



**PANOMERA®**



**SERIES**

**THIRD GENERATION  
MULTIFOCAL SENSOR TECHNOLOGY**

 **MADE IN GERMANY**



DATA AND IMAGES MERGE

# VIDEO INFORMATION TECHNOLOGY FOR THE 21<sup>ST</sup> CENTURY

Customers today are moving away from "cost factor video technology" towards systems that create added value and help to achieve objectives. In essence, this trend represents the merging of image capture and analysis.

## DIFFERENT FROM ALL THE OTHERS

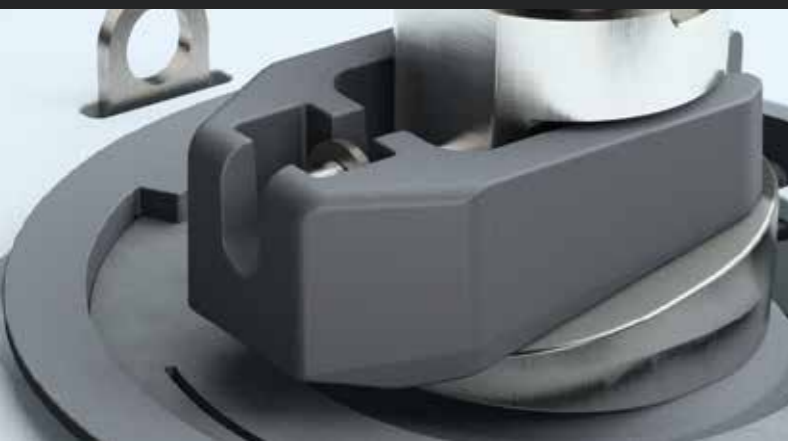
Unlike all other camera technologies, the patented Panomera® technology combines multiple lenses and sensors with different focal lengths in one optical unit. Accordingly, the Panomera® cameras with "multifocal sensor technology" also capture image regions in the background and middle distance with the same high resolution as scenes in the foreground. With extraordinary advantages for video observation, video surveillance and video analysis.

## OVERVIEW, CONTROL AND DATA QUALITY

Thus, Panomera® enables precisely plannable image quality for video analysis – creating the foundation for true video information technology.

When used for video surveillance, Panomera® delivers substantially better optical control and helps handle even the most complex situations with many simultaneous detail views. At the same time, the number of systems and infrastructure components is reduced by a factor of 10 up to 24.

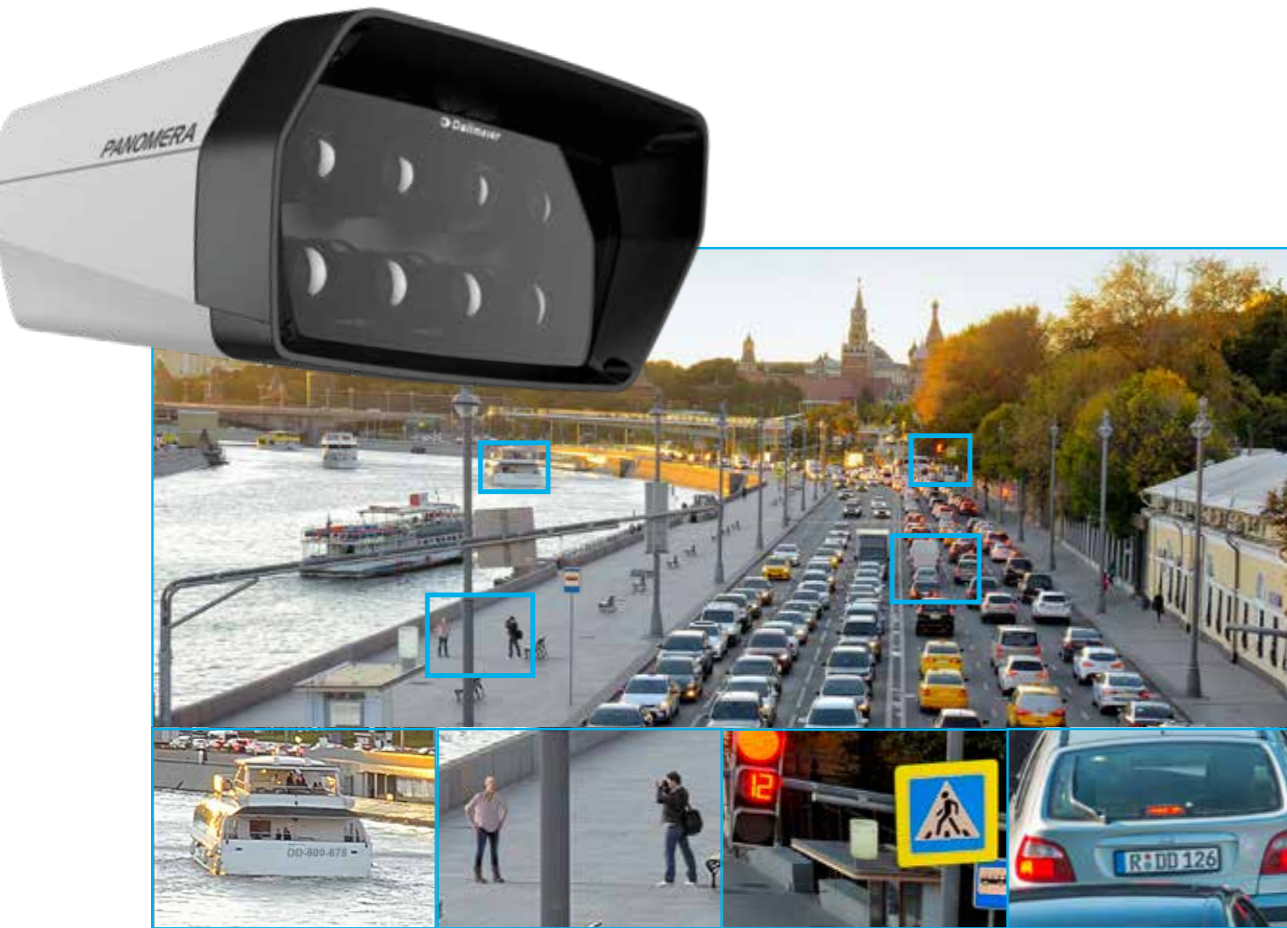
With totally new features in optical and functional design, the revolutionary approach by the Panomera® S-Series is evident on every level. Prepare for something special!



