

Arecont Vision® Omnidirectional Camera Technology



An Exploration of the Arecont Vision SurroundVideo Omni
Multi-Sensor Multi-Megapixel Cameras

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Introduction

Arecont Vision leads the way in megapixel video. We are a U.S. company with headquarters, research and development, and manufacturing operations in Glendale, California. We design and build award-winning IP network megapixel cameras that are customer-proven around the world for the widest possible range of video surveillance requirements.

Arecont Vision continues to innovate, proudly bringing new Made in USA cameras to the professional video surveillance market every year. After introducing the first multi-sensor multi-megapixel camera to the market in 2006, we advanced the technology again with the introduction of the omnidirectional SurroundVideo Omni in 2014. The Omni series uses our patented 360° omnidirectional track to cover any angle and scene with 4 independently adjustable sensors.

We maintain our leadership of the professional megapixel camera market through innovation and unique designs. Our fifth generation Massively Parallel Image Processing (MPIP) architecture ensures our multi-sensor cameras bring more choices, faster frame rates, enhanced low light capabilities, advanced compression, and even easier installation on a cyber-secure platform.

SurroundVideo Omni G2 was introduced in 2016, offering even more features to the world's first omnidirectional multi-sensor camera series. Both 12 and 20MP resolutions are available for outstanding high definition video.

SurroundVideo Omni G3 joined the omnidirectional product lineup in 2017, with revolutionary fully remote setup and other new advanced capabilities. All three series are available to support different project requirements and cost points while providing complete omnidirectional surveillance coverage.



ABOVE: SurroundVideo Omni G3 (left), G2 (center), and G1 (right) compose the omnidirectional multi-sensor, multi-megapixel series

To learn about the technology designed into SurroundVideo Omni that ensures Arecont Vision's position as the leader in omnidirectional megapixel video, please read on

For more interactive and detailed information, please visit Arecont Vision online:

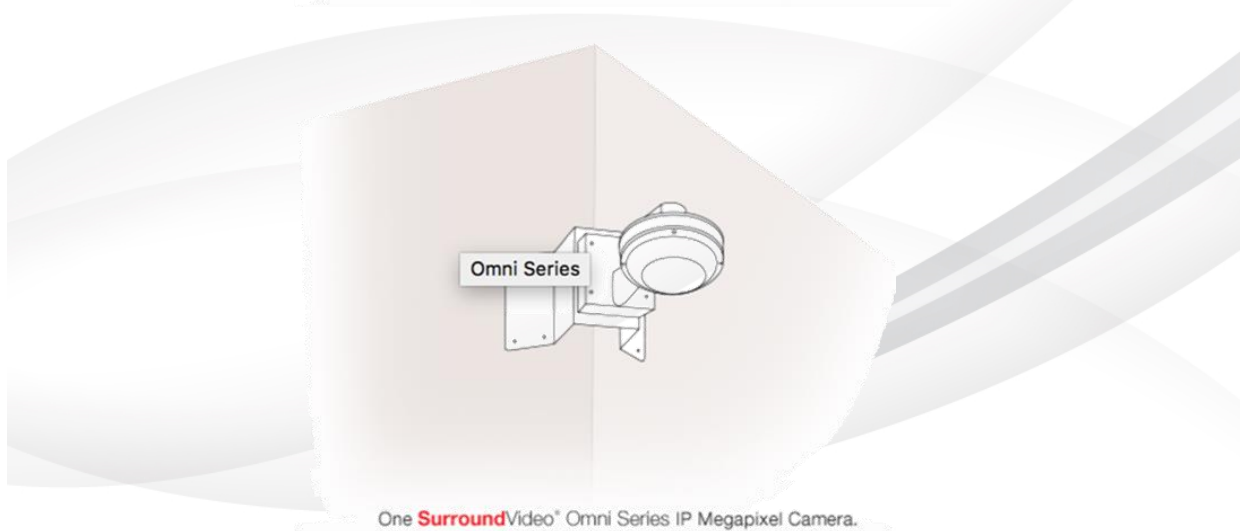
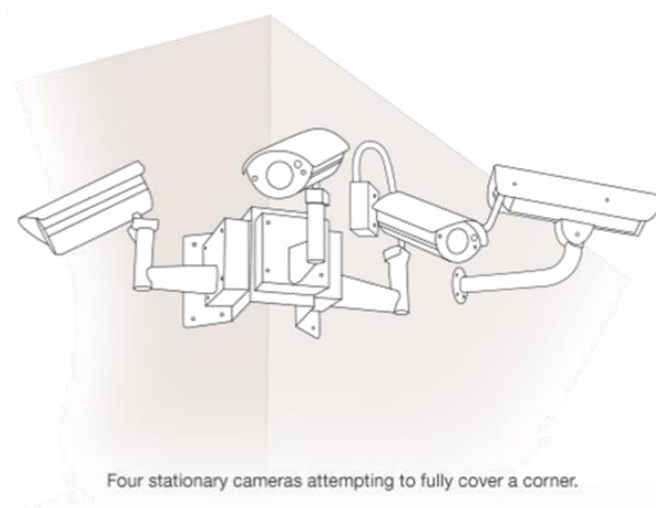
- About Arecont Vision - <https://www.arecontvision.com/Company/about-arecont>
- Industry Leading Technology - <https://www.arecontvision.com/landing-pages/industry-leading-technology/overview.php>
- Made at Arecont Vision (video) - <https://goo.gl/pV4gGW>

