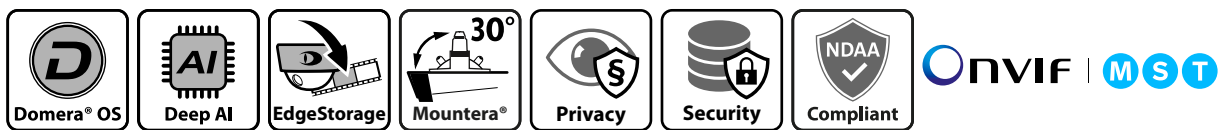


Panomera® S8 Ultraline Stadium Series

MK2

Multifocal Sensor System, 66 MP, 30 fps, H.265, day/night, UWDR, Deep AI object classification, EdgeAnalytics AI Apps, variable Mountera® mounting system



The various models of the Panomera® Ultraline Stadium series are designed for high-resolution capture of enormous areas that start at a large distance and are spatially rather wide and short. The innovative lens-sensor concept of the Panomera® allows the acquisition of the entire capture area with a consistently high pixel density and depth of field. This makes the models of the Panomera® Ultraline Stadium series ideal for video protection of tribunals or airfields, for example.

Resolution and frame rate

The sophisticated combination of the high-resolution sensors offers an excellent dynamic range of 130 dB UWDR effectively and model-dependent a pixel density of over 125 px/m up to a distance of 325 m. When focusing on more distant areas, a pixel density above 62 px/m can also be realized up to a distance of 656 m. The Panomera® always provides images with a resolution of 66 MP in real time, forensically optimized for each sensor and without distortion in the peripheral areas.

Domera® OS

The sensors of the Panomera® are equipped with the hardened Linux operating system Domera® OS (D-OS). In addition to a kernel with long-term support, it offers extensive security functions such as the deactivation of unused ports or the enforcement of strict passwords. In addition, Domera® OS supports secure network authentication (IEEE 802.1X) and encrypted data transmission (TLS 1.3/AES-256). All software components are subject to permanent monitoring, maintenance and updating, while the effectiveness of all measures is ensured by regular external penetration tests.

AI Analysis - Deep AI Object Classification

The Panomera® is equipped with an intensively trained neural network that analyzes the captured images in high resolution and independent of movements in the background (green spaces, water areas, etc.) and reliably classifies defined objects (persons, vehicles, etc.) in real time. The captured data is sent with the video stream to the Dallmeier recording system for evaluation and storage and is available for further processing with the integrated EdgeAnalytics Apps.

AI Analysis - EdgeAnalytics Apps

The embedded EdgeAnalytics AI apps use the raw data of the Deep AI Object Classification to assess the captured operations according to the specific criteria of various use cases. The Line Crossing App, for example, detects the crossing of a defined line by a relevant object (person, vehicle, etc.) and generates a corresponding message with time and direction of movement. The generated event messages and values complete the raw data already contained in the video stream and can be displayed and evaluated with a Dallmeier client software.

AI Analysis - Configuration

The embedded EdgeAnalytics AI apps are configured directly on the individual modules, with the analysis results being merged on the master module for transmission to the recording system. The master configuration will be integrated with one of the next updates of Domera® OS. This convenience feature allows cross-module configuration of the analyses on the master module and provides continuous object tracking across module boundaries.

Permanent capturing

The multifocal sensor system captures and stores all areas of the object space in maximum detail resolution. It does not matter whether the operators in live mode concentrate on a certain area (multiple detail zoom) or whether interesting areas are displayed in detail on the basis of video content analysis (multiple auto tracking). The Panomera® recordings always contain the entire action and allow for the evaluation of each incident.

Further features

- GDPR-compliant functions for data protection and security
- Compatible with ONVIF Profile M, Profile S and Profile T
- Weather-proof (IP69) housing with integrated heater
- Housing coating tested for seawater resistance
- Fully compatible with the Mountera® Quick-Lock System
- Network protocol MQTT supported

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Optional EdgeAnalytics AI Essential Apps



The **AI Motion Detection App** analyzes the entire image content and reliably detects all movements triggered by persons or vehicles. The motion events are sent to the recording system with the video stream. Afterwards, they are available with metadata such as object type, time and position for targeted evaluation with Dallmeier client software.



