

STEK System Thermal  
Imaging Series-STi  
**TEMPERATURE**

**measurement solutions  
for the TRANSMISSION,  
DISTRIBUTION, and  
POWER industries.**

**STEK**





Throughout the years, handheld, portable thermal cameras served as the go-to tool in identifying hot spots and potential failure areas in electrical distribution systems, but they are often used intermittently. However, facilities that implement continuous monitoring of critical equipment and assets—such as transformers, bushings, and capacitor banks—can instantly identify risky areas and take corrective action before an unexpected failure occurs.

Keeping the lights on and the power distribution grid running are critical to maintaining our modern way of life. Everything depends on the power grid; from our food and water supply, to the factories, networks, security systems, and banking industries that we all rely on every day to keep our world on track. No aspect of our modern societies can function without power.

However, power utility companies are facing increasing pressures. Aging infrastructure and increasing demand for low-cost energy are putting more stress on the power grid, increasing the risks of costly and potentially devastating brownouts and blackouts. At this critical time, utilities need solid solutions to help increase capabilities, maintain reliability, while at the same time, keeping costs under control.

In today's age, keeping the power distribution grid up and running is essential in maintaining our day-to-day lives. But as renewable energy sources like wind and solar make headlines for their significant progress in cost reduction, traditional power utility companies are facing increased pressure to provide low-cost energy. This, paired with aging infrastructure, is putting additional stress on power generation facilities—which, if critical equipment fails, can ultimately disrupt power supplied to the grid.

Now more than ever, power facilities must implement sound solutions to help identify possible equipment failures, perform preventative maintenance, keep repair and replacement costs under control, ensure that power is supplied to the grid without interruption, and more.





## Monitoring CRITICAL ASSETS for abnormal conditions

### Transformer bushings for overheat or under heat conditions



#### Temperature Uniformity

Ensure uniform temperatures across transformer bushings 24/7



#### Hot Spot Detection

Continuously monitor contact points, switches, and other critical assets where hot spot conditions may occur



#### Real-Time Data

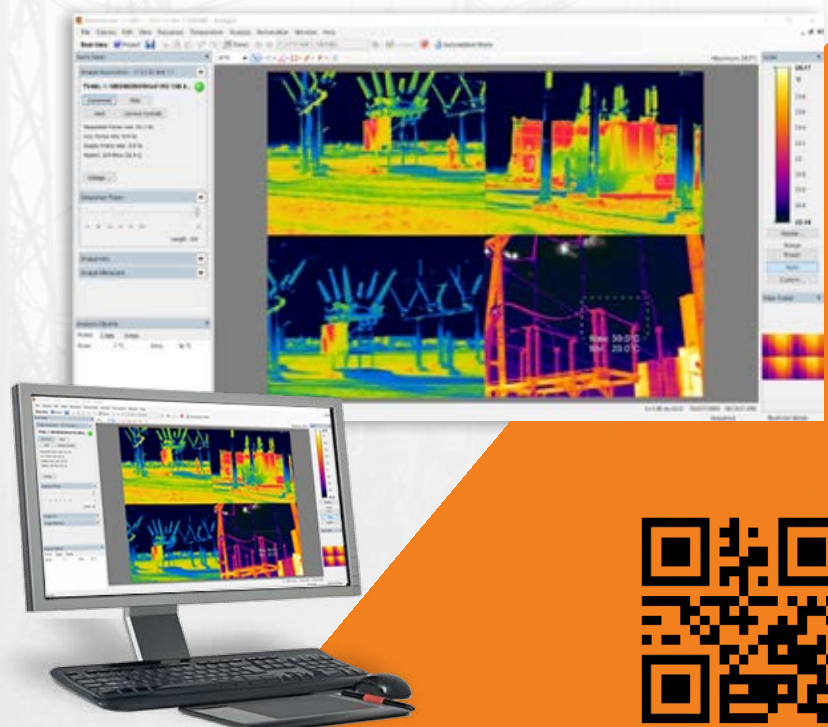
Observe your equipment and analyze data in real-time with customizable areas of interest; independent, continuous, or intermittent evaluation; and more.



