

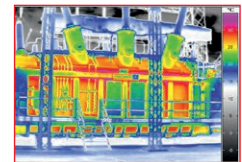
## GRID-DETECT – Monitoring System

Thermography-based IR Substation Monitoring

### System Description

The IR Substation Monitoring System GRID-DETECT uses infrared (IR) technology to monitor the temperature of substation components to secure the reliability of substation. Thermography cameras in combination with visible cameras and pan-tilt head observe the substation area and thus allow predictive maintenance.

The temperature measurements are made fully automatically without the need of any manual interaction. The system GRID-DETECT automatically raises a warning and alarm if an adjustable temperature threshold is passed. This prevents dangerous substation component failures and saves the reliability of the entire substation. GRID-DETECT automatically tracks the temperature development of different substation elements. This allows reducing maintenance costs, failures and unplanned outage of substation. GRID-DETECT comes with highly reliable components in a flexible structure and thus, is easily adaptable to the different situations and operational modes in substations.



### System Features

- Full automatic operation
- Reliable alarm release at defined pre- and main alarm limits
- Merging of IR and VIS image for better orientation
- Temperature trend recording and analysis
- Customized system alignment and adjustment
- Parameterization, supervision, operation, display, evaluation and playback in the GRID-DETECT software
- Decentralized monitoring of system status and measured values
- Recall of all recorded data for comparison and optimisation
- Easy to operate data presentation in the substation network
- Remote access from Master Control Center



### Benefits of the System

- Complete automatic thermographic temperature screening of substation on 24/7 basis
- Early detection of equipment failures with maximum range and highest resolution (640 × 480)/(1,280 × 960) IR pixels
- Reduction of maintenance costs, failures and outage of substation
- Saves investments and long term operating ability of your substation
- Flexible structure for customized adaption to your operational modes

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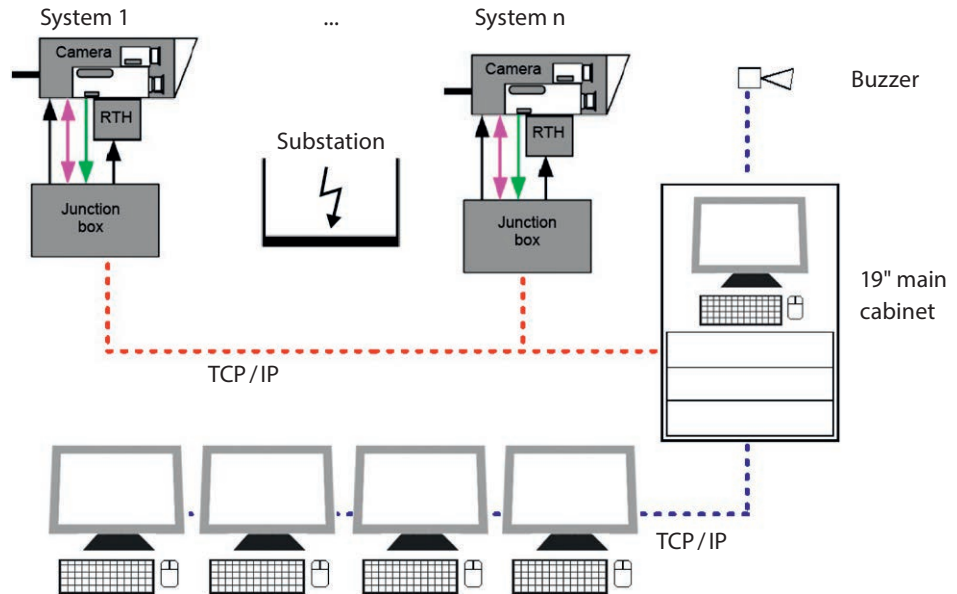
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## GRID-DETECT – Monitoring System

Thermography-based IR Substation Monitoring

### System Structure

IR cameras + VIS cameras built in protective housing on pan-tilt head with junction box



Parameterization, supervision, operation, display, evaluation and playback on standard PC at different sites and levels

### Construction / Design

- Reliable 19"-industrial standard main cabinet
- Protective housing and pan-tilt head designed to withstand the harsh environmental conditions
- Infrared cameras VarioCAM® HD head and VarioCAM® HDx head with (640 × 480) / (1,280 × 960) IR pixels guarantee long-term exact and reliable temperature measurements
- Nearly maintenance-free, no wearing parts
- Decentralized installable components (IR cameras, VIS- cameras, PC, alarm unit), fiber optic cable for interference-free data transmission
- TCP /IP based flexible structure allows customized adaption to the specific substation situations
- Easy to use GRID-DETECT software allows flexible customization