Omnidirectional Multi-Sensor Technology

The award-winning SurroundVideo Omni series provides organizations of all sizes with the flexibility to deploy a surveillance camera that truly matches their specific video surveillance project needs. Four sensors are ideal for most omnidirectional requirements, offering superior pixel density, image clarity, and coverage angle to competitive cameras with three or fewer sensors.

The SurroundVideo Omni series brings the ability to position each of the four megapixel sensors anywhere around the patented 360° omnidirectional track. The Arecont Vision-designed multi-axis gimbals on which the sensors are mounted deliver an increased range of motion and coverage.

The ability to interchange the manual focus (Omni G1), remote focus (Omni G2), or varifocal (Omni G3) lenses enables a fully customized field of view. SurroundVideo Omni cameras can cover 180°, 270°, 360° or scenes in between when mounted from a ceiling, wall, pole, or emergency call box.



SurroundVideo Omni Industry Recognition

SurroundVideo Omni (G1) was introduced in 2014, and accumulated industry recognition and several new product awards. SurroundVideo Omni G2 followed in 2016, and the surveillance industry reacted very well, with Omni G2 not only becoming our fastest growing product line after launch ever, but receiving even more recognition.

SurroundVideo Omni G2 Industry Awards

- 2016 Campus Safety Magazine **"Campus Safety BEST Award"** (Awarded at the Campus Safety Conference in October 2016)
- 2016 Security Products Magazine **"Govie Award"** (Awarded at ISC West 2016)
- 2016 Security Sales and Integration Magazine **"Most Valuable Product Award"** (Awarded at ASIS 2016)
- 2016 Security Sales and Integration Magazine **"Top 30 Technologies of the Year Award Winner"** (Awarded in the December 2016 issue of the magazine)

The latest Omni series addition, SurroundVideo Omni G3, joins the series in 1H 2017. We expect Omni G3 to continue the tradition of receiving both rapid customer acceptance and industry recognition due to its unmatched new features and capabilities.

All three series will continue to be offered to address different segments of the market.

