Panomera® S8 Topline Series

MK2

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

ONVIF | M S T

178 MP$_e$	115 MP$_e$	87 MP$_e$	43 MP$_e$							
163 m >125 px/m	**124 m** >125 px/m	**81 m** >125 px/m	**55 m** >125 px/m							
Recognition Distance	Recognition Distance	Recognition Distance	Recognition Distance	**30 FPS**	**Domera® OS**	**Deep AI**	**EdgeStorage**	**15° Mountera®**	**Privacy**	**Security**
S8 178/22	S8 115/30	S8 87/45	S8 43/90							

The patented Panomera® Multifocal Sensor System is a completely new camera technology particularly developed for the extensive video surveillance of large scale areas. Enormous expanses and areas are captured in a completely new resolution quality in real time. This results in significantly lower infrastructure requirements. Where previously several megapixel cameras would have been necessary, a single Panomera® Multifocal Sensor System is now sufficient.

Panomera® effect

The sophisticated combination of the high-resolution sensors of Panomera® S8 Topline offers an excellent dynamic range of 130 dB UWDR effectively and results in an extreme Panomera® effect. It offers a resolution of more than 125 px/m up to a distance of 163, 124, 81 or 55 m, which enables the recognition of persons over the entire distance. The identification of persons (250 px/m) is supported up to a distance of 54 m depending on the model.

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 1.2/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[1]. 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

1) Expected to be available from 03/2023

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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.

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Panomera® S8 178/22 DN Topline		
	008785	**Panomera® S8 178/22 DN** Multifocal sensor system, 178 MPe, 30 fps, H.265, day/night, UWDR, Deep AI object classification, EdgeAnalytics AI Apps, field of view horizontal 22°, resolution 125 px/m up to 163 m, Mountera® mounting concept, 1000BASE-T Ethernet port for copper cabling

Panomera® S8 115/30 DN Topline		
	008786	**Panomera® S8 115/30 DN** Multifocal sensor system, 115 MPe, 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 124 m, Mountera® mounting concept, 1000BASE-T Ethernet port for copper cabling

Panomera® S8 87/45 DN Topline		
	008787	**Panomera® S8 87/45 DN** Multifocal sensor system, 87 MPe, 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 81 m, Mountera® mounting concept, 1000BASE-T Ethernet port for copper cabling

Panomera®S8 43/90 DN Topline		
	008788	**Panomera® S8 43/90 DN** Multifocal sensor system, 43 MPe, 30 fps, H.265, day/night, UWDR, Deep AI object classification, EdgeAnalytics AI Apps,, field of view horizontal 90°, resolution 125 px/m up to 55 m, Mountera® mounting concept, 1000BASE-T Ethernet port for copper cabling

Accessories		
	007054	**Mountera® Box with PSU** Mountera® Box with power supply unit, 48 V DC, 5.4 A, 260 W, IP69, white
	006978	**Mountera® Box with SRS Edge** Mountera® Box with Dallmeier Appliance for recording up to 16 video streams, license for the recording of a Dallmeier network camera or a Panomera® system included, licenses for access from 2 clients included, power supply unit 48 V DC, 5.4 A, 260 W included, IP69, white, without SSD memory module
	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

Cable Set		
	007428	**Mountera® Cable Set C** Preassembled cable set for the connection of a camera system to a Mountera® Box, 1× cable seal, 1× cable power supply/grounding, 1× cable network (copper RJ45), each with matching plug, UV-resistant and flexible, length 80 cm

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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 updates[2] for 12 months,
license for the update of neural networks for object classification for 12 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

008789   **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,
license for the update of Domera® OS with updates, upgrades and security updates[2] for 60 months,
license for the update of neural networks for object classification 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

008790   **Panomera® S/W 8 Software Maintenance (Plus 12 Months)**
License for the update of Domera® OS with updates, upgrades and security updates[2] 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 Analytic

008792   **DLC - S/W 8 Panomera® EdgeAnalytics AI Apps (Essentials)**
Perpetual license for the use of EdgeAnalytics AI Apps (Essentials) with object classification
(AI Motion Detection, AI Tamper Detection, AI Loitering Detection, AI Intrusion Detection, AI Line Crossing)

[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.

Dallmeier

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Sensor System	
Number of sensors	8
Number of sensor pixels	51 MP
Light sensitivity	0,01 lux
Dynamic range (UWDR)	130 dB (effective)

Resolution	Panomera® S8 178/22	Panomera® S8 115/30	Panomera® S8 87/45	Panomera® S8 43/90
Effective resolution (MPe)[3]	178 MP	115 MP	87 MP	43 MP
Identification distance (≥250 px/m)	Up to 54 m	Up to 41 m	Up to 26 m	Up to 20 m
Recognition distance (≥125 px/m)	Up to 163 m	Up to 124 m	Up to 81 m	Up to 55 m
Observation distance (≥62 px/m)	Up to 329 m	Up to 250 m	Up to 165 m	Up to 110 m

Installation Height	Panomera® S8 178/22	Panomera® S8 115/30	Panomera® S8 87/45	Panomera® S8 43/90
Recommended	5 m	5 m	5 m	5 m
Permissible	4.5 - 9.5 m	4.5 - 10 m	4.5 - 9 m	4.5 - 10 m
Tilt toward the ground	15°	15°	15°	10°
Transition distance[4]	85 m	69 m	42 m	32 m

Field of View & Aspect Ratio	Panomera® S8 178/22	Panomera® S8 115/30	Panomera® S8 87/45	Panomera® S8 43/90
Horizontal field of view	22°	30°	45°	90°
Vertical field of view	62°	52°	60°	33°
Aspect ratio (H:V)	3:8	3:5	3:4	11:4

