	(-)40°C ~ 70°C
Relative Humidity	≤95% RH, non condensing
Encapsulation	IP54
PHYSICAL CHARACTERISTICS	
Weight	~ 1 kgs
Dimensions (WxHxD)	~ 105 x 245 x 230mm
Tripod Mounting	Available, tripod threaded hole
INTERFACE	
External DC Power	12VDC
TF card slot	Available
Video Output	Available
Data Transfer	USB
SAFETY	
Shock	25g (IEC 60068-2-27)
Vibration	2g (IEC 60068-2-6)
Drop	Designed for a 2 meters drop test
Safety	IEC 61010-1
EU	CE
Laser	IEC 60285
Ingress Protection	IP54
ACCESSORIES	
Standard	Operating Manual Traceable Calibration Certificate USB Cable & Video Cable 8GB TF Card, Card Reader Power Adaptor, Battery Charger, Rechargeable Battery

Toshniwal Industries Pvt. Ltd.

Industrial Estate, Makhupura, Ajmer- 305002, Rajasthan, India
+91 844 844 1044 | info@tipl.com | www.tipl.com





	<ul style="list-style-type: none">Lens CoverAnalysis SoftwareHard carry caseHand strap
Optional	<ul style="list-style-type: none">0.5X wide angle lens2X telephoto lensHigh Temperature Option, 650degC for TI3High Temperature Option, 1200degC for TI7NABL Calibration Certificate16GB TF cardSpare Rechargeable BatterySpare Battery ChargerSunshieldHard carry case, IP67Industrial Grade Tripod

*The images used are indicative and Technical Specifications & Shape can change without any prior notice
Version TI-P-R1.032A-TI3-7



Toshniwal Industries Pvt. Ltd.

Industrial Estate, Makhupura, Ajmer- 305002, Rajasthan, India
+91 844 844 1044 | info@tipl.com | www.tipl.com





ANALYSIS SOFTWARE

TI3 / TI4 / TI7 / TI8 / TI9 / TI10 / TI708 / TI800 Series

An advanced analysis software

System requirement : Microsoft Windows XP / 7 / 10

Features :

- Menu
- Image Data Analysis
- Data interface
- Report templates - Import / Export / Edit
- Real-time spot - line - rectangle - circle marking, Editing parameters

400kV SubStation Mumbai

Toshniwal Industries Pvt. Ltd.
Ajmer
2022-08-17

400kV Sub Station Mumbai
TIPL Demonstration
17th August 2022

Section	Camera type	Created date	Created time
SS-KLW-1	TI708	2022 - 08 - 17	15:03:34

IR Image 003

Histogram Profile

Fault Analysis Suggestion

As per site discussions held between TIPL and customer

Sankun Sharma

Toshniwal Industries Pvt. Ltd.

Industrial Estate, Makhupura, Ajmer- 305002, Rajasthan, India
+91 844 844 1044 | info@tipl.com | www.tipl.com

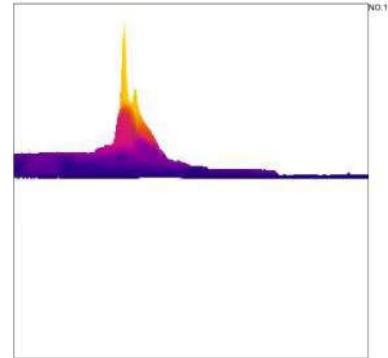
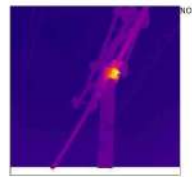




