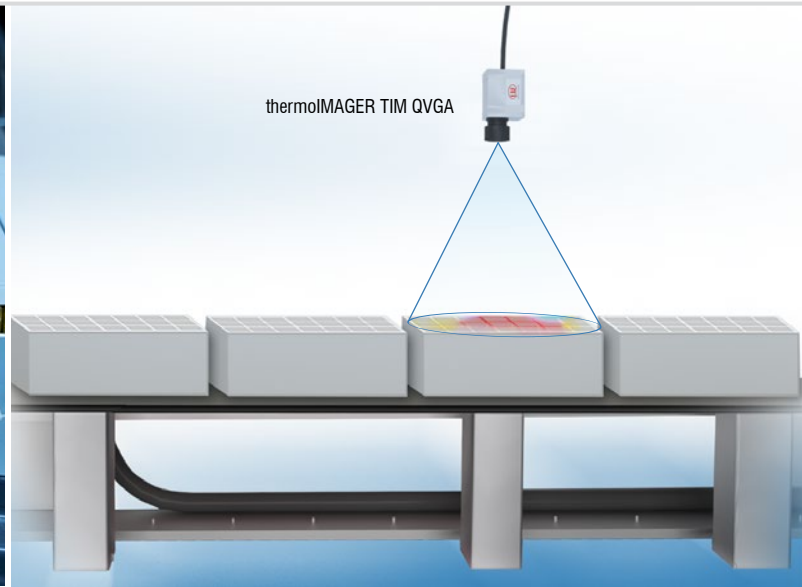
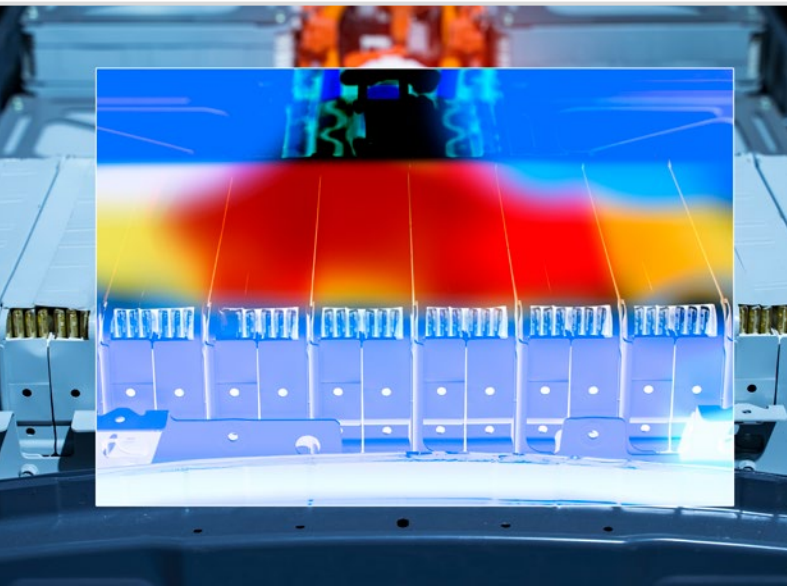




Temperature monitoring of drive batteries during handling and transport

The production of electric vehicles has increased sharply in recent years, and with it the production of lithium-based drive batteries. This highly flammable battery technology poses new challenges in terms of safety, especially for automotive manufacturers. To minimize the risk of fire in manufacturing plants, the batteries are inspected for thermal anomalies as soon as they are delivered.

A high-resolution thermal imaging camera, thermoIMAGER TIM QVGA from Micro-Epsilon, monitors the thermal properties of the drive batteries either during unstacking or on a conveyor belt. For this measurement task, the camera is mounted stationary or guided to the measuring point by a robot arm. With a single, non-contact measurement, it detects the temperature profile of the entire battery surface. The individual measurement is sufficient to reliably identify possible hot spots and defects on the battery. Thanks to a frame rate of 80 Hz, short cycle times and high throughput can be achieved.

The TIMConnect software included in the scope of delivery triggers an alarm when the measured temperature exceeds the defined maximum value. Defective battery packs can be sorted out at an early stage via the alarm and snapshots can be taken at the same time. Snapshots can also be taken at regular intervals for process documentation.

Thanks to the complete Micro-Epsilon system, the entire inspection, selection and documentation process for both the handling and transportation of drive batteries can be automatically and reliably executed. This increases operational safety and helps to detect fire hazards at an early stage.

Requirements for the measurement system

- Reliable measurement on anodized aluminum and other materials
- Measurement of a large area, typically 2 x 2.5 m
- Switching signal when the temperature is exceeded
- Documentation option via automated snapshots

Ambient conditions

- Use in storage and production halls
- Slight temperature fluctuations

System design

- Thermal imaging camera: thermoIMAGER TIM QVGA
- Software: TIMConnect
- Control connection (analog): TM-PIFC5-TIM

Advantages

- Compact complete system with software for easy integration
- Fast evaluation with up to 80 measurements per second enables short cycle times
- Reliable alarm output increases operational safety and supports the early detection of fire hazards