Dallmeier

PANOMERA®

SYSTEM INTEGRATION

OPTIONS FOR IMPLEMENTATION IN THIRD-PARTY MANAGEMENT SYSTEMS

MADE IN GERMANY

See more.

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INTRODUCTION

1.1   SUMMARY

The patented Panomera® Multifocal Sensor System is a completely new type of camera technology that has been developed in particular for comprehensive video coverage of wide-ranging areas. Enorme expanses and areas are captured in a completely new resolution quality in real time.

The innovative combination of high-resolution sensors offers a guaranteed continuous, defined resolution and a continuous depth of field. Unlike single-sensor cameras, MFS technology works with multiple sensors, each with a different focal length. In this way, the Panomera® effect ensures that objects further away are also displayed with the same high resolution as objects in the front image area.

Various options are available for the integration and use of Panomera® Cameras also in 3rd party management systems or applications:

- Access to the Panomera® modules via RTSP/ONVIF
- Integration via the "API3" application interface with Panomera® Eco Mode
- Integration via SeMSy® Decoder Client Software with own workstation hardware
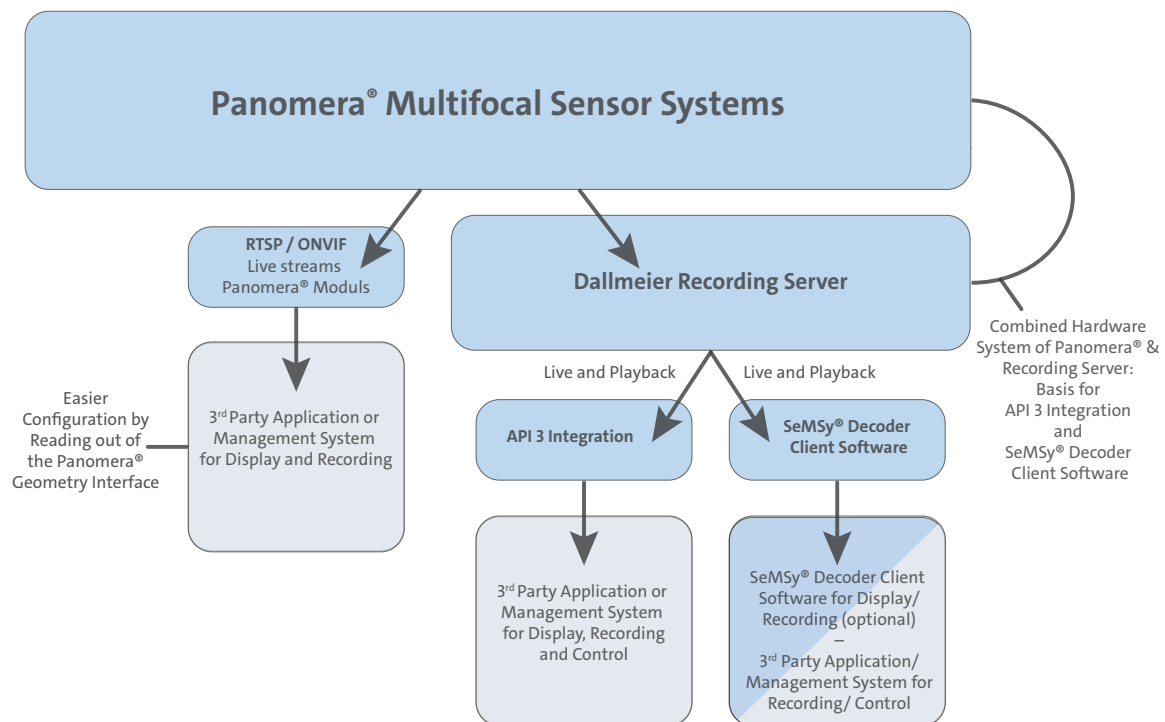
In some cases, the different solution approaches cannot use all Panomera® functions. However, the advantage of the Panomera® effect – a constant resolution grid over the entire object space – is always maintained. This Whitepaper gives an overview of the different integration options.