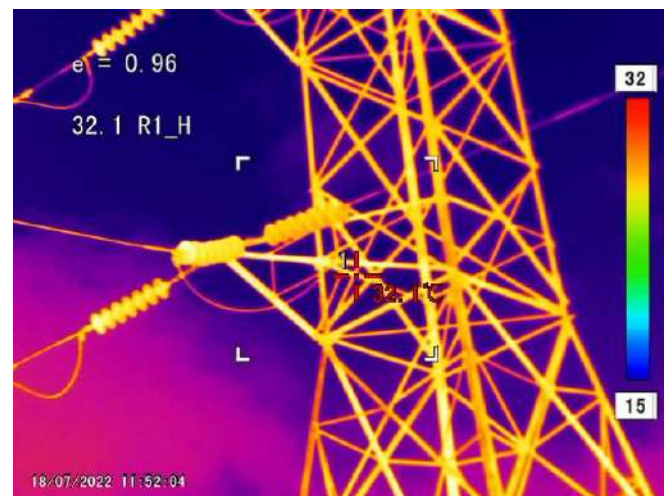
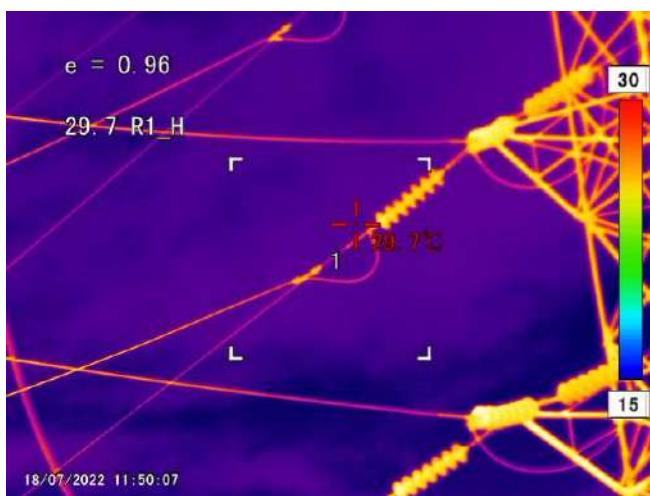
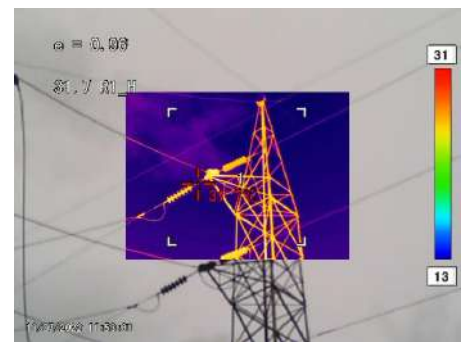
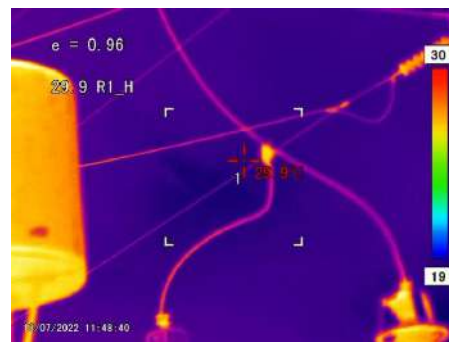
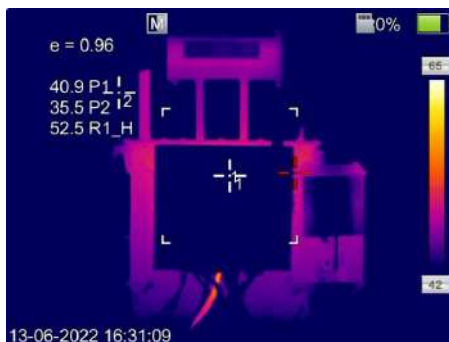
Result table information for spot points, rectangle, line and thermal camera information

Picture info	Value	NO.1
Created date	2022-08-17	
Created time	15:03:34	
File name	20220817-150329-403.jpg	
Camera info	Value	
Camera type	TF08	
Camera serial	2JDL708Z16080	
Camera range max	180.0°C	
Camera range min	-40.0°C	
Lens info	1XZOOM	
Pic width	640	
Pic height	480	
Parameters	Value	
Emissivity	0.96	
Object distance	5.00m	
Ambient	28.8°C	
Spot analysis	Value	
Point01 Temperature	114.9°C	
Point01 Object distance	5.00m	
Point01 Emissivity	0.96	
Line analysis	Value	
Line01 Max	82.4°C	
Line01 Min	23.4°C	
Line01 Emissivity	0.96	
Area analysis	Value	
Area01 Max	114.9°C	
Area01 Min	22.4°C	
Area01 Distance	5.00m	
Area01 Emissivity	0.96	

3D photo



Sandeep Sharma



Toshniwal Industries Pvt. Ltd.

Industrial Estate, Makhupura, Ajmer- 305002, Rajasthan, India
 +91 844 844 1044 | info@tipl.com | www.tipl.com





**Toshniwal
Industries Pvt. Ltd.**
Experience • Expertise
MG Toshniwal Group

Thermal Imaging Camera

TI801 / TI802



Features

- Up to 1024 x 768 pixels, uncooled FPA detector
- Super resolution of up to 2048 x 1536 pixels for extra sharp and bold images
- 180 degree Rotatable lens with viewfinder
- 5 inch color LCD with touch screen
- Thermal, Visible, P-in-P, Fusion Image modes
- Wide temperature range
- Laser pointer, GPS, WiFi, Compass, Voice / Text Annotation
- Digital zoom 1...40x
- Built-in CCD camera of 5 Megapixels

Introduction

TI801 / TI802 are a time proven series of Uncooled Thermal Imaging Cameras, which feature a view finder, 180 degree rotatable lens, IR resolution of 640 x 480 pixels and 1024 x 768 pixels respectively, 5 inch color touchscreen display, IR & Visual image, P-in-P, Thermal fusion, CCD camera, Voice annotation, GPS, WiFi, Compass etc. These models are suitable for a wide range of applications, such as Industrial inspection and testing, Power plant, Sub-Stations, Utilities, Railways, Metro, Petrochemical, Metallurgy, Renewable energy, Research, HVAC applications etc.