THE PANOMERA® S-SERIES

# EVERYTHING IN FOCUS. EVERYWHERE. ALL THE TIME.

Panomera® works like a virtual combination of any number of PTZ cameras and multiple megapixel cameras. This enables users to capture large expanses or long distances with a fraction of the cameras that are normally needed – and maximum fun factor in terms of operability. The result is advantages for everyone concerned – from the planner and installer to the system operator and on to the security manager and the commercial decision makers!



**24 x**  
fewer camera systems

**90 %**  
less infrastructure

**3,000 M<sup>2</sup>**  
per camera with video surveillance at  
> 250 px/m (Identify)

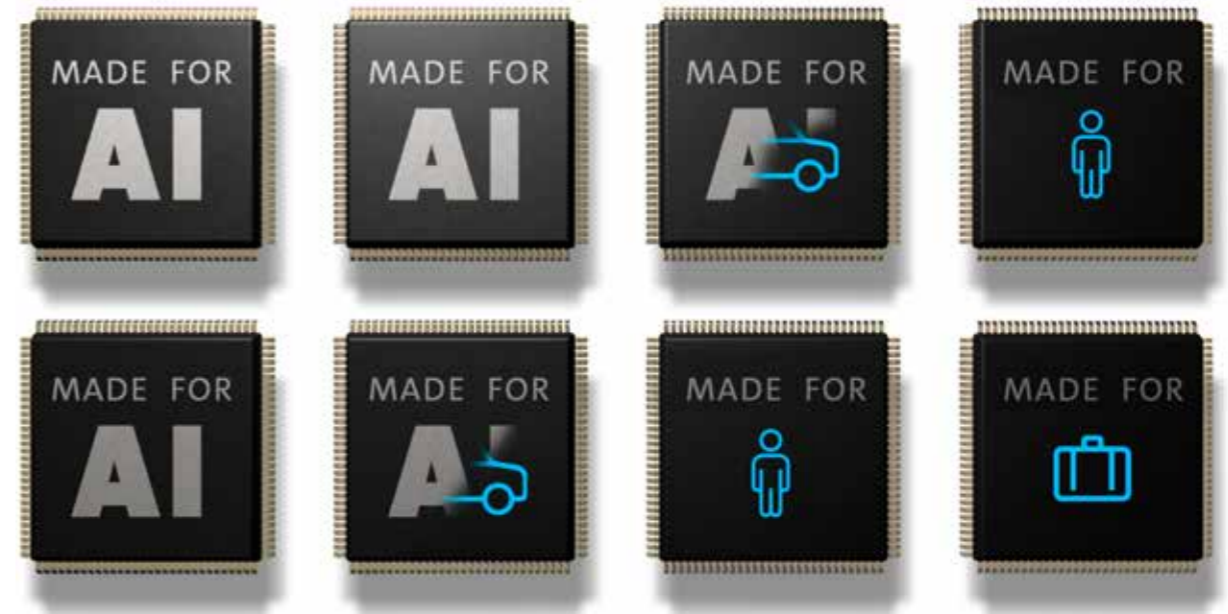
**12,000 M<sup>2</sup>**  
per camera with video surveillance at  
> 125 px/m (Recognise)

THE PANOMERA® S-SERIES

# VIDEO ANALYSIS COMES OF AGE

Especially when it comes to video analysis, the strengths of the Panomera® are on full display: The image quality, and hence the data quality can be planned precisely for the respective analysis requirement and, very important, a consistent minimum quality can be guaranteed over the entire area. Moreover, users can capture data in an enormous expanse with just a single camera. Consequently, Panomera® enables precise analysis of even extremely complex and large spatial contexts.

**8** X AI POWER



**70 TOPS**  
combined AI Power

**24 x**  
more analysis space

**100 %**  
plannable data quality

**51,000 M<sup>2</sup>**  
per camera with video analysis at  
> 62.5 px/m



DESIGN ADDS VALUE

# HIGHTECH AND DESIGN

## UNEXPLORED DESIGN TERRITORY IN THE B2B SECTOR

Once again, Dallmeier leads the way: For the first time in the history of Business-to-Business (B2B) video technology, a design language has been applied uniformly for all camera types and installation elements – with the Panomera® S-Series as the "flagship".

## DYNAMIC AND MODEST

The dynamic appearance and high-quality look and feel underscore the significance of particularly demanding environments. The thoroughly-considered design enables useful functions – from passive cooling to wear-free glass cleaning.

## DESIGN REDUCES COSTS

The MOUNTERA® mounting concept reduces costs and labour when implementing and installing the systems. The high quality of the materials protects investments for the long term. And the multifocal sensor technology ensures that users need far fewer systems than with conventional approaches.

## ACHIEVING GOALS INTELLIGENTLY

Whether for traditional optical surveillance or the latest video analysis applications: With the multifocal sensor technology users can achieve their objectives much more efficiently – from better security to optimised business processes.





# THE SMALLEST DETAILS CONSIDERED



## QUICK LOCK-SYSTEM

The idea: Unpack, mount and connect with just a few deft hand movements.

The solution: **MOUNTERA**®. The innovative one-man mounting system with integrated carrying handle and only one Allen key size saves time and money – and it's even fun!

## TEMPERATURE-RESISTANT

An optimised heat and thermal management system prevents interference by condensation.

The intelligent design means that auxiliary heating is not needed for much of the time.

## HIGH-QUALITY MATERIALS

Only high-quality materials are used for the Panomera® S-Series, such as chromated, powder-coated solid aluminium or premium silicone for seals.

## SABOTAGE-PROOF CABLING

For sabotage-proof mounting, the cables are routed entirely inside the housing. The screw fittings are invisible from the outside.