1.2   THIS DOCUMENT

This document contains detailed technical specifications, performance characteristics and features of the respective Panomera® integration.
The target audience of the document are system architects and managers.

1.3   REPRESENTATION CONVENTIONS

To improve the clarity and readability of this document, various text formatting and highlighting is used:

NOTICE
NOTICE indicates measures to avoid damage to property, incorrect configuration or incorrect operation.

Instructions for action are indicated by arrows (►).
► Always carry out instructions for action in the sequence described.

Bold and dark gray expressions usually refer to the name of an application, product, or function, or to a user interface control (button, check box, drop-down list, menu item, etc.).

(i) *Sections in italics provide information on basic principles, special features and efficient procedures as well as general recommendations.*

SYSTEM INTEGRATION

2.1   ONVIF/RTSP

It is possible to directly query the video streams of the individual modules of Panomera® Multifocal Sensor Systems and to integrate them into 3rd party video management systems in this way. The simple camera image of the modules can always be streamed via the RTSP protocol. In addition, Panomera® cameras also support video transmission and integration via the ONVIF standard. With these two options, all Dallmeier Panomera® Multifocal sensor systems can thus be integrated into video management software and the like that support ONVIF specifications for Profile M, S and T as well as RTSP.

The following functions and options are available:
- Video image transmission#
- Sharing of analysis data (VCA, AI)
- Management & Metadata
- H.264, H.265 support
- SNMP

The integration of Panomera® cameras into 3rd party management systems is done individually via own macros or plug-ins with access to the Panomera® Geometry Interface: The Geometry Interface provides 3rd party plug-ins or macros with the geometry information of the individual camera modules, which can be used for an easy integration into the own Video Management System (VMS).

Example 1:
Integration of Panomera® in Milestone XProtect via plug-in for automatic configuration of zones
For the integration of Panomera® cameras into Milestone XProtect[*] a plug-in is available. It uses the geometry interface of Panomera® to retrieve geometry information from the camera. This automatically configures zones in the XProtect system for easy operation within the Panomera® camera.

Example 2:
Integration of panomera® into Genetec Security Center via macro using the Visual tracking function
The "Visual Tracking" function allows easy navigation within the Panomera® camera. To facilitate configuration, the Panomera® provides a geometry interface. In the Genetec Security Center, the macro collects the camera's geometry information, allowing the zones to be automatically configured for the "Visual Tracking" function.

All examples shown above and further information on the integration of Dallmeier products into other video management systems can also be found under Integrations & Interfaces on www.dallmeier.com.

Note that certain Panomera® functions (automatic calibration, equalized display, etc.) cannot be used with these integration options. However, the basic Panomera® effect of guaranteed high resolution in a given area is always maintained.

2.2   API3/PANOMERA® ECO MODE

The **Panomera® Eco Mode** controls the transmission of two module streams (e.g. the overview and a detail module) of a Panomera® camera to 3rd party systems as an external service. In this case, the Dallmeier API3 (Application Programming Interface) is fully integrated into another video management system (VMS) and forms a common process with it. This option limits the transmission to two streams simultaneously, but does not require any additional hardware.

Features API3 Panomera® Eco Mode

- No special graphics cards required for display (only requirement: DirectX[*)] 11 support / NVIDIA[*)] GTX 1050 or better recommended)
- Reduced bandwidth usage conserves network resources (bandwidth limited to about 50 Mbit/s)
- Display of up to two Panomera® modules simultaneously
- Use of 3rd party hardware
- No special hardware required to render the current view
- Additional access to all Dallmeier recording systems and cameras
- Integration of program libraries (DLLs) in 3rd party VMS
- Programming/configuration via C interface