## CRITICAL ASSET MONITORING SYSTEM

The system is designed for remote monitoring of industrial environments—such as substation monitoring, where critical assets need to be monitored. The STEK Instruments' solution is built off the STi series Thermal imaging camera with integrated thermal and visual sighting capability.

The STEK STi Series Critical Asset Monitoring software provides a fully integrated thermal analysis of large areas where fixed multiple cameras or a single pan and tilt camera is needed. The software not only controls the pan and tilt system, but also provides advanced alarming on changing temperatures over a historical time period, or differential temperatures between two discrete areas. Alarm output can be mapped to discrete I/O modules or output over a Modbus or Ethernet/ IP network.



## PAN and TILT

With IP66 housing, the Pan and Tilt was designed to protect your thermal imager from dust and water, even in the harshest manufacturing environments. The Pan and Tilt housing accessory also features our STEK OTi series Critical Asset Monitoring Software, which is the ideal solution for sophisticated analysis based on absolute, differential, or rate of change asset temperature conditions.



## OUTDOOR Enclosures

With an IP66 rating, our outdoor enclosure for the STEK STi Series ensures that your temperature monitoring system won't stop due to bad conditions. With weatherproofed installations, the Outdoor Enclosure provides a high protection rate, a sunshield, and a temperature-controlled heater for cooler environments



