Case study

USB thermometer data in video & events triggering to VMS using AXIS D3110 Connectivity Hub

About

We're demonstrating the integration of a USB Thermometer with an Axis Network Camera using the AXIS D3110 Connectivity Hub. **This combination delivers real-time temperature insights, enhancing operational control and streamlining monitoring.**

Technical Solution

Our setup includes an **AXIS M1137 Mk II** Network Camera and **AXIS D3110** Connectivity Hub connected to one network. The Hub bridges the **USB Thermometer** and the IP network, enabling smooth communication between the devices. **The CamScripter App, installed on the AXIS D3110, uses a Node.js script tailored for USB Thermometer integration.** This script, freely accessible on our GitHub, captures real-time temperature data and sends it to the Axis Network Camera. Here, the CamOverlay App displays the data in the live video feed.

This script has three essential functionalities. These multi-faceted functionalities, brought together, expand monitoring capabilities and offer a wide range of operational controls.

1. **It generates live graphic overlays on the video feed**, enriching the visual data with real-time temperature readings.

2. **It creates „external data" for the AXIS Camera Station (ACS).** This data can be utilized in the ACS „External Data Search" module to filter video feeds, enhancing search efficiency and precision.

3. **It generates temperature alarms as AXIS Events** when defined conditions are met. These events can be used in action rules directly in the D3110 (but can also be redirected to any camera) or as device events within any VMS system such as **Axis Camera Station**, **Milestone**, **Genetec**, etc. They serve as triggers for various actions; for instance, in our case, they trigger a live view of the camera monitoring the thermometer in ACS whenever a temperature change occurs.
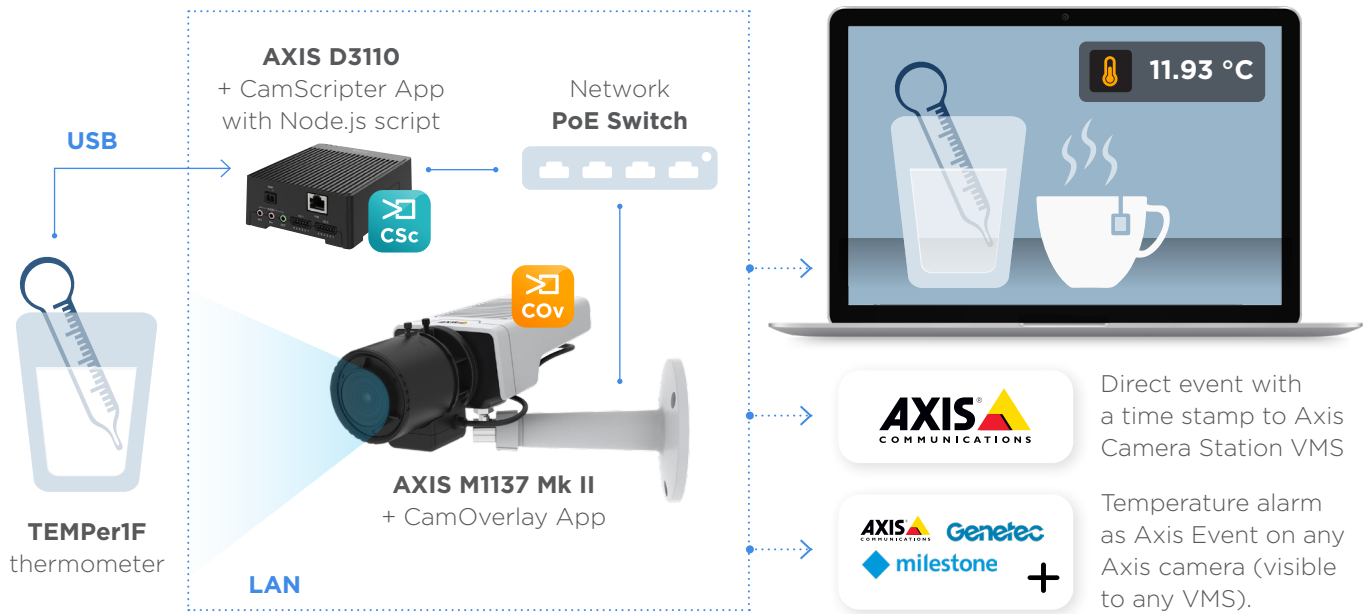