Technical Specifications

PARAMETER	MODELS	
Model	TI802	TI801
DETECTOR CHARACTERISTICS		
Detector Type	Uncooled FPA Microbolometer	
IR Detector Resolution	1024 x 768 pixels	640 x 480 pixels
IR Resolution	2048 x 1536 pixels	1280 x 960 pixels
Image Processing	Automatic / Manual / Auto-enhancement	
IMAGE CHARACTERISTICS		
Thermal Sensitivity (NETD)	≤40mK (≤0.04°C @30°C)	
Frame Rate	50/60Hz	
Focus	Automatic, Manual - both	
Spectral Range	7μm ~ 14μm	
Digital Zoom	1.....40x, continuous	
Built-in CCD camera	5 MP, CMOS module, Built-in LED light	
LENS & VIEWFINDER		
Type	180 degree rotatable lens	
Field of View (FOV) - standard lens	25° x 19°	25° x 19°
IFOV (spatial resolution)	0.43 mrad	0.68 mrad
Min. Focus Distance	0.2 mts, 20 cms	
Optional lenses	0.5x, wide angle lens (45° x 33°) 2x, telephoto lens (12° x 9°) 3x, ultra telephoto lens (6.9° x 5.2°) Lenses are interchangeable and auto-detectable Other lenses can be supplied instead of standard lens, if required	
Viewfinder	Available	

Toshniwal Industries Pvt. Ltd.

Industrial Estate, Makhupura, Ajmer- 305002, Rajasthan, India
+91 844 844 1044 | info@tipl.com | www.tipl.com





IMAGE DISPLAY		
LCD	5 inch color LCD, with capacitive touch screen	
Image Mode	Thermal image, Visible image, Picture-in-Picture, Thermal Fusion	
MEASUREMENT		
Temperature Range	-40°C to +650°C Option : extendable to +1200 °C Option : extendable to +2000°C	-40°C to +650°C Option : extendable to +1200 °C Option : extendable to +1500 °C
Accuracy	±2°C or ±2% of reading, whichever is greater	
Measurement Correction	Automatic / Manual	
Measurement Mode	10 moveable spots 10 moveable areas Moveable Line profile Moveable circle Isotherms analysis Capture - High / Low / Temperature difference Alarm (voice, color) Area, Line, Circle are resizeable and location adjustable	10 moveable spots 5 moveable areas Moveable Line profile Moveable circle Isotherms analysis Capture - High / Low / Temperature difference Alarm (voice, color) Area, Line, Circle are resizeable and location adjustable
Color Palette	11 color palettes, selectable	
Image Adjustment	Auto / Manual gain and Brightness	
Distance	Automatically calculated by Laser Distance Meter User can alternatively manually enter distance	
Atmospheric Correction	Automatic, according to user input values for emissivity, relative humidity, ambient temperature, reflected temperature, IR window setting, temperature correction etc.	
Background Temperature Correction	Automatically corrected according to user input values	
Setup Functions	Date/time, Temperature units (°C/°F/K), Language	
Emissivity Correction	0.01 to 1.0, adjustable Or user selected through pre-defined emissivity table	
Laser	Laser Pointer, Class 2, 1 mW, 635nm, red, IEC 60 285	



IMAGE STORAGE		
Memory	Internal 128GB SD card slot, built-in, additionally	
Storage Card - external	32GB SD card, optional 64 GB / 128GB	
Storage Mode	Manual/Auto single file saving, IR and Visual image link saving	
Image File Format	Standard JPEG with measurement data included	
Software	Analysis software provided	
Voice Annotation	60 seconds, per image. Input via built-in microphone Played by bluetooth connecting headset	
Text Annotation	Available - Notes via keypad & Freehand / Sketch by Pen	
Microphone	Yes	
POWER SUPPLY		
Battery	Rechargeable lithium ion-battery	
Operating time	> 3 / 4 hours, continuous	
Charging system	Two way Battery charger or via AC adaptor (in camera)	
Power Saving	Auto-sleep and auto-shut down	
ENVIRONMENT		
Operating Temp.	(-)20°C ~ 50°C	
Storage Temp.	(-)40°C ~ 70°C	
Relative Humidity	≤95% RH, non condensing	
Encapsulation	IP54	
PHYSICAL CHARACTERISTICS		
Weight	~ 1.6 kgs	~ 2 kgs
Dimensions (WxHxD)	~ 225 x 145 x 100mm	~ 180 x 145 x 150mm
Tripod Mounting	Available, tripod threaded hole	
INTERFACE		
Internal memory	Available	
SD card slot	Available	