# System Thermal Imager Series(STi)

## Specifications:



| Models                                                                                                                                                 | STi1K-12X9                                                                                      | STi1K-6X4                                                       | STi3K-24X18                                                     | STi3K-12X9                                                        |
|--------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------------------|-------------------------------------------------------------------|
| Detector type                                                                                                                                          | Uncooled FPA                                                                                    |                                                                 |                                                                 |                                                                   |
| IR Resolution                                                                                                                                          | 384x288                                                                                         |                                                                 | 640x512                                                         |                                                                   |
| Focal Length                                                                                                                                           | 25mm                                                                                            | 50mm                                                            | 25mm                                                            | 50mm                                                              |
| Field of View                                                                                                                                          | 12.4°x9.3°                                                                                      | 6.2°x4.6°                                                       | 24.0°× 18.1°                                                    | 12.1°x9.1°                                                        |
| Spatial resolution (IFOV)                                                                                                                              | 0.68                                                                                            | 0.34                                                            | 0.68                                                            | 0.34                                                              |
| Measurement Spot Size                                                                                                                                  | 49mm                                                                                            | 25mm                                                            | 59mm                                                            | 30mm                                                              |
| At: 10 meters, For other Spot Size use FOV Calculator: <a href="https://stek.in/field-of-view-calculator">https://stek.in/field-of-view-calculator</a> | Projection value:<br>Vertical: 1569.6mm,<br>Horizontal: 2092.8mm                                | Projection value:<br>Vertical: 697.6mm,<br>Horizontal: 1046.4mm | Projection value:<br>Vertical: 1395.2mm<br>Horizontal: 4185.6mm | Projection value:<br>Vertical: 1569.6mm,<br>Horizontal: 2092.8mm, |
| Spectral Range                                                                                                                                         | 7.5-14μm                                                                                        |                                                                 |                                                                 |                                                                   |
| Thermal Sensitivity/NETD                                                                                                                               | <40mk(@30°C)                                                                                    |                                                                 |                                                                 |                                                                   |
| Palette                                                                                                                                                | 10 color palettes                                                                               |                                                                 |                                                                 |                                                                   |
| Thermometric analysis                                                                                                                                  | Thermometric analysis                                                                           |                                                                 |                                                                 |                                                                   |
| Object temperature range                                                                                                                               | -20 °C~150 °C（low temperature range）, 0 °C~410°C（medium temperature range）                      |                                                                 |                                                                 |                                                                   |
| Optional temperature range                                                                                                                             | +300 °C~+650 °C\+300 °C~+2000 °C\other ranges (high temperature range)                          |                                                                 |                                                                 |                                                                   |
| Temperature measurement accuracy                                                                                                                       | ±2°C or 2% of readings                                                                          |                                                                 |                                                                 |                                                                   |
| Adjustable Parameters                                                                                                                                  | Emissivity:0.1 to 1.00, Transmittivity:0.1to 1.0 ,Refelectivity, Ambient Temperature & Humidity |                                                                 |                                                                 |                                                                   |
| Visual Camera Specifications                                                                                                                           |                                                                                                 |                                                                 |                                                                 |                                                                   |
| Sensor type                                                                                                                                            | 1/2.8”Progressive Scan CMOS                                                                     |                                                                 |                                                                 |                                                                   |
| Resolution                                                                                                                                             | 1920×1080 2MP                                                                                   |                                                                 |                                                                 |                                                                   |
| Focal length                                                                                                                                           | 4.8~120 mm, 25x optical zoom                                                                    |                                                                 |                                                                 |                                                                   |
| Field angle                                                                                                                                            | 57.6-2.5° (wide angle-telephoto)                                                                |                                                                 |                                                                 |                                                                   |
| Minimum illumination                                                                                                                                   | Color: 0.05 lux @(F1.6, AGC ON)\Black and white: 0.01 lux @ (F1.6, AGC ON)                      |                                                                 |                                                                 |                                                                   |
| Focus                                                                                                                                                  | Manual/semi-automatic/automatic                                                                 |                                                                 |                                                                 |                                                                   |
| Wiper function                                                                                                                                         | Support                                                                                         |                                                                 |                                                                 |                                                                   |
| Fill light function                                                                                                                                    | Infrared fill light, distance 150 meters                                                        |                                                                 |                                                                 |                                                                   |
| Pan Tilt & Zoom (PTZ) Specifications                                                                                                                   |                                                                                                 |                                                                 |                                                                 |                                                                   |
| Horizontal range                                                                                                                                       | 0~360° continuous rotation                                                                      |                                                                 |                                                                 |                                                                   |
| Vertical range                                                                                                                                         | --88°~50°                                                                                       |                                                                 |                                                                 |                                                                   |
| Positioning accuracy                                                                                                                                   | ±0.1°                                                                                           |                                                                 |                                                                 |                                                                   |
| Horizontal speed                                                                                                                                       | 0.01°~40°/s                                                                                     |                                                                 |                                                                 |                                                                   |
| Vertical speed                                                                                                                                         | 0.01°~15°/s                                                                                     |                                                                 |                                                                 |                                                                   |
| Number of preset points                                                                                                                                | 255                                                                                             |                                                                 |                                                                 |                                                                   |
| Cruise scan                                                                                                                                            | 8 lines, each line can add 32 preset points                                                     |                                                                 |                                                                 |                                                                   |
| Network Interface Specifications                                                                                                                       |                                                                                                 |                                                                 |                                                                 |                                                                   |
| Power interface                                                                                                                                        | φ5.5*2.1 DC power interface                                                                     |                                                                 |                                                                 |                                                                   |
| Network interface                                                                                                                                      | One 10M/100M adaptive Ethernet port                                                             |                                                                 |                                                                 |                                                                   |
| Network protocol                                                                                                                                       | TCP/IP, IPv4, HTTP, FTP, DDNS, DHCP, RTP, RTSP, UDP, NTP, IGMP, ICMP, ONVIF                     |                                                                 |                                                                 |                                                                   |
| Application programming interface                                                                                                                      | Support standard protocol (ONVIF), support SDK access                                           |                                                                 |                                                                 |                                                                   |
| Engineering & Electrical Specifications                                                                                                                |                                                                                                 |                                                                 |                                                                 |                                                                   |
| Voltage supply                                                                                                                                         | AC24V（±20%）\ DC24V（±20%）                                                                        |                                                                 |                                                                 |                                                                   |
| Power                                                                                                                                                  | ≤60W                                                                                            |                                                                 |                                                                 |                                                                   |
| Operating temperature and humidity                                                                                                                     | -40°C~70°C, <90% RH                                                                             |                                                                 |                                                                 |                                                                   |
| Protection level                                                                                                                                       | IP66                                                                                            |                                                                 |                                                                 |                                                                   |
| Weight                                                                                                                                                 | 12kg                                                                                            |                                                                 |                                                                 |                                                                   |
| Size                                                                                                                                                   | 345x180x496mm                                                                                   |                                                                 |                                                                 |                                                                   |
| Shell material                                                                                                                                         | Die-cast aluminum                                                                               |                                                                 |                                                                 |                                                                   |