The **AI Tamper Detection App** is classically used for detecting and reporting attempted tampering with the camera. The app detects a general change in the captured scene, such as typically occurs when the camera is manually rotated or tilted, and immediately issues a corresponding message.



The **AI Loitering Detection App** analyzes the movement of persons detected by the neural networks and evaluates their dwell time in a defined sensitive zone. If the set limit value of the dwell time is exceeded, a corresponding message can be displayed to the operator. At the same time, undesired attendants can be requested to leave the area by outputting a stored audio sequence.



The **AI Intrusion Detection App** allows the definition of protected zones and issues a message as soon as an object intrudes into them. The object type relevant for the message can be defined as, for example, person or vehicle. For targeted operator attention, a pre-zone can be defined for each protected zone, which can be used to escalate the messages.



The **AI Line Crossing App** issues a message as soon as a person or vehicle crosses a virtual line drawn in the image. Uninteresting crossings of the virtual lines, for example by animals, can be effectively excluded. An operator is thus less distracted and can concentrate much better on relevant observations.



The **AI Vehicle Parking App** enables the definition of several zones in which vehicles may not be parked for a longer period of time. The permitted parking time can be set globally for all zones between 5 and 3600 seconds. If this time is exceeded, a corresponding message is sent to the client indicating that the vehicle has been parked incorrectly.

Optional EdgeAnalytics AI Apps



The optional **AI High Resolution Counting App** and the underlying AI High Resolution Counting neural network were developed for the direct counting of people and vehicles in large crowds (up to 4000 people or vehicles). Typical use cases include counting people in airport waiting areas or counting vehicles in large parking lots.



The optional **AI Perimeter App** allows the definition of particularly protected areas (sterile zone) and issues an alarm message as soon as an object intrudes them. In conjunction with the neural network specially trained for perimeter protection, even attacks by well-prepared groups of perpetrators who use unusual forms of movement or camouflage clothing can be reliably alerted. The included **AI Extended Tamper Detection App** is used for detecting and reporting attempted tampering with the camera.

Panomera® S8 Ultraline Stadium Series

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Multifocal Sensor System, 66 MP, 30 fps, H.265, day/night, UWDR, Deep AI object classification, EdgeAnalytics AI Apps, variable Mountera® mounting system

Panomera® S8 66/13 Ultraline Stadium



008819

Panomera® S8 66/13

Multifocal sensor system, 66 MP, 30 fps, H.265, day, UWDR, Deep AI object classification, EdgeAnalytics AI Apps, field of view horizontal 13°, resolution 125 px/m up to 325 m, Mountera® mounting system, 1000BASE-T Ethernet port for copper cabling

Panomera® S8 66/20 DN Ultraline Stadium



008820

Panomera® S8 66/20 DN

Multifocal sensor system, 66 MP, 30 fps, H.265, day/night, UWDR, Deep AI object classification, EdgeAnalytics AI Apps, field of view horizontal 20°, resolution 125 px/m up to 211 m, Mountera® mounting system, 1000BASE-T Ethernet port for copper cabling

Panomera® S8 66/29 DN Ultraline Stadium



008821

Panomera® S8 66/29 DN

Multifocal sensor system, 66 MP, 30 fps, H.265, day/night, UWDR, Deep AI object classification, EdgeAnalytics AI Apps, field of view horizontal 29°, resolution 125 px/m up to 146 m, Mountera® mounting system, 1000BASE-T Ethernet port for copper cabling

Panomera® S8 66/30 DN Ultraline Stadium



008822

Panomera® S8 66/30 DN

Multifocal sensor system, 66 MP, 30 fps, H.265, day/night, UWDR, Deep AI object classification, EdgeAnalytics AI Apps, field of view horizontal 30°, resolution 125 px/m up to 211 m, Mountera® mounting system, 1000BASE-T Ethernet port for copper cabling