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	48 Mbps[5] (nominal, for recording)
Recommended network bandwidth	1,000 Mbps

Functions	
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)[6]	AI Motion Detection, AI Tamper Detection, AI Loitering Detection, AI Intrusion Detection, AI Line Crossing
EdgeAnalytics Object Classes[6]	Person, animal, car, large vehicle, two-wheeler
EdgeAnalytics Actions	Notification via DaVid/PGuard, switching of network relays, message via MQTT/HTTP

3) Effective resolution MPe: A conventional single sensor camera would have to be equipped with up to 178 megapixels image sensor in order to provide the same resolution across the entire object space as these Panomera® systems.
4) Transition distance: Orientation point on the floor as a setting aid for optimum camera inclination. See the document Installation Requirements.
5) This value is based on the encoding of each sensor with 6 Mbps and the use of the recording system as a proxy for the live view.
6) Optional license DLC - Panomera® S/W 8 EdgeAnalytics AI Apps (Essentials) or AI Panomera® S/W 8 Support and License Interval Premium required.

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Protocols	
Ethernet protocols	IPv4 (ARP, ICMP, IGMPv2/IGMPv3), UDP, TCP, LLDP, CDP (v1,v2), DSCP (QoS), DNS, DHCP, NTP, HTTP/HTTPS[7], RTSP/RTP/RTCP, SNMP (v1, v2c, v3)
Ethernet protocols in preparation	IPv6 (NDP, ICMPv6, MLDv1/MLDv2, SLAAC, RDNSS), UDPv6, TCPv6, DNSv6, DHCPv6, LDAP
Communication protocols	DaVid, DaVidS, ONVIF Profile M, ONVIF Profile S, ONVIF Profile T, SNMP (v1, v2c, v3)
Security	HTTPS[7] encryption, SSL/TLS[7] 1.2 (AES), network access control according to IEEE 802.1X[7]

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[8] 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[9]), housing Signal black (RAL 9004[9]), front frame
Adjustment	Stepless alignment on 3-axes, vertical up to ±15°, horizontal up to ±7°
IP rating	IP69

Environmental Conditions	
Installation sites	Indoor and outdoor
Operating temperature	−40 °C to +60 °C (minimum start-up temperature: −30 °C) Heater On: < +10 °C Heater Off: > +10 °C
Relative humidity	0% – 90% RH, non-condensing

Miscellaneous	
Ambient light sensor	Integrated
Removable IR-cut filter	Integrated
Local memory	50 MB RAM memory per sensor
Configuration and live video	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

Approvals/Certifications	
Type	CE, FCC, RCM, UL, EN 60950-22 compliant (outdoor parts)

7) This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit (http://www.openssl.org) and cryptographic software written by Eric Young (eay@cryptsoft.com).
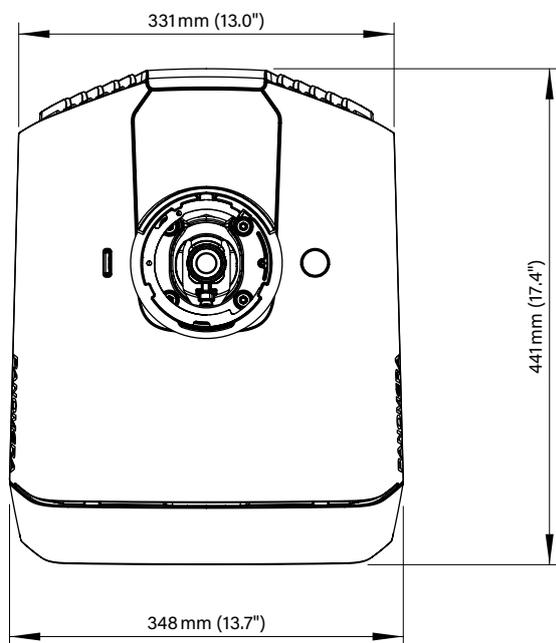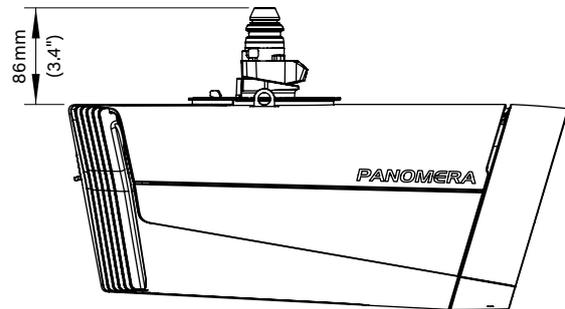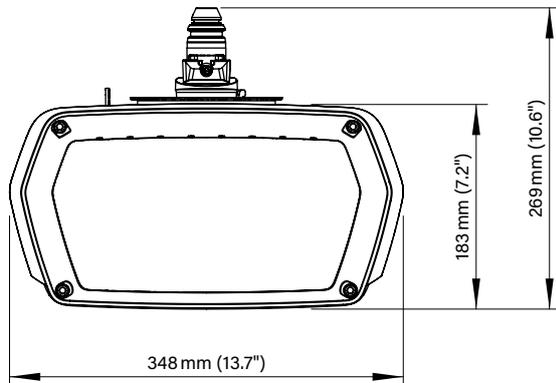8) Maximum power consumption camera 70 W, in connection with PoE+ Out (Ethernet 2) maximum 100 W.
9) The color of the powder coating may differ slightly from the RAL color indicated. This is due to production and does not constitute a defect.

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269 mm (10.6")
183 mm (7.2")
348 mm (13.7")
86 mm (3.4")
PANOMERA

331 mm (13.0")
441 mm (17.4")
348 mm (13.7")

See more.

Dallmeier

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MADE IN GERMANY