Play on YouTube
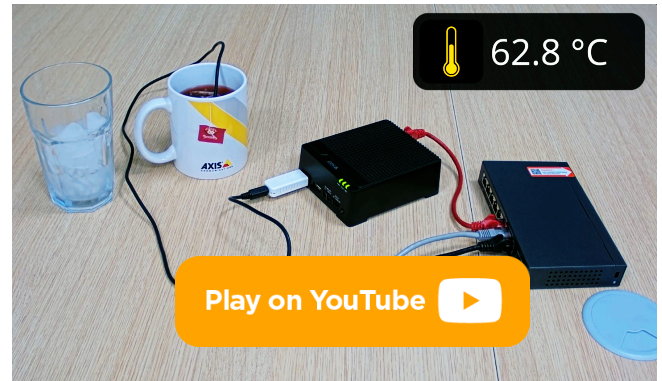
List of Supplies

Hardware:	Any compatible AXIS camera (for e.g., AXIS M1137 MkII)
	AXIS D3110 Connectivity Hub
	PCsensor USB thermometer with external temperature sensor
Software:	TEMPerf1 Sensor micro app
	CamOverlay App
	CamScripter App

AXIS Camera Station interface with list of events from the thermometer
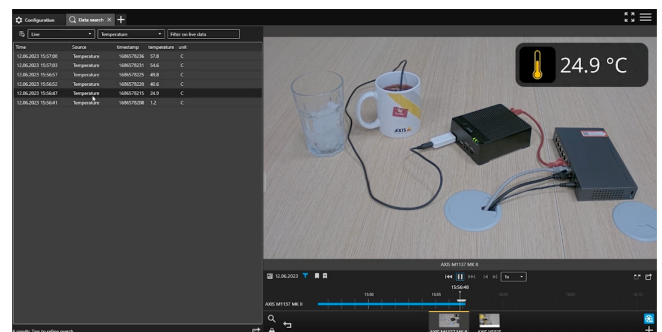
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AXIS D3110
+ CamScripter App
with Node.js script

Network
PoE Switch

USB

CSc

COv

TEMPer1F
thermometer

AXIS M1137 Mk II
+ CamOverlay App

LAN

11.93 °C

Direct event with
a time stamp to Axis
Camera Station VMS

Temperature alarm
as Axis Event on any
Axis camera (visible
to any VMS).

Result

The integration gives rise to the following functionalities:

1. **Live Video Output with Dynamic Graphic Overlay:** The integration allows live temperature data from the USB Thermometer to be displayed in the video stream via the CamOverlay App. This provides immediate visual insights and enhances environmental monitoring and control.

2. **Events in Video Management Systems:** With the versatility of the Axis Events engine, each temperature change detected by the USB Thermometer triggers a customized event within the VMS. This automatic event logging and organization facilitates effortless search, filtering, and access to relevant recordings.

By harnessing the integration capabilities of a USB Thermometer with an Axis Network Camera via the AXIS D3110 and CamStreamer apps, we can tap into the edge computing capabilities of Axis cameras, taking temperature monitoring to a new level of efficiency and intelligence.

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AXIS D3110 Connectivity Hub
- Enables sensor and audio integration into network video systems
- USB and RS485/RS422 serial ports
- Eight configurable I/Os, audio in/outs
- Allows you to integrate a broad range of non-visual sensors
- **MSRP $379**

PCsensor USB thermometer with external temperature sensor
- Measurement device using a USB port to connect
- External waterproof sensor
- Range of measuring: from −40ºC to +125ºC | from −104ºF to +257ºF
- **MSRP ca. $15**

Axis network camera
- Use any compatible camera from Axis Communications with ARTPEC-5/6/7/8 processor
- The Axis camera portfolio can be found att axis.com
- Don't forget to check the compatibility with CamStreamer apps
- **MSRP starts at $419**