## COOLING AND DESIGN

The specially designed cooling fins ensure optimal heat dissipation and blend elegantly with any surroundings. The double-wall housing induces forced convection and enables the camera to be operated at temperatures up to 60° Celsius without the need for additional cooling.

## PROTECTED AGAINST HIGH PRESSURE WATER JETS AND SALT WATER

The IP66 protection rating means that the systems can also be used in adverse conditions such as jet or salt water.

## H.265

Besides H.264 and MJPEG, the models of the Panomera® S-Series also support the H.265 compression method. This reduces the data rate required by up to 50%.



Besides the ONVIF profile S, the models of the Panomera® S-Series also support the ONVIF profile T. This enables easy integration in the Video Management Systems (VMS) of other manufacturers.



DESIGNED AND DEVELOPED

## FOR MANY YEARS TO COME

The development and manufacture of Panomera® is carried out entirely at our company headquarters in Regensburg (Germany). This means we have complete control of the entire supply and development chain, and we can guarantee the highest standards in cybersecurity and data protection.

We use only high-quality components and materials. Besides promoting upgradability of the systems and outstanding energy efficiency, this also ensures that they can be operated economically and sustainably, well beyond the normal usage cycles.

USER-CENTRIC PRODUCT DESIGN

# CUTTING COSTS BEGINS WITH UNPACKING

Handling the components during installation represents a significant cost factor. This is why the thoroughly thought-out MOUNTERA® mounting system makes installation considerably easier.

## MOUNTERA®

Ceiling mount bracket



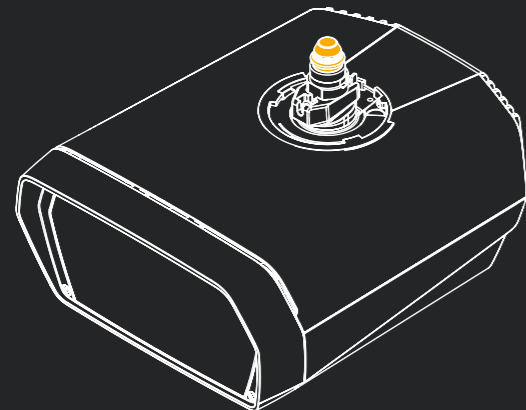
Ceiling mount bracket with MOUNTERA® Box



Wall mount bracket



Wall mount bracket with MOUNTERA® Box



### ONE FOR ALL

Coordinated components enable easy and simple installation at any mounting site

- MOUNTERA® ceiling mount / wall mount bracket with internal cable routing
- MOUNTERA® connection technology

- MOUNTERA® Box for wiring and connectors
- Optional MOUNTERA® "SRS Edge Storage" for remote recording and cybersecurity
- Box PSU (with 48 V DC power supply, 100 W, protection rating IP66; secured access, protected from jet and salt water)

### ONE-MAN INSTALLATION

The one-man installation system enables fast, secure mounting of the camera by just one person. The "gimbal" is available in various offset degrees.

The system also makes it possible for cameras to be used by turns at different sites (e.g. for urban surveillance).

### SMART PACKAGING

The system can be unpacked quickly with the special single-use handle already pre-mounted on the camera. The foam transport protection remains on the camera and protects it when it is carried around and set down.



Watch Video Clip (1:15)



PERFECTLY THOUGHT OUT

# SMART FUNCTIONS

## APPLIED PHYSICS

The housing of the Panomera® S-Series is designed with a double wall. This induces forced air convection, thus enabling it to be used without additional cooling up to a temperature range of 60° Celsius.

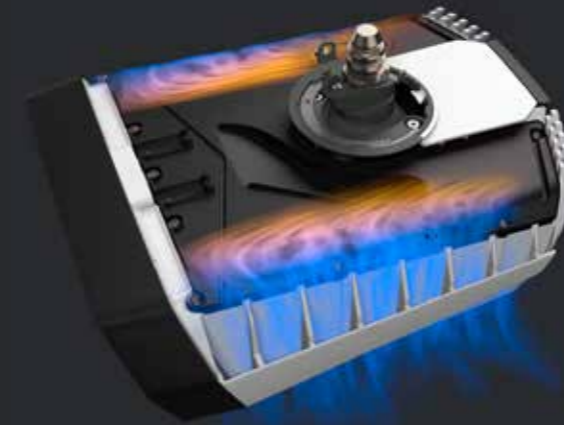
At low temperatures, a heater module ensures that the system is able to continue functioning.



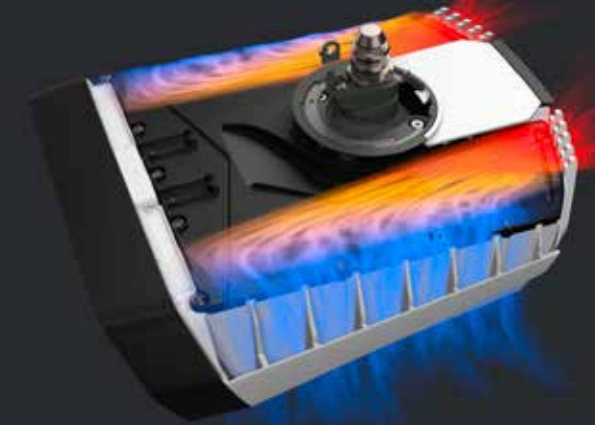
Watch  
Video Clip (0:37)



If the camera housing starts to heat up, ...



... cool air generated by the forced convection flows continuously through the double wall housing.



## CLEANING WITHOUT CONTACT

The Panomera® Air Blast System revolutionises maintenance and cleaning.

The system enables gentle, contactless cleaning with a concentrated blast of air. Wear by high-maintenance glass wipers or similar solutions no longer happens.



Watch  
Video Clip (1:00)



If the front glass gets dirty ...



... the Air Blast System promptly delivers a concentrated blast of air for clear vision.



## MAKING PRIVACY VISIBLE

As a German manufacturer, we take everything to do with data protection very seriously. With the Panomera® Privacy Shield, authorities such as the police can deactivate image capture temporarily by remote control and at low cost.

