Application Note

Camera temperature monitoring for reliable 24/7 operation
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Description
This document explains how to use configurable temperature thresholds and how to assign a camera emergency stop to prevent the potential danger of camera overheating.

Products:
Baumer cameras: LXG-250x, LXG-500x, LXC-250x, LXC-500x, VCXx (.I) (.I.XT) (only ≥ Release 2)

Content

1 Technical background

Industrial cameras are intended for reliable 24/7 operation and must deliver consistent image quality for reproducible results. This requires the camera to be only operated within the permitted temperature range. If not, image quality gets worse with rising camera temperature and in the event of insufficient heat dissipation, may even lead to camera damage. This is why cameras provide the temperature feature "emergency off".

Configurable temperature thresholds will generate a warning as temperatures rise, which allows the operator to intervene. In the event of potential overheating, the camera will automatically switch off at the maximum temperature limit.

2 Configuration

1. Use feature *DeviceTemperatureStatusTransitionSelector* (Category: Device Control) to configure the temperature thresholds:

Threshold	Description
NormalToHigh	Freely configurable temperature limit generating a warning event.
HighToExceeded	Permanent, camera-specific limit for camera emergency off.
ExceededToNormal	Freely configurable temperature for error-free camera restart.

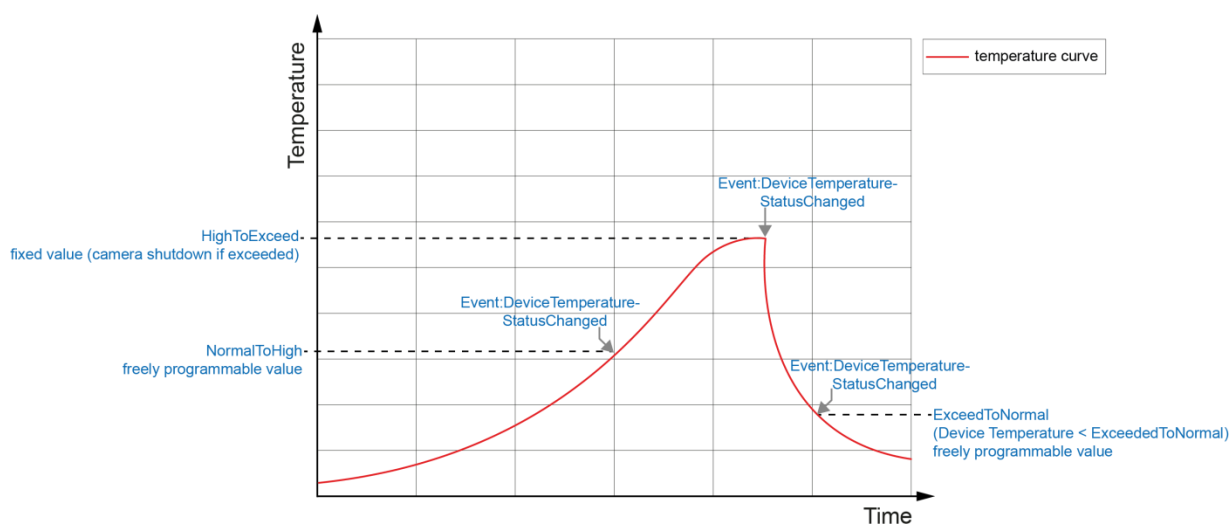2. Use feature *DeviceTemperatureStatusTransition* to define the temperature for the selected threshold.

Fig. 1: Temperature graph with thresholds and events

3   Procedure

1. The camera heats up in operation, reaching the value configured as NormalToHigh which changes feature *DeviceTemperatureStatus* and outputs warning event *DeviceTemperatureStatusChanged.*

2. Further increasing camera heat reaches the value configured as *HighToExceeded*. The feature *DeviceTemperatureStatus* changes again which outputs another event in *DeviceTemperatureStatusChanged*. Image acquisition stops and the camera activity LED lights up red.

3. Let the camera cool down prior to continue. Sufficient cooling is visualized by output event *DeviceTemperatureStatusChanged (Device Temperature < ExceededToNormal*).

4. In the next step, interrupt camera supply or execute camera reset. (*Category: Device Control → DeviceReset).*

Notice
Appropriate camera installation might prevent any emergency off. Since there are many installation options Baumer does not recommend a specific method of heat dissipation but we suggest the following: • Only operate the camera when installed. The camera should be mounted on a material with high thermal conductivity (e.g. aluminum). • Convection may entail heat dissipation, avoid any heat concentration! • Avoid other devices close by which may add to camera heating by own heat radiation.

4   Support

Please contact our Technical & Application Support Center with any questions.

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5   Legal Notes

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