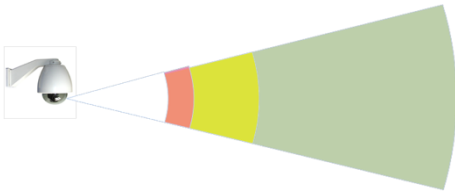
- **SurroundVideo Omni (G1)** offers our most affordable omnidirectional capability in a compact, low profile dome enclosure.
- **SurroundVideo Omni G2** brings faster and easier setup with remote focus, 3-axis gimbals for more coverage choices, and delivers additional performance and capabilities, while still in a low profile, compact enclosure.
- **SurroundVideo Omni G3** offers our most advanced design with no-touch remote setup and further feature enhancements.

For information on the what our customers think about us, and the industry recognition Arecont Vision has received since 2011, including the SurroundVideo Omni series, please visit: <https://www.arecontvision.com/company/what-our-customers-say>

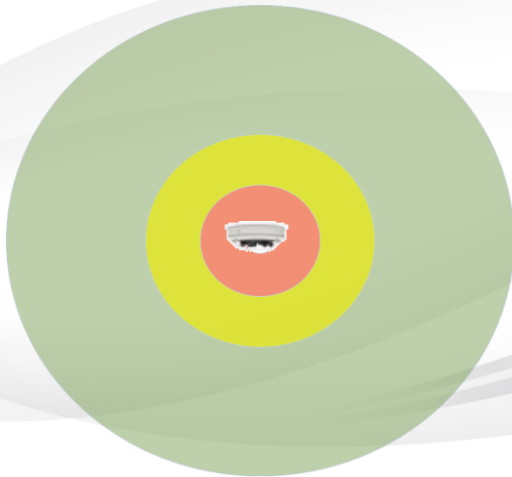
Omnidirectional Coverage Compared to PTZ

Multi-sensor fixed-view 180° and 360° SurroundVideo cameras have been replacing pan-tilt-zoom (PTZ) and fixed-view cameras from the time of their initial introduction by Arecont Vision in 2006. This pioneering panoramic technology offers significant advantages as new features and capabilities are added. The SurroundVideo Omni series brings another level to the discussion, with sensors independently mounted on a patented, 360° omnidirectional track in 3-axis gimbals. This is referred to as omnidirectional coverage.

- **Cover the Full Scene** - *Omnidirectional multi-sensor cameras cover the entire scene constantly, without interruption. PTZs are typically manually operated or run on a programmed routine to cover the entire area under surveillance by the camera. The unfortunate result is that a PTZ is focused on the wrong spot much of the time, since the camera is only able to monitor what it is currently focused on. This is known as the “telescope effect”.*
 - *PTZ = 40° of 360° view of area = 11% of area covered at any one time*
 - *PTZ = 40° of 270° view of area = 17% of area covered at any one time*
 - *PTZ = 40° of 180° view of area = 22% of area covered at any one time*
- **Lower Cost to Install and Maintain** – *Omnidirectional cameras are focused on the area of desired coverage, and then operate without further adjustment. Professional quality PTZs are expensive to purchase and costly to maintain as gears, belts, and motors can require significant ongoing maintenance or adjustment due to constant motion. Omnidirectional cameras deliver a superior return on investment due to lower maintenance cost and an extended trouble-free operational lifespan.*



LEFT - A PTZ views a 40° “cone” of coverage as it moves throughout the area it is to monitor regardless of resolution chosen. Areas that the cone does not currently cover are not able to be monitored or recorded. Parts can wear out or need adjustment due to constant movement, adding significant cost to the initial purchase price.



LEFT - A SurroundVideo Omni provides user-defined coverage of 180°, 270°, 360°, or anywhere in between around the camera. Recording and viewing continue uninterrupted when the camera is digitally zoomed into a specific area by the operator. Multiple resolution choices are available.

No parts require adjustment or repair due to frequent movement as in a PTZ. Once the Surround Video Omni’s sensors are positioned, they do not need to be moved again.

Omnidirectional Track Design

The SurroundVideo Omni's patented track design allows the four individual 2-axis (G1 models) or 3-axis (G2 and G3 models) sensor gimbals to be independently placed in nearly any configuration around a 360° track.