Thus, participants in peaceful demonstrations for example can see clearly that they are not being recorded, and their personal rights are respected.



Watch  
Video Clip (0:39)



In sensitive situations ...



... with the remote controlled Privacy Shield, users can temporarily deactivate surveillance – clearly visible from any distance.





## QUALITY

# MADE IN GERMANY MADE BY DALLMEIER

## YOUR "SINGLE SOURCE OF TRUST" – SO YOU CAN SLEEP SOUNDLY

Dallmeier is the only manufacturer of video security technology with over 90 % value creation in Germany – from cameras, recording and software to intelligent video analysis up to individually customised management systems.

## QUALITY

- Components "Made in Germany" with the highest quality standard
- ISO-certified software solutions
- High degree of vertical integration in research, development and production

## DATA PROTECTION AND CYBERSECURITY

- Sophisticated functions for data protection (e.g., GDPR) and data security
- "Privacy & Security by Design"
- External, independent penetration and security tests

## CUSTOMER PROXIMITY

- Individual adaptation of solutions with local partners
- Integrated portfolio of camera technology, recording and software
- Fast, direct line to the manufacturer

## TRANSPARENCY

- Transparency of source codes for code inspection etc.
- Political and economic independence
- Conduct your own manufacturer check:  
Visit us at our site in Regensburg (Germany)!



More than 35 years of technology leadership

 **MADE IN GERMANY**



Watch Video Clip  
(1:43)



MULTIFOCAL SENSOR TECHNOLOGY


# HIGHEST DETAIL QUALITY AT ANY DISTANCE

The patented Panomera® multifocal sensor system stands alone because of its completely unique lens and sensor concept: Images are never delivered with less than the defined resolution, even in the more remote areas of the image.

Thus, the Panomera® effect guarantees a consistent resolution raster over the entire object space. Because the Panomera® effect begins where 4K and other megapixel cameras reach the limits of their capabilities.

DETECT	OBSERVE	RECOGNISE	IDENTIFY
			
25 px/m	62.5 px/m	125 px/m	250 px/m


RECOGNISE



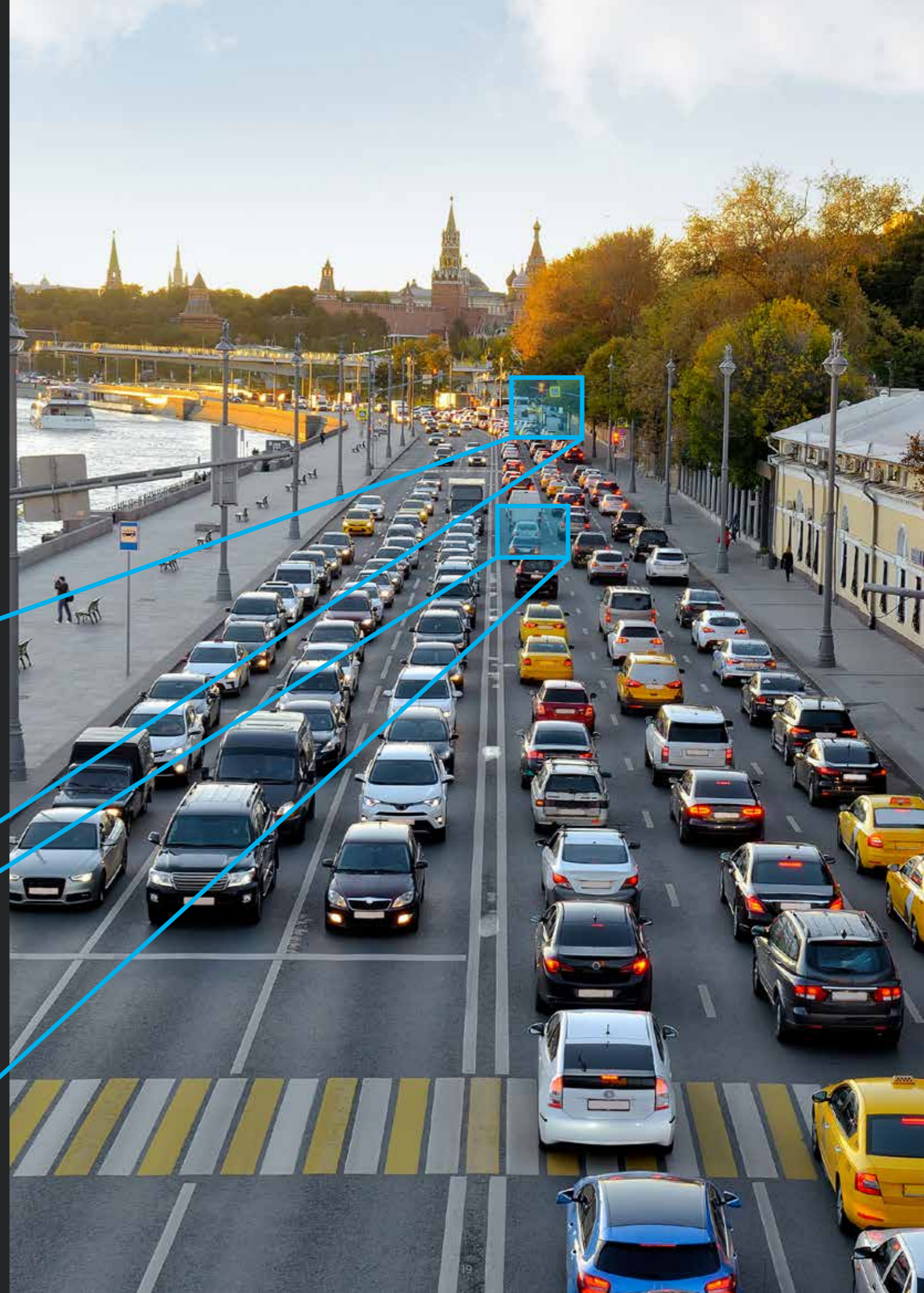
125 px/m



IDENTIFY



250 px/m





## MULTIFOCAL SENSOR TECHNOLOGY

# A BROADER VIEW, LOWER COSTS, AND UNLIMITED "VIRTUAL PTZs"

With Panomera®, the images from up to seven detail sensors and one overview sensor are intelligently stitched within a camera system to produce one overall vision of the object space. The operator can now open and organise all "submodules", drag and drop, zoom into any number of areas within the submodules simultaneously.