Video Output	Available
Data Output	WiFi, Bluetooth, Type C USB, HDMI, Hotspot
SAFETY	
Shock	25g (IEC 60068-2-27)
Vibration	2g (IEC 60068-2-6)
Drop	Designed for a 2 meters drop test
Safety	IEC 61010-1
EU	CE
Laser	IEC 60285
Ingress Protection	IP54
Electromagnetic compatibility	IEC 61000-4-2, IEC 61000-4-4, IEC 61000-4-8
ACCESSORIES	
Standard	Operating Manual Traceable Calibration Certificate USB Cable, HDMI interface data cables 32GB SD Card, Card Reader Power Adaptor, Two way Battery Charger, Rechargeable Battery Standard lens and Lens Cover Analysis Software Hard carry case Hand strap
Optional	0.5x, wide angle lens (45° x 33°) 2x, telephoto lens (12° x 9°) 3x, ultra telephoto lens (6.9° x 5.2°) High Temperature Option, 1200degC for TI801 High Temperature Option, 1500degC for TI801 High Temperature Option, 1200degC for TI802 High Temperature Option, 2000degC for TI802 NABL Calibration Certificate 64 / 128GB SD card Spare Rechargeable Battery Spare Battery Charger Bluetooth earphone / headphone Hard carry case, IP67 Industrial Grade Tripod

*The images used are indicative and Technical Specifications & Shape can change without any prior notice

Version TI-P-R1.032A-TI800-7

Toshniwal Industries Pvt. Ltd.

Industrial Estate, Makhupura, Ajmer- 305002, Rajasthan, India
+91 844 844 1044 | info@tipl.com | www.tipl.com





TI 800 SERIES



Toshniwal Industries Pvt. Ltd.

Industrial Estate, Makhupura, Ajmer- 305002, Rajasthan, India
+91 844 844 1044 | info@tipl.com | www.tipl.com





ANALYSIS SOFTWARE

TI3 / TI4 / TI7 / TI8 / TI9 / TI10 / TI708 / TI800 Series

An advanced analysis software

System requirement : Microsoft Windows XP / 7 / 10

Features :

- Menu
- Image Data Analysis
- Data interface
- Report templates - Import / Export / Edit
- Real-time spot - line - rectangle - circle marking, Editing parameters

400kV SubStation Mumbai

Toshniwal Industries Pvt. Ltd.
Ajmer
2022-08-17

400kV Sub Station Mumbai
TIPL Demonstration
17th August 2022

Section	Camera type	Created date	Created time
SS-KLW-1	TI708	2022 - 08 - 17	15:03:34

IR Image 003

Histogram

Profile

Fault Analysis Suggestion

As per site discussions held between TIPL and customer

Sankuun Sharma

Toshniwal Industries Pvt. Ltd.

Industrial Estate, Makhupura, Ajmer- 305002, Rajasthan, India
+91 844 844 1044 | info@tipl.com | www.tipl.com

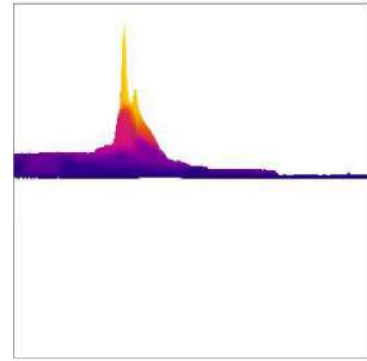
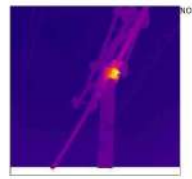