Popular uses of SurroundVideo Omni IP megapixel cameras are to cover the intersection of hallways, for coverage of large spaces such as lobbies, restaurants, factories, or loading docks, or to provide a 270° view at the corner of a building.

Installation is easy for both G1 and G2 SurroundVideo Omni models, since each gimbal is magnetically set in place, making it easier to arrange in any configuration around the omnidirectional track. G3 models add hands-free remote setup for the simplest possible installation experience.

Typical SurroundVideo Omni G2 layout examples are below.



Multi-axis Gimbals

Arecont Vision has developed and deployed unique, highly maneuverable multi-axis gimbals into which individual megapixel sensors and lens packages can be mounted for extra flexibility and coverage.

SurroundVideo Omni (G1) offers 2-axis gimbals for a wide range of coverage.

SurroundVideo Omni G2 offers 3-axis gimbals which deliver an even more enhanced range of motion when positioning the sensors. This allows the installer to position the camera on a wall, pole, ceiling, or emergency call box while continuing to capture a wide range of scenes from each individual sensor.

The G2 sensors can be remotely focused after being set to cover the specific view.



ABOVE and RIGHT: SurroundVideo Omni G2 with 3-axis gimbals

The SurroundVideo Omni G3 sensors make the setup process even easier, and all four sensors are remotely moved around the patented omnidirectional track to the desired location and then angled and focused. Pre-programmed positions (180°, 270°, 360°) can be selected, or the installer can remotely position and focus all four sensors as desired. Each sensor can be positioned individually, including remote focus, zoom, and tilt.

The installer or end user can also create their own presets. This is useful when a view is required to change. For example, a stadium may wish one view for a sports event, and a different one for concert or other entertainment activity. Using presets, the camera can be quickly switched between one view or another.

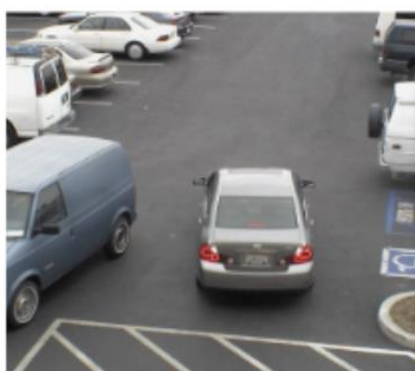
Interchangeable or Varifocal Lenses

SurroundVideo G1 and G2 are designed to allow easy swapping of lenses. A wide range of options are available, from 2.1mm to 16mm. SurroundVideo G3 uses varifocal lenses.



Remote Focus

The SurroundVideo Omni G2 can be installed without locally adjusting the focus of each sensor. Remote focus can be controlled through the camera webpage. The installer clicks “short range focus” or “full range focus” to get a clear image. SurroundVideo Omni G3 can move all four sensors individually to remotely position, angle, zoom, and focus each.



Zoom:

+20	+5	+1
-20	-5	-1

Focus:

+20	+5	+1
-20	-5	-1

Full-range Focus

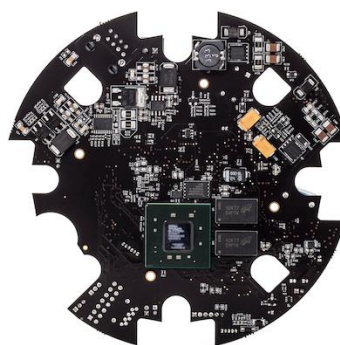
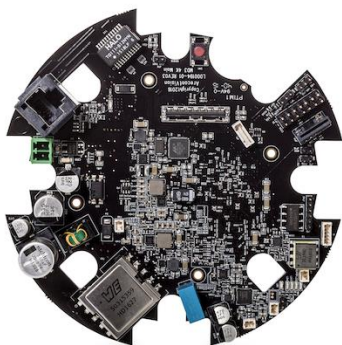
Short-range Focus

Stop



Features & Capabilities - Field Programmable Gate Array

At the core of every Arecont Vision camera is a field programmable gate array (FPGA) integrated circuit mounted on an Arecont Vision-designed Printed Circuit Board (PCB). The individual PCBs vary based upon the camera design, capabilities, and features of the individual Arecont Vision megapixel camera. The in-house developed Massively Parallel Image Processing (MPIP) architecture runs on the FPGA, ranging from our MegaVideo single-sensor to our most advanced SurroundVideo multi-sensor platforms, now in their 5th generation.