Panomera® S8 66/41 DN Ultraline Stadium



008823

Panomera® S8 66/41 DN

Multifocal sensor system, 66 MP, 30 fps, H.265, day/night, UWDR, Deep AI object classification, EdgeAnalytics AI Apps, field of view horizontal 41°, resolution 125 px/m up to 103 m, Mountera® mounting system, 1000BASE-T Ethernet port for copper cabling

Panomera® S8 66/45 DN Ultraline Stadium



008824

Panomera® S8 66/45 DN

Multifocal sensor system, 66 MP, 30 fps, H.265, day/night, UWDR, Deep AI object classification, EdgeAnalytics AI Apps, field of view horizontal 45°, resolution 125 px/m up to 140 m, Mountera® mounting system, 1000BASE-T Ethernet port for copper cabling

Panomera® S8 66/61 DN Ultraline Stadium



008825

Panomera® S8 66/61 DN

Multifocal sensor system, 66 MP, 30 fps, H.265, day/night, UWDR, Deep AI object classification, EdgeAnalytics AI Apps, field of view horizontal 61°, resolution 125 px/m up to 102 m, Mountera® mounting system, 1000BASE-T Ethernet port for copper cabling

Panomera® S8 Ultraline Stadium Series

MK2

Multifocal Sensor System, 66 MP, 30 fps, H.265, day/night, UWDR, Deep AI object classification, EdgeAnalytics AI Apps, variable Mountera® mounting system

Accessories		
	007054	Mountera® Box with PSU Mountera® Box with power supply unit, 48 V DC, 5.4 A, 260 W, IP69, white
	009446	Mountera® Box with SRS Edge Mountera Box® with SeMSy® Recording Server, recording of up to 16x video streams (1x included), total bit rate up to 140 Mbps, fanless, energy efficient, power supply unit 48 V DC, 5.4 A, 260 W included, IP69, white, without SSD memory module ¹⁾
	006979	Mountera® Wall Bracket Mountera® bracket for the installation of camera systems on walls or on a Mountera® Box, Quick-Lock System included, robust aluminium construction, internal cable routing, vandal-resistant, powder-coated, white
	006980	Mountera® Ceiling Bracket Mountera® bracket for installation of camera systems on ceilings, Quick-Lock System included, robust aluminium construction, internal cable routing, vandal-resistant, powder-coated, white
Sunshield		
	009252	Panomera® Sunshield Sunshield for Panomera® S 4 and S8 models with Mountera® housing, aluminium, white with black front panel
Cable Set		
	007428	Mountera® Cable Set C Preassembled cable set for the connection of a camera system to a Mountera® Box, 1x cable seal, 1x cable power supply/grounding, 1x cable network (copper RJ45), each with matching plug, UV-resistant and flexible, length 80 cm

1) The M.2 SSD memory module is installed at the factory and must be ordered with the appliance. Subsequent installation or replacement is not possible.

Panomera® S8 Ultraline Stadium Series



Multifocal Sensor System, 66 MP, 30 fps, H.265, day/night, UWDR, Deep AI object classification, EdgeAnalytics AI Apps, variable Mountera® mounting system

Included Support and License Interval

Panomera® S/W 8 Support and License Interval Basic

License for the use of the support services of the Support Level Basic for 60 months,
license for the update of Domera® OS with updates, upgrades and security updates²⁾ for 60 months,
license for the update of neural networks for object classification for 60 months,
test function of the EdgeAnalytics AI Apps (Essentials) with object classification with a runtime of 30 days,
unlimited license for the use of the VCA function,
bring-in warranty for 24 months

Optional Support and License Interval

009219 AI Panomera® S/W 8 Support and License Interval Premium and Warranty (Total of 60 Months)

License for the use of the support services of the Support Level Premium for 60 months,
unlimited license for the use of EdgeAnalytics AI Apps (Essentials) with object classification,
extension of bring-in warranty to a total of 60 months
(ex factory only)

Optional Maintenance (after the included 60 months)

008790 Panomera® S/W 8 Software Maintenance (Plus 12 Months)

License for the update of Domera® OS with updates, upgrades and security updates²⁾ for 12 months,
license for the update of neural networks for object classification for 12 months.