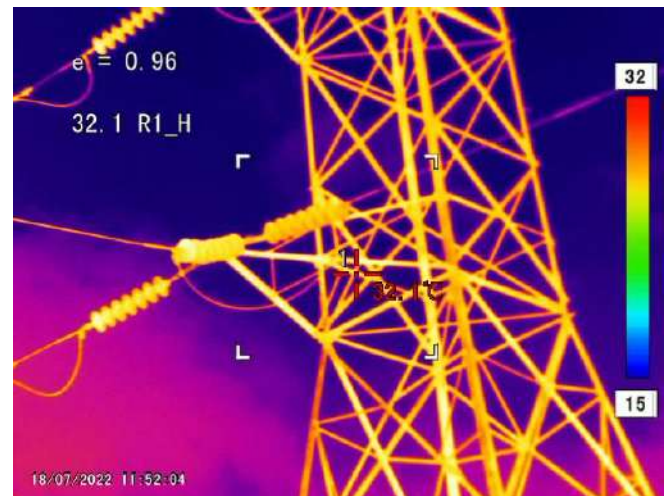
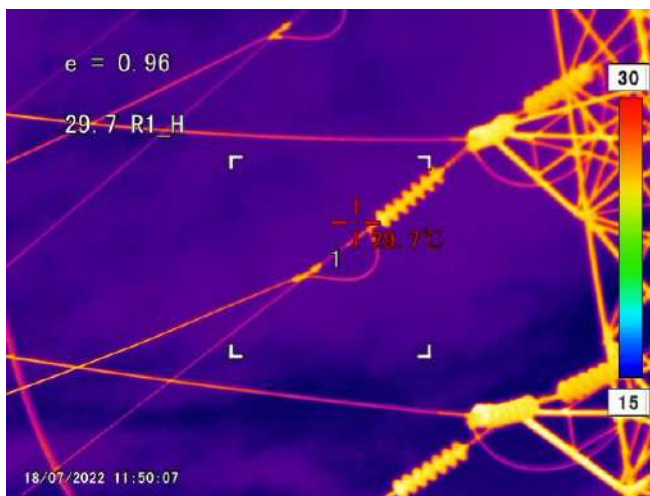
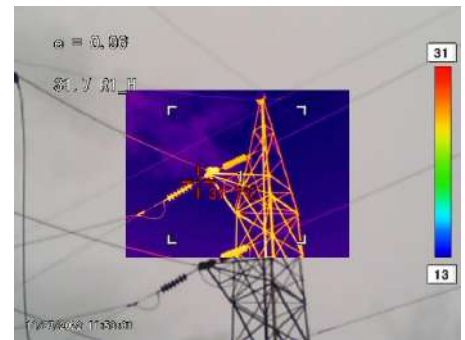
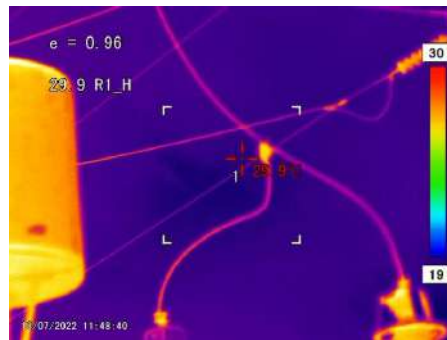
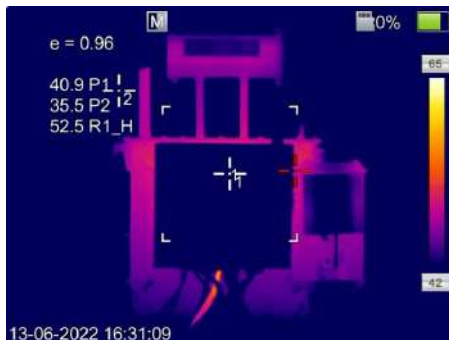
Result table information for spot points, rectangle, line and thermal camera information

Picture info	Value	NO.1
Created date	2022-08-17	
Created time	15:03:34	
File name	20220817-150329-403.jpg	
Camera info	Value	
Camera type	TF08	
Camera serial	2JDL708Z16080	
Camera range max	180.0°C	
Camera range min	-40.0°C	
Lens info	1XZOOM	
Pic width	640	
Pic height	480	
Parameters	Value	
Emissivity	0.96	
Object distance	5.00m	
Ambient	28.8°C	
Spot analysis	Value	
Point01 Temperature	114.9°C	
Point01 Object distance	5.00m	
Point01 Emissivity	0.96	
Line analysis	Value	
Line01 Max	82.4°C	
Line01 Min	23.4°C	
Line01 Emissivity	0.96	
Area analysis	Value	
Area01 Max	114.9°C	
Area01 Min	22.4°C	
Area01 Distance	5.00m	
Area01 Emissivity	0.96	

3D photo



Sandeep Sharma



Toshniwal Industries Pvt. Ltd.

Industrial Estate, Makhupura, Ajmer- 305002, Rajasthan, India
 +91 844 844 1044 | info@tipl.com | www.tipl.com