Field Upgrades

Arecont Vision megapixel cameras can be updated as our R&D teams and our Technology Partners develop new features, image quality improvements, reduced bandwidth algorithms, security enhancements, and much more.

By enabling new features to be added or updates made, this unique ability of Arecont Vision cameras improves the return on investment by further increasing the product lifespan.

Learn about Arecont Vision firmware and the Technical Assistance Center

<https://www.arecontvision.com/resources.php>

Arecont Vision
Leading the Way in Megapixel Video™

COMPANY PRODUCTS SOLUTIONS EDUCATION NEWS SUPPORT EVENTS PARTNERS HOW TO BUY

ARECONT VISION
The industry leader in IP-based megapixel camera technology.

Support
Project Registration
Resources
Online Support Request
Firmware Downloads
Software Downloads
Technical Bulletins
FAQ
Product Selector
NVS Partner Integration Matrix
Downloads

Developer
Integrating Arecont Vision Cameras
Megatools®

Gallery
Image Gallery
Video Gallery
Training Videos

TRAINING VIDEOS
View detailed step-by-step video tutorials on how to install and configure Arecont Vision's products.

DOWNLOAD FIRMWARE

Firmware

File Name	Description	Version	Size
Firmware Loader	Software	5.6.6.22	1.89 MB

Instead of using Firmware Loader, check out our [AV IP Utility tool](#)

Search Firmware By Product
To find resources for your Arecont Vision product, use the selector

Product Category: Product Line:

Product Category	Product Line
Surround/Video Omni G2 Series	AV1227SDN-08
Surround/Video Omni Series	AV1227SDN-28
Surround/Video G5 Mini Series	AV1227SDN-08
Surround/Video G5 Series	AV1227SDN-28
Surround/Video Series	AV1227SDN-08
MegaVideo Flex Series	AV2027SDN-08
MicroDome G2 Series	AV2027SDN-28

Or Search by Model Number:

Arecont Vision cameras are protected to safeguard against cybersecurity risks.

When a hacker accesses an Internet-connected device such as a camera, NVR, or server that is running Linux, Windows, or another common operating system, it can be at risk. A cyberattack often begins with a malicious virus being loaded that infects the system via the operating system. In some types of attacks, this is often a "bot" (short for "robot") shell script.

This script can then be used to take over the device. The bot can then launch various cyberattacks on other network-connected devices such as for Distributed Denial of Service (DDoS), ransomware, or false identity/network intrusion attacks. Other approaches can also be used to attack network enabled devices that rely on common operation systems and plug-in 3rd party application code.

Arecont Vision megapixel cameras do not have these vulnerabilities. This is because each of our cameras uses an FPGA IC on which we run our in house developed, proprietary Massively Parallel Image Processing architecture. We do not run common operating systems such as embedded Linux or Windows, which are employed by other camera vendors. Known avenues of attack are eliminated by using this model.

Should a hacker illicitly gain access to an Arecont Vision camera or obtain the user ID and 16-digit ASCII password to log into a camera, the attack effort would be extremely limited in its success. The attacker would be able to view the camera's internal web browser, and the camera's settings could be modified.