## THE BEST OF TWO WORLDS

At the same time, the high-resolution image of the overall scene is always maintained. The benefit equals to the combination of a powerful megapixel camera with any number of high-resolution virtual PTZs.



## Back in time with the virtual PTZ

This eliminates complicated, confusing switching between camera perspectives and the unnecessary search for maps of buildings and surroundings. The number of cameras needed and the number of screens that you have to observe are reduced drastically.

## SITUATIONAL AWARENESS AND FORENSICS

All submodules are recorded in high resolution. The zooms are carried in extremely high resolution, allowing the operator to receive details of the entire image. This feature is not possible with conventional solutions, and it is beneficial when dealing with complex situations, for example, or for ensuring successful forensic analysis.



MULTIFOCAL SENSOR TECHNOLOGY

# PRECISION FOR OVERVIEW AND ANALYSIS

## WHAT DOES "MULTIFOCAL" MEAN?

Unlike single sensor cameras, MFS technology combines multiple sensors ("multisensor") with lenses with different focal lengths (multifocal).

This enables users to cover enormous areas with a fraction of the camera systems, in extraordinary detail, and most importantly with complete plannability.

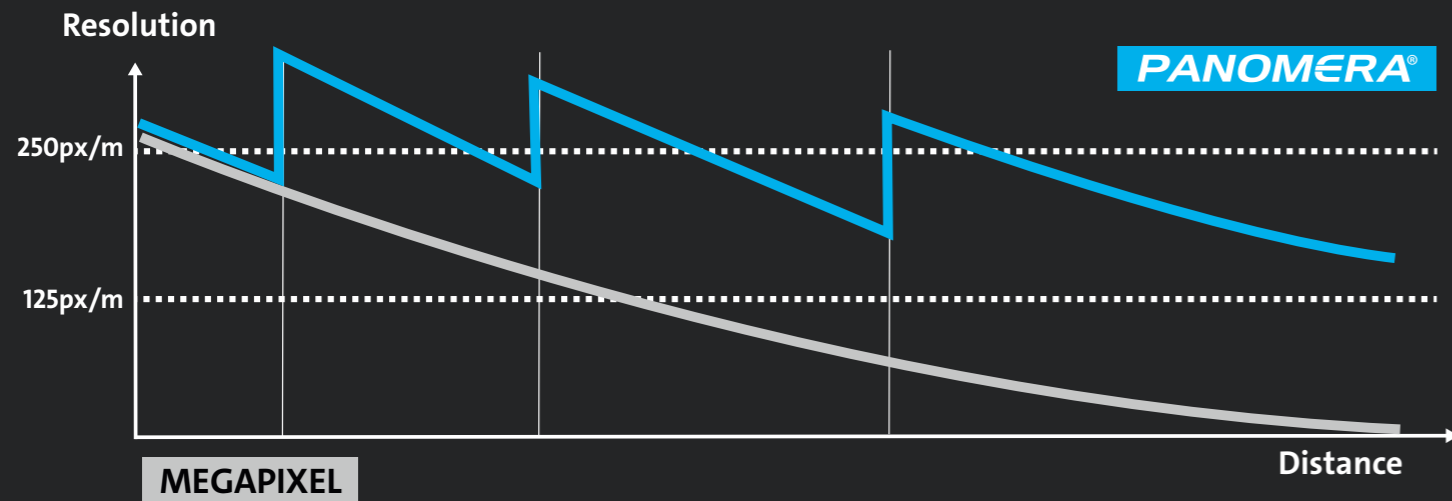
Movements of objects can also be tracked over long distances and areas with no interruptions in coverage or changes of camera.

The data quality for analysis applications can be defined precisely over the entire range of coverage.

- Use of lenses with different focal lengths
- "Tiering" of the scene
- Highly dynamic
- Consistent depth of focus
- Optimum focal length for each part of the covered area
- Constant resolution grid over the entire object space



Watch Video Clip (0:58)



ACHIEVE YOUR GOALS RELIABLY

# DATA QUALITY "BY DESIGN"

## COHERENT OPTICAL CONTEXT AND PERFECT DATA ANALYSIS

Different deployment scenarios call for different resolutions over the area to be captured. A critical question is the required pixel density in pixel per metre (px/m) for a given scenario:

- Is it enough to capture and observe events?
- Should it be possible to recognise known persons?
- Or should it be possible to identify unknown persons as well, possibly in a way that is court-proof?
- Is video analysis part of the solution?