Functionality Panomera® Eco Mode
The Panomera® Eco Mode is explained in the following example. It shows the overview module **A** with activated grid and corresponding detail view **B** .
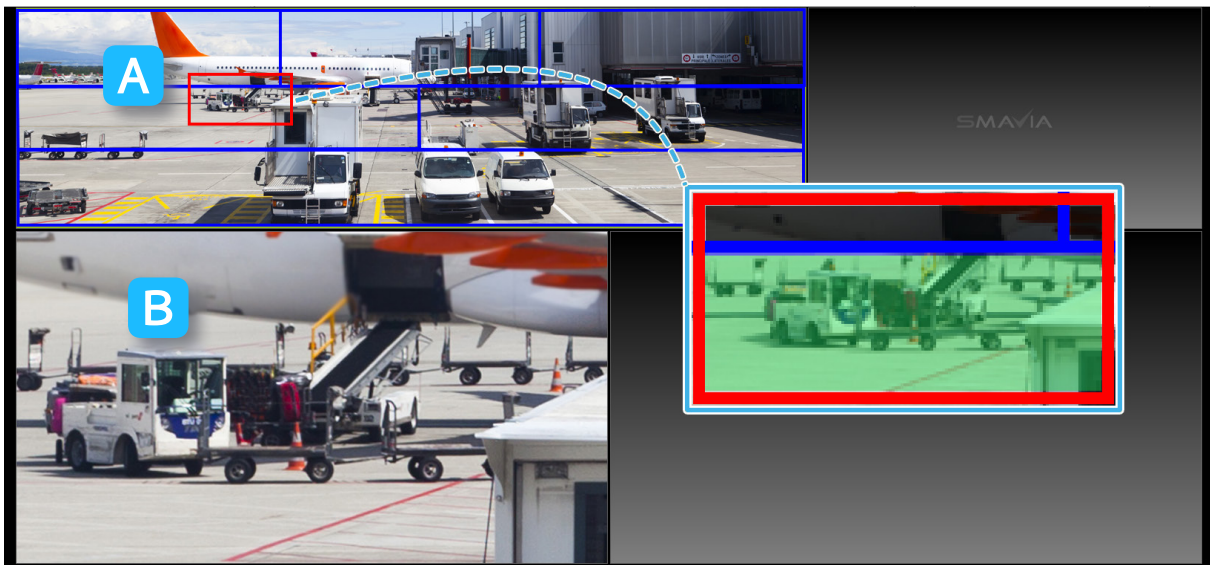
Fig. 1 Example of operation Panomera® Eco Mode

The selected zoom area (red rectangle) covers three detail modules (note the grid display of the individual modules). The detail module that has the highest area ratio in the selected zoom range (colored green) is always displayed at the highest resolution. The border areas of the other modules (grayed out) are displayed with the reduced resolution of the overview module.

As soon as the selected zoom area is moved and the area of another detail module dominates the zoom area, it is automatically displayed in the highest resolution.

In this way, the focused area can be evaluated in the highest Panomera® resolution and at the same time

the network and hardware load can be reduced to only two streams.

Further information and the Dallmeier programming tool API3 as download (including API3 documentation and source code for a sample integration under MS VisualStudio 2017) can also be found under Integratios & Interfaces on www.dallmeier.com.

2.3   SEMSY® DECODER CLIENT

The SeMSy® Decoder Client (SDC) software allows independent viewing of video streams from Panomera® systems. The software retrieves the video streams via unicast or multicast directly from the cameras or recording systems as a proxy. After decoding, the streams are output to the connected monitors in multi-split views.

Fig. 2 Example display SeMSy® Decoder Client

The SeMSy® Decoder Client software is installed and operated on a dedicated workstation. The number of decodable video streams depends only on the processing capacity of the workstation and the installed GPU. With the recommended Dallmeier workstations, sufficient performance is available for decoding up to 30 or 60 high-resolution streams, which can be output on up to two 4K monitors.

Control
The SDC is controlled from a 3rd party management system via XML commands that are triggered manually or based on alarm messages. In addition to information about the relevant camera, these commands also allow the direct display of the live image or the output of the corresponding recordings. After the execution of a command, the SeMSy® Decoder Client Software reports the status of the relevant display windows back to the management system.