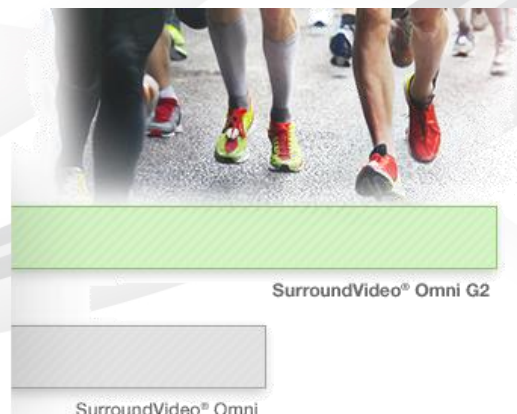
A hacker would not be able to repurpose an Arecont Vision camera for a cyberattack. For example, the hacker, virus, or bot would be unable to load and run a shell script to maliciously attack other networked devices, either on the local network or across the wider Internet.



Anything that the hacker or bot could do would be limited to that particular Arecont Vision camera, rather than becoming an entry point for further cyberattacks.

Enhanced Low Light Performance

Both SurroundVideo Omni G2 and G3 are equipped with a more powerful sensor board that has double the frame rate speed of the original Omni G1 for a boost in performance and functionality.



Low Light Technology

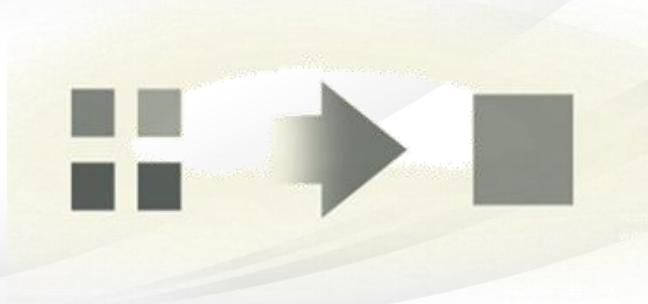
SurroundVideo series models incorporate a mechanical IR (infrared) cut filter in front of each CMOS (complementary metal-oxide-semiconductor) imager for the highest image quality at any time of day. The True Day/Night technology ensures vivid images during the day and optimum monochrome performance at night. The camera instantly switches between modes based on the scene's illumination.



Pixel Binning

Arecont Vision's binning technology is used in parallel with True Day/Night functionality in SurroundVideo Omni series cameras.

Binning sums the light value of four individual pixels into one larger pixel yielding much better image quality in low light with reduced bandwidth.



Ultra Low Profile

SurroundVideo Omni (G1) and G2 series cameras are only 3.1 inches (78.5 mm) high and about half that with the flush mount adapter, maintaining an ultra-low profile for more discrete surveillance in either format.

This is accomplished by a compact housing body with a specialized dome for its low profile.



Impact and Weather Resistant

SurroundVideo Omni series is IK-10 impact resistant and IP66 environmental rated against dust and water, making it suited for outdoor installations.



Hallway Configuration

When dealing with a hallway intersection, only a single SurroundVideo Omni series camera is needed to cover all four hallway lengths with the use of four telephoto lenses. This is where the ability to choose different lenses (G1, G2) or varifocal adjustment (G3) to provide the best possible image quality and pixel density is key.