Optional Warranty

008791 Panomera® S/W 8 Hardware Warranty (Total of 60 Months)

Extension of bring-in warranty to a total of 60 months

Optional Licenses

008792 DLC - S/W 8 Panomera® EdgeAnalytics AI Apps (Essentials)

License for the use of EdgeAnalytics AI Essential Apps (AI Motion Detection, AI Tamper Detection, AI Loitering Detection, AI Intrusion Detection, AI Line Crossing, AI Vehicle Parking) based on the neural network for object classification (person, animal, car, large vehicle, two-wheeler)

009295 DLC - Panomera® S/W 8 AI High Resolution Counting App

License for the use of the EdgeAnalytics AI High Resolution Counting App for the definition of counting zones and fill level reports. License for the use of the AI High Resolution Counting neural network for object classification of persons and vehicles in the entire captured image at higher resolution and adjustable count rate on a Panomera® S/W 8 camera.

009337 DLC - Panomera® S8 AI Perimeter App Package

License for the use of the neural network AI Perimeter for the object classification of persons (also with unusual posture, movement type and clothing), cars, large vehicles and two-wheelers. License for the use of the EdgeAnalytics AI Perimeter App with protected areas, pre-zones and escalation of messages based on object classification. License for the use of the EdgeAnalytics AI Extended Tamper App with advanced tamper detection based on changes of the captured scene.

²⁾ Security updates for relevant CVE vulnerabilities that become known will be provided (subject to technical feasibility) for the entire runtime of the software maintenance.

Panomera® S8 Ultraline Stadium Series



Multifocal Sensor System, 66 MP, 30 fps, H.265, day/night, UWDR, Deep AI object classification, EdgeAnalytics AI Apps, variable Mountera® mounting system

Sensor System	
Type of sensors	CMOS
Number of sensors	8
Number of sensor pixels	96 MP
Light sensitivity	<0,05lux
Dynamic range (UWDR)	130 dB (effective)

Resolution	S8 66/13	S8 66/20 DN	S8 66/29 DN	S8 66/30 DN	S8 66/41 DN	S8 66/45 DN	S8 66/61 DN
Resolution	66 MP	66 MP	66 MP	66 MP	66 MP	66 MP	66 MP
Identification distance (≥250 px/m)	162 m	105 m	73 m	105 m	51 m	70 m	51 m
Recognition distance (≥125 px/m)	325 m	211 m	146 m	211 m	103 m	140 m	102 m
Observation distance (≥62 px/m)	656 m	427 m	294 m	426 m	209 m	293 m	206 m

Field of View & Aspect Ratio	S8 66/13	S8 66/20 DN	S8 66/29 DN	S8 66/30 DN	S8 66/41 DN	S8 66/45 DN	S8 66/61 DN
Horizontal field of view	13.1°	20.2°	29.3°	30.0°	41.2°	45.0°	61.6°
Vertical field of view	7.9°	12.1°	17.4°	7.8°	24.5°	11.7°	16.0°
Aspect ratio (H:V)	5:3	5:3	5:3	4:1	5:3	4:1	4:1

Format and Encoding	
Video compression	H.264, H.265, MJPEG
Frame rate	Up to 30 fps at full resolution
Live streaming	Multicast or Unicast (for Viewing Client) Unicast (for recording)

Network and Recording	
Required network bandwidth	128 Mbps ³⁾ (nominal, for recording)
Recommended network bandwidth	1,000 Mbps

Functions	
Operating system	Domera® OS
Secure Boot	Supported (activation optional) ⁴⁾
Day/Night switching	Ambient light sensing and removable IR cut filter (ICR)
Black-and-white mode	Automatic (at low light or in night mode)
Digital noise reduction	3D-DNR
Brightness control	Automatic (ALC)
Gain control	Automatic (AGC)
White balance	Automatic (AWB)
Privacy Zone Masking	Hiding/masking of up to 16 protected areas per sensor (up to 100% of the entire image)
Video Content Analysis (VCA)	VCA Motion Detection, VCA Tamper Detection, VCA Intrusion Detection, VCA Line Crossing
EdgeAnalytics AI Apps (Essentials) ⁵⁾	AI Motion Detection, AI Tamper Detection, AI Loitering Detection, AI Intrusion Detection, AI Line Crossing, AI Vehicle Parking
EdgeAnalytics Object Classes ⁵⁾	Person, animal, car, large vehicle, two-wheeler
EdgeAnalytics Actions	Notification via DaVid/PGuard, switching of network relays, message via MQTT/HTTP