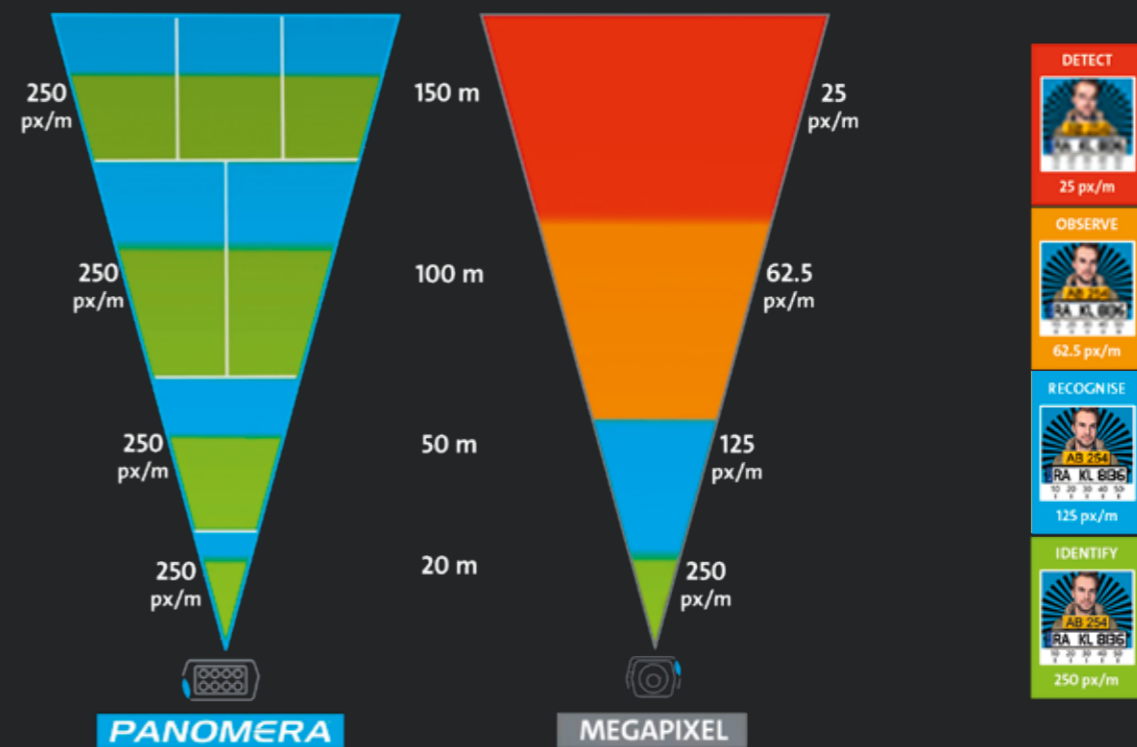
## DIN EN 62676-4

The standard DIN EN 62676-4 defines the required pixel densities depending on the application.

To recognise known persons or offenders, e.g., 125 px/m are needed, to identify unknown persons, 250 px/m.

For analysing and differentiating between objects at least 62.5 px/m are needed, depending on the size of the objects.

The Panomera® technology provides the minimum value needed for the respective application over a significantly larger area than traditional solutions.





## QUALITY IN FROM CAMERA...

### RELIABLE DATA QUALITY FOR AI AND ANALYSIS

The world of video technology is on the brink of a quantum leap: The image itself is becoming less and less important. At the same time more and more users are realising how much added value is contained in the analysis of the data the video technology has captured.

But neural networks for classifying objects or processes can only deliver what is "supplied" by the quality of the video image that is fed in.

For this reason, Panomera® technology guarantees consistently high data quality over the entire spatial context. This is the only way to obtain best possible, precisely plannable analysis results.

### RECORD. EVALUATE. SUPPORT.

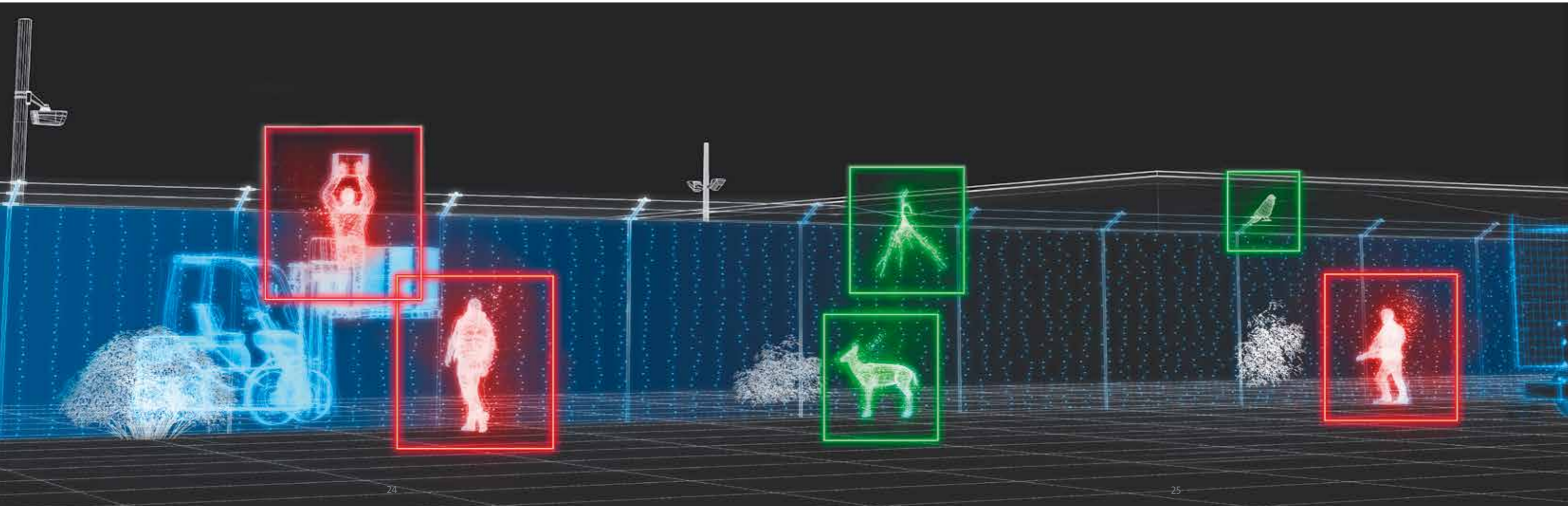
The current state of the analysis technology art is still some way from fully autonomous systems.

But many analysis functions already exist which support the humans behind the applications very efficiently, providing significant customer benefits.

## QUALITY OUT ... TO "OPTICAL DATA SENSOR"



One of many examples of modern video analysis: AI-based object classification only forwards those alarms which really require human verification.





VIDEO ANALYSIS PORTFOLIO

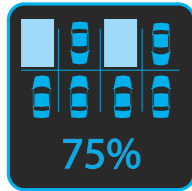
# SEDOR® AI APPS



### AI VEHICLE COUNT APP

The SEDOR® AI Vehicle Count App allows large scenes to be divided into different zones and cyclically determines the number of objects.

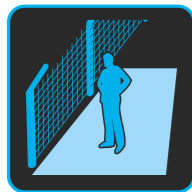
After an accurate object classification based on a neural network, the number of existing vehicles is promptly output.



### AI PARKING APP

The SEDOR® AI Parking App has been developed especially for the effective evaluation of parking situations. It recognises, verifies and counts vehicles in the defined parking zones and cyclically outputs the occupancy rate based on a defined limit.