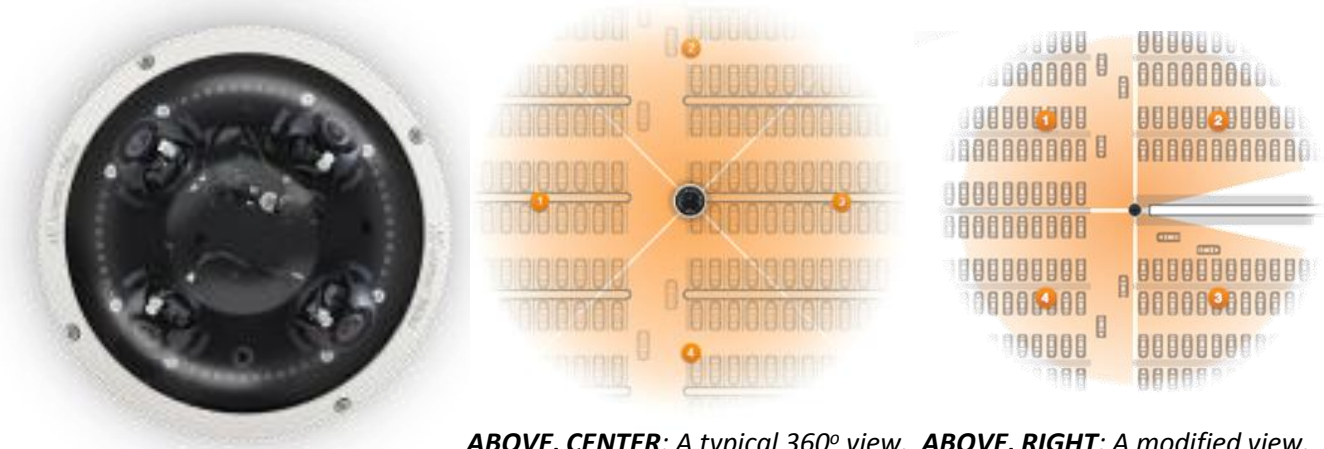
270° Corner View Plus Blind Spot Coverage

Another great example of the versatility of the SurroundVideo Omni is the corner layout. Configuring the camera's 4 sensors in the corner layout will provide a seamless 270° field of view as well as a view looking directly underneath the camera.



360° Parking Lot View

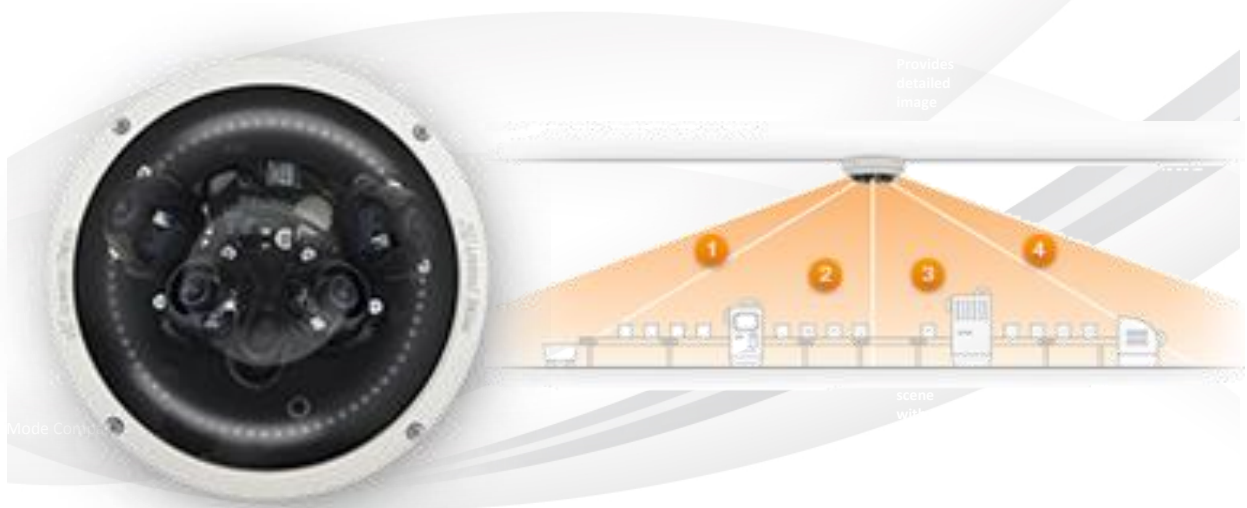
The SurroundVideo Omni can be used very effectively to give a 360° view of a parking lot with four identical focal length (G1, G2) choices or varifocal (G3) settings. In cases where obstructions are in the view, different lenses and viewing angles could be used, such as in the modified 320° view below.



ABOVE, CENTER: A typical 360° view. **ABOVE, RIGHT:** A modified view, to cover 320° around a wall.

Assembly Line or Loading Dock View