Protocols	
Ethernet protocols	IPv4 (ARP, ICMP, IGMPv2/IGMPv3), UDP, TCP, LLDP, CDP (v1,v2), DSCP (QoS), DNS, NTP, HTTP/HTTPS, RTSP/RTP/RTCP, SNMP (v1, v2c, v3), MQTT
Ethernet protocols in preparation	IPv6 (NDP, ICMPv6, MLDv1/MLDv2, SLAAC, RDNSS), UDPv6, TCPv6, DNSv6, LDAP
Communication protocols	DaVid, DaVidS, ONVIF Profile M, ONVIF Profile S, ONVIF Profile T, SNMP (v1, v2c, v3)
Security	HTTPS encryption, SSL/TLS 1.2, 1.3 (AES), network access control according to IEEE 802.1X

3) This value is based on the encoding of each sensor with 16 Mbps and the use of the recording system as a proxy for the live view.

4) Once Secure Boot has been activated, it is no longer possible to downgrade to an older version of the operating system that does not support Secure Boot.

5) Optional license DLC - Panomera® S/W 8 EdgeAnalytics AI Apps (Essentials) or AI Panomera® S/W 8 Support and License Interval Premium required.

Panomera® S8 Ultraline Stadium Series

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Multifocal Sensor System, 66 MP, 30 fps, H.265, day/night, UWDR, Deep AI object classification, EdgeAnalytics AI Apps, variable Mountera® mounting system

Connections	
Ethernet 1	Telegärtner STX V4 socket with STX RJ45 coupling Cat.6 for 1000BASE-T (1,000 Mbps)
Ethernet 2	Telegärtner STX V4 socket with STX RJ45 coupling Cat.6 for 1000BASE-T, PoE+ Out, 30 W, IEEE 802.at (100 Mbps, service port)
Power IN	HARTING connector (5-pole)
Electrical Data	
Voltage supply	Camera: 48 V DC ±5% Heater: 48 V DC ±5%
Power consumption	Camera: Max. 100 W ⁶⁾ Heater: Max. 60 W
Mechanical Data	
Dimensions (W × H × D)	Approx. 348 × 183 × 441 mm (13.7" × 7.2" × 17.4")
Weight	Approx. 17.5 kg (38.6 lb)
Material	Aluminium
Processing	Chromated
Finish	Powder coating, tested for seawater resistance according to DIN EN 60068-2
Color	Signal white (RAL 9003 ⁷⁾), housing Signal black (RAL 9004 ⁷⁾), front frame
Adjustment	Stepless alignment on 3-axes, vertical up to ±30°, horizontal up to ±15° (Mountera® Ball Joint 30° 3D Adjustable)
IP rating	IP69
Environmental Conditions	
Installation sites	Indoor and outdoor
Operating temperature	−40 °C to +60 °C (installation with Panomera® Sunshield recommended)
Minimum start-up temperature	> −30 °C
Heater On	< +10 °C
Heater Off	> +10 °C
Relative humidity	0%–90% RH, non-condensing
Miscellaneous	
Security module	Integrated (fTPM)
Ambient light sensor	Integrated
Removable IR-cut filter	Integrated
Local memory	50 MB RAM memory per sensor
Configuration and live video	Via web browser (all major platforms), Dallmeier Device Manager (with Panomera® AutoCalibration add-on)
Languages	German, English,
Programming interface	Open platform for integration into 3rd party systems using API
ONVIF compliance	Profile M, Profile S, Profile T
GDPR compliance	Supported
NDAA compliance	Supported
Approvals/Certifications	
Type	CE, FCC, RCM, UL, EN 60950-22 compliant (outdoor parts)

6) Maximum power consumption camera 70 W, in connection with PoE+ Out (Ethernet 2) maximum 100 W.
7) The color of the powder coating may differ slightly from the RAL color indicated. This is due to production and does not constitute a defect.

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