This enables an operator to obtain a quick overview of the parking space occupancy at any time.



### AI LOITERING APP

The SEDOR® AI Loitering App is optimised for the recognition of persons and evaluates their dwell time in a defined sensitive zone. If the set limit value of the dwell time is exceeded, the observation is verified by the neural network.

On this basis, a message is then sent to the operator, whose attention is thus directed to the suspicious behavior of the person.



### AI PEOPLE COUNT APP

The SEDOR® AI People Count App analyses the entire image content in a defined cycle and determines the number of people present in defined areas.

Based on this, irrelevant objects are effectively filtered out by object classification based on a neural network in order to achieve the most accurate counting result possible.



### AI INTRUDING APP

The SEDOR® AI Intruding App allows the definition of protected zones and issues a message as soon as an object enters them.

The object type relevant for the message can be defined as a person or vehicle, for example using the neural network to verify the classification. In order to direct the attention of the operators, a pre-zone can be defined for each protected zone allowing an escalation of the messages up to an alarm.



### AI QUEUEING APP

The SEDOR® AI Queueing App is used to display the fill level in defined zones. The relevant zone and a limit for the number of people present is defined during configuration.

After a cyclical analysis with AI object classification, the utilisation is immediately displayed and a message is issued if the limit is exceeded. This allows the initiation of specific measures to avoid overcrowding situations, but also undesirable states such as long queues.



### AI CROSSING APP

The SEDOR® AI Crossing App issues a message as soon as a person or vehicle crosses a virtual line drawn in the image. The app verifies possible relevant events with a powerful object classification based on neural networks.

This allows uninteresting crossings of virtual lines, for example by animals, to be effectively ruled out. An operator is thus less distracted and can concentrate much better on relevant observations.