CamStreamer apps
- CamScripter App allows to running of micro apps (Node.js script) inside the AXIS D3110 Connectivity Hub and fetch data from an external device (such as thermometers)
- The ready-made micro app (Node.js script) tailored for this specific USB thermometer is available for free – just download the micro-app from GitHub
- CamOverlay App is an in-camera app that generates dynamic graphic overlays and displays them directly in Axis camera's video stream – in this case, with real-time data from the thermometer
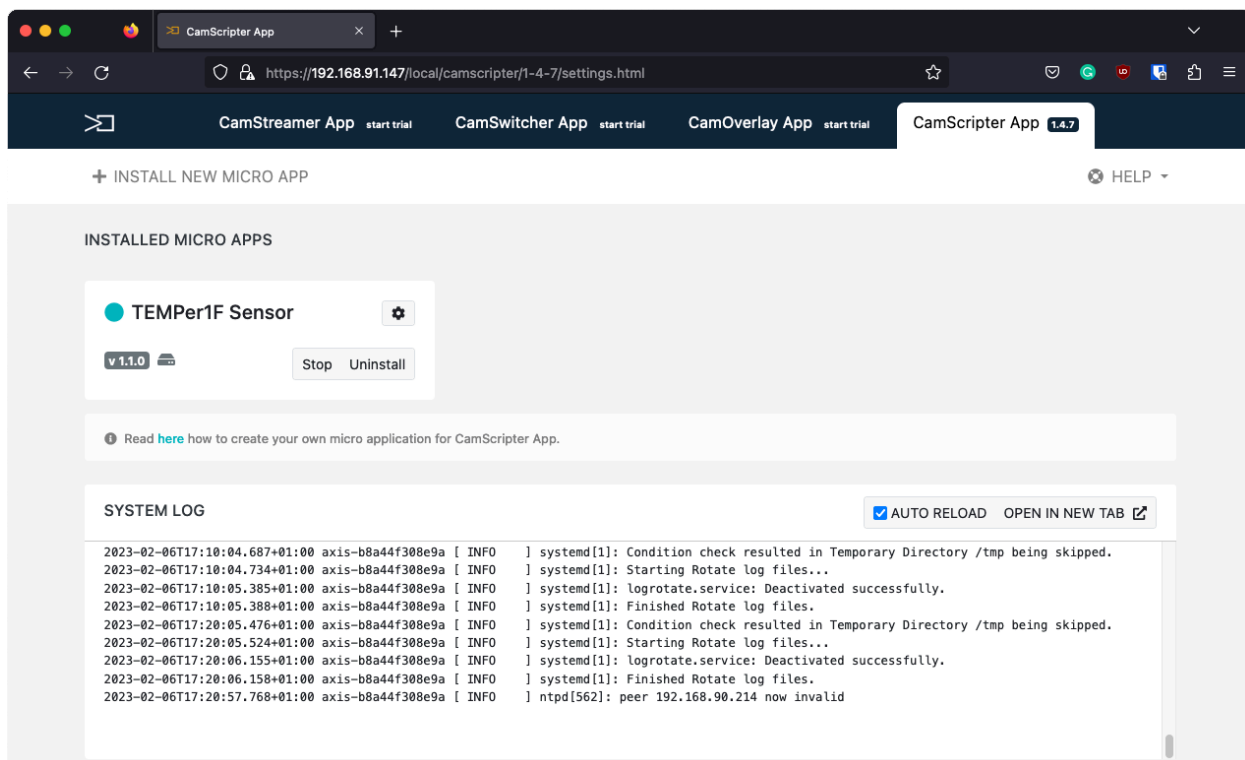- **MSRP $498**
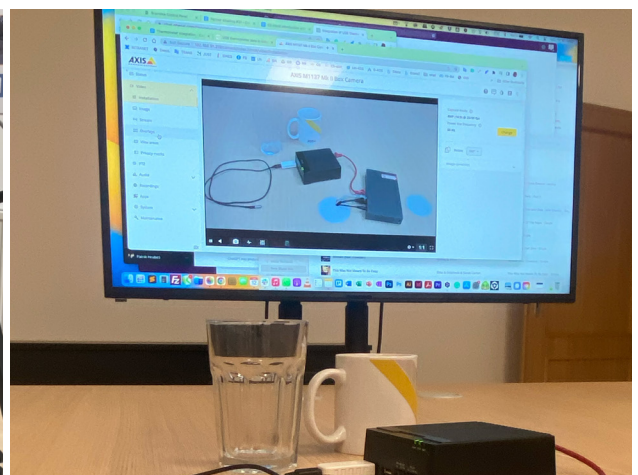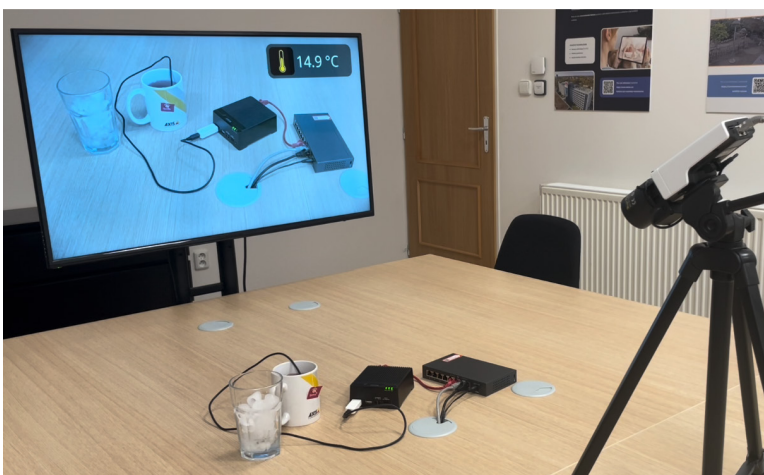
Continue to the next page for Setup Guide.