Functions
SeMSy® Decoder Client Software supports a variety of functions (including Panomera® Detail Views) that are already known from the regular Dallmeier Clients Software. In addition, for example, the export of individual images or the recording of sequences are available. The corresponding developer documentation provides a complete overview of the available functions. Please note that individual functions may require a separate license.

Split Layouts

The SeMSy® Decoder Client allows the free and individual definition of the layout of the multi-split views for each monitor, based on the XML commands defined in the third-party system. In addition to classic views with 2×2 or 3×4 splits of the same size, views with splits of different sizes can also be defined. Dallmeier provides developer documentation for the creation of XML commands and also offers corresponding integration support as a service.

Compatibility

The SeMSy® Decoder Client Software is compatible with all Panomera® Multifocal Sensor Systems and Dallmeier recording systems of the SMAVIA Recording Server V8/V9 and SeMSy® Recording Server V10 series.

System Requirements

For decoding up to 30 video streams
(Dallmeier Workstation 3 Pro, variant 401, or comparable):

- CPU 8-Core 3.8 GHz
- RAM 16 GB
- SSD 256 GB
- 1× Nvidia[*] Quadro P2000
- 1× Nvidia[*] Quadro RTX4000
- Operating system Microsoft Windows[*] 10 Pro 64 Bit

For decoding up to 60 video streams
(Dallmeier Workstation 3, variant 413, or comparable:

- CPU 8-Core 3.8 GHz
- RAM 16 GB
- SSD 256 GB
- 2× Nvidia[*] GeForce RTX 3070
- Operating system Microsoft Windows 10 Pro 64 Bit

2.4   COMPARISON

The following table shows the features and functions of the options described as well as the functions of the Dallmeier video management solutions HEMISPHERE® SeMSy® and SeMSy® Compact. Please note that no statements can be made regarding RTSP/ONVIF: Information here depends solely on the performance and individual equipment of the respective customer system.

Function/Option	API3	SeMSy® Decoder Client	HEMISPHERE® SeMSy® & SeMSy® Compact
Panomera® Live/Playback	Eco Mode	All details (configurable)	All details (configurable)
PTZ	Complete	Complete	Complete
Record complete Panomera® backup	Yes	No (possible via API3)	Yes
Playback complete Panomera® backup	Yes (Eco Mode)	Yes (modules configurable)	Yes (modules configurable)
Snapshot	Yes	Yes	Yes
Streaming	No	No	No
Auto Tracking	No	No	Yes
Combined Panomera®	No	Yes (with license)	Yes (with license)
Local recording/ capture	Yes, with restrictions*	Yes, with restrictions*	Yes, with restrictions*
Additional client access (floating license)	1 per client	1 per client	HEMISPHERE® SeMSy®: included SeMSy® Compact: 1 per client
Dallmeier license dongle	No	Yes	No (Yes for advanced functions)
Automatic display of the camera in case of alarm event	No	No	Yes
Hardware requirements	Customer system (NVIDIA*) GTX 1050)	DLM Workstation	DLM Workstation
PictureInPicture	Yes	Yes	Yes
Interface	C interface	XML	GUI
Capture Split	Yes	Yes	Yes
Forward analytics data to 3rd party software	Yes	No	No
SmartFinder/Event search in playback	Yes	No	Yes
Bitrate to client	Rate depending on camera configuration	Rate depending on camera configuration	Rate depending on camera configuration
Independent client access live	Depending on the equipment of the customer client	Depending on the equipment of the customer client	Hardware dependent
Independent client access playback	Depending on recorder connections/licenses	Depending on recorder connections/licenses	Depending on recorder connections/licenses
DavidS	Yes	Yes	Yes
MonitorWall	Yes (with license)	Yes (with license)	Yes (with license)
Multi-Monitor Split	Yes	Yes (with license)	Yes (with license)
Flight/Infrastructure/ Weather	No	Yes (with license)	Yes (with license)

* Panomera®: Cuda encoder available = 2xH265, MPEG4; No Cuda encoder available = overview only, MPEG4; Single sensor camera = original stream