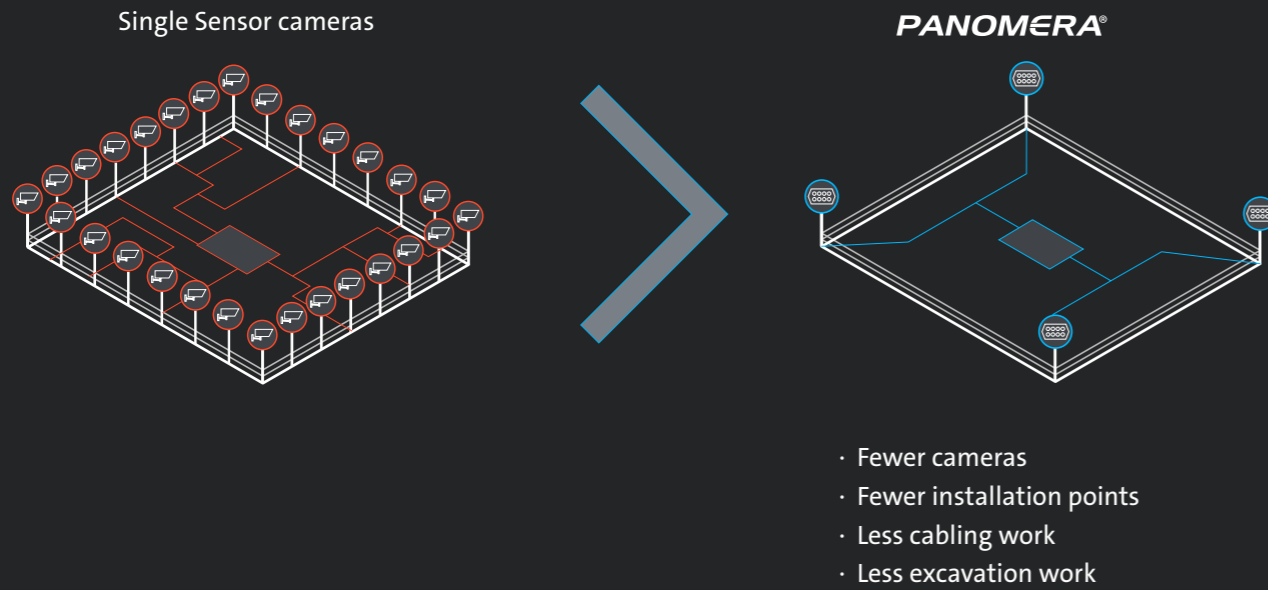




LESS IS MORE

# SAVINGS AT EVERY LEVEL

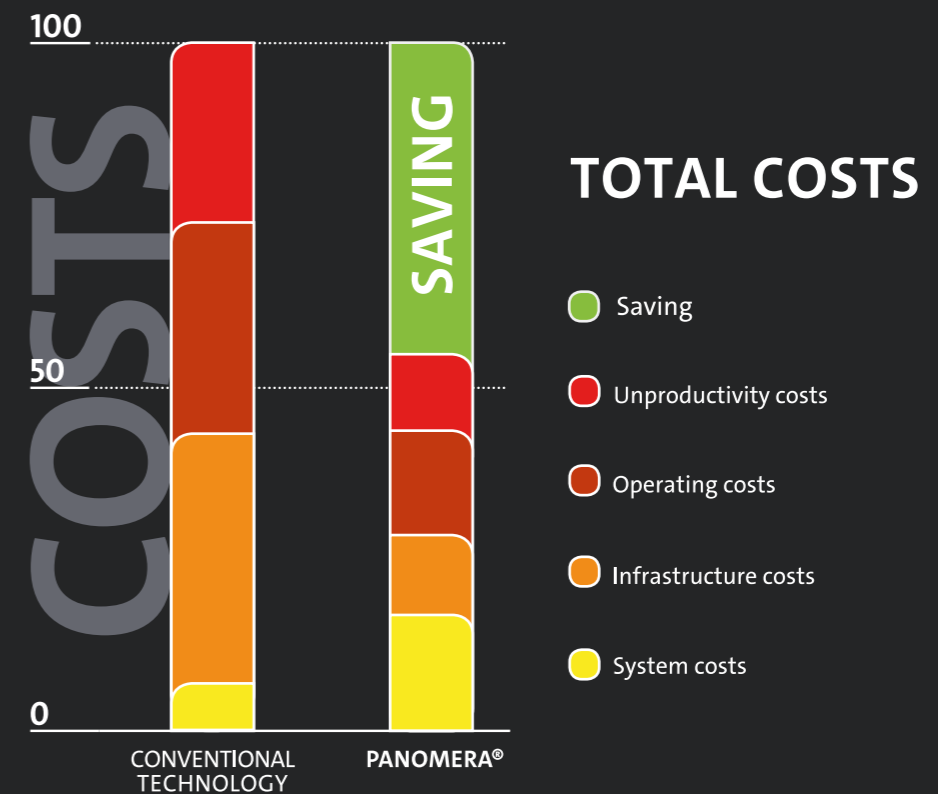
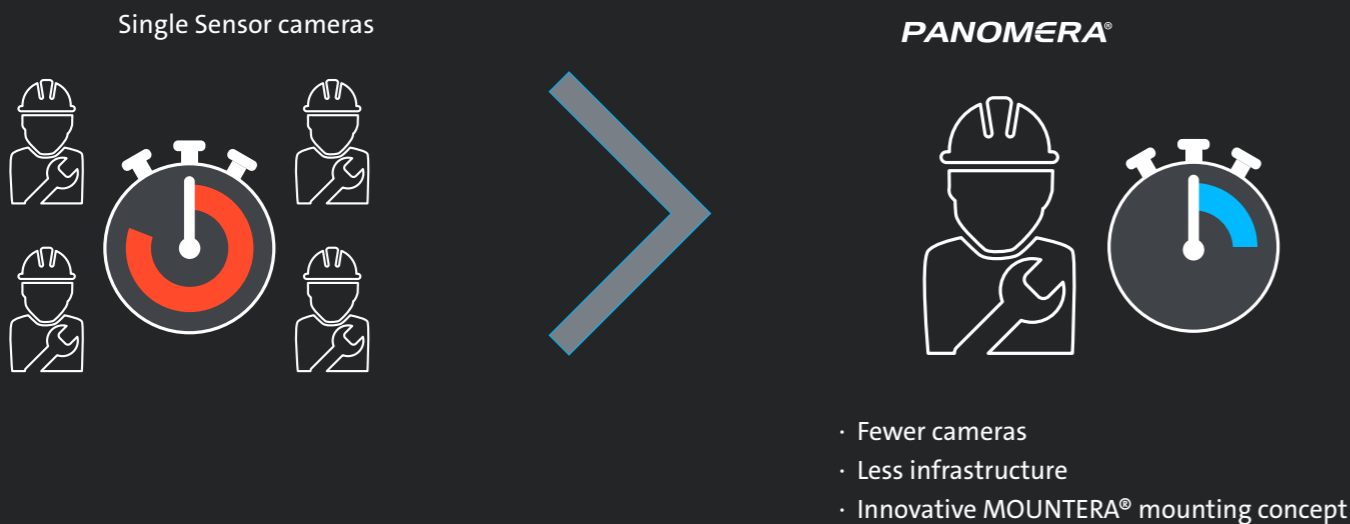
FEWER SYSTEMS MEAN:  
CONSIDERABLY LESS INFRASTRUCTURE AND LOWER COST



BETTER IMAGE QUALITY + AI-BASED SUPPORT EQUALS:  
REDUCED WORKLOAD FOR THE OPERATORS, LOWER ERROR RATE AND  
HIGHER EMPLOYEE EFFICIENCY



LESS INFRASTRUCTURE + MOUNTERA® MOUNTING CONCEPT EQUALS:  
MUCH LOWER INSTALLATION LABOUR AND COSTS



THE PANOMERA® S-SERIES

## MODEL OVERVIEW

The Panomera® S-Series offers you different models with different fields of vision and optical characteristics. This allows you to select the optimum system components for your application.

### PANOMERA® S4 / S8 *topline*

The models of the Panomera® Topline are designed for the highest possible light sensitivity with slightly lower resolution aligned.

Effective Resolution	from 46 to 178 MP
Horizontal viewing field	from 15° to 90°
Frame rate	up to 30 fps



### PANOMERA® S8 *ultraline*

The models of the Panomera® Ultraline are designed for the highest possible resolution with slightly lower light sensitivity.

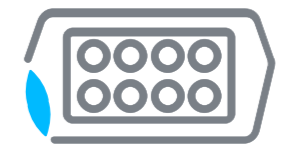
Effective Resolution	from 78 to 190 MP
Horizontal viewing field	from 30° to 75°
Frame rate	up to 30 fps



THE PANOMERA® S-SERIES

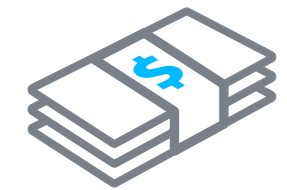
## SUPERIOR IN ANALYTICS AND VIDEO SURVEILLANCE

Keep everything in focus



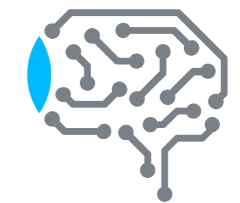
Optimum overview, any number of virtual PTZs, consistent high picture quality

Reduce operating costs



Up to 24 times fewer cameras, 90 % less infrastructure

Optimise video analytics



Precise, plannable data quality for optimum analysis results



# PANOMERA® IN USE

*With Panomera®, we achieve optimal control with minimal operator involvement and low total cost of ownership thanks to fewer systems required.*



**Thorsten Wünschmann**  
Head of Hanau Public Order Office

*The incredibly high resolution across the entire recording area and the intuitive operation of the system contributed significantly to our decision to choose Dallmeier.*



**Giuseppe Musto**  
Technological Innovation and Systems Control, GESAC, Naples Airport

*Overall, the Panomera® cameras enabled us to significantly increase our stadium security and significantly reduce the number of incidents.*



**Dave Lewis**  
Head of Security and Stadium Safety at Everton FC







Dedicated to quality. Driven by passion.

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