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Setup Guide

Below is the CamScripter App and micro app setup. If you would like help setting up Axis Camera Station VMS, here is the full article on that.

Open your internet browser and type in **the IP address** of your **AXIS D3110 Connectivity Hub** to open **CamScripter App UI**. If the Axis device is on HTTPS select the protocol HTTPS (insecure). The same applies for sending events to Axis Camera Station, which is always on HTTPS, but without registered and valid certificates you must use HTTPS (insecure).

Upload the TEMPer1f Sensor package (available for free on GitHub).

Click "**Start**" to launch the micro application.

To **set up the thermometer**, open **CamScripter App UI** in your browser and access the **TEMPer1f Sensor** via the **gear button** next to the installed **thermometer package**.
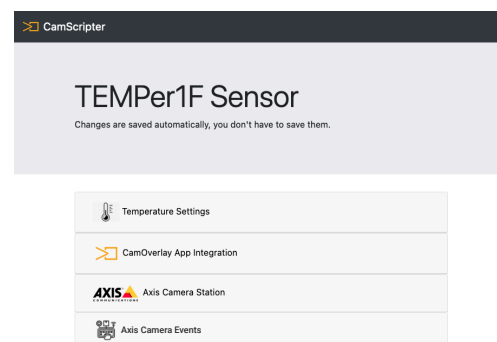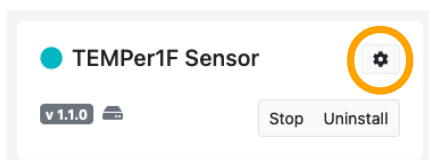
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Temperature Settings

Basic settings of USB thermometer – choose Celsius or Fahrenheit as a unit

CamOverlay App Integration

Set up a connection to an Axis network camera with CamOverlay App onboard – a graphic overlay with the real-time temperature will be displayed in the camera video

Axis Camera Station

Configure the connection to the computer on the network where the Axis Camera Station VMS is running, including when to send a timestamped event to the VMS.

Axis Camera Events

Axis event generation settings. If the event is to be generated directly on the D3110, then you can use the local host address 127.0.0.1, if the event is to be generated on another camera, then fill in the data for that camera. In this case though the CamScripter App must be installed on the camera as well. Plus, you are setting the logic of when to create the event. Then you can then trigger many actions based on the events in your VMS.

We will be happy to create **a custom-made micro-app** for you. Just contact us:
support@camstreamer.com

camstreamer.com/ resources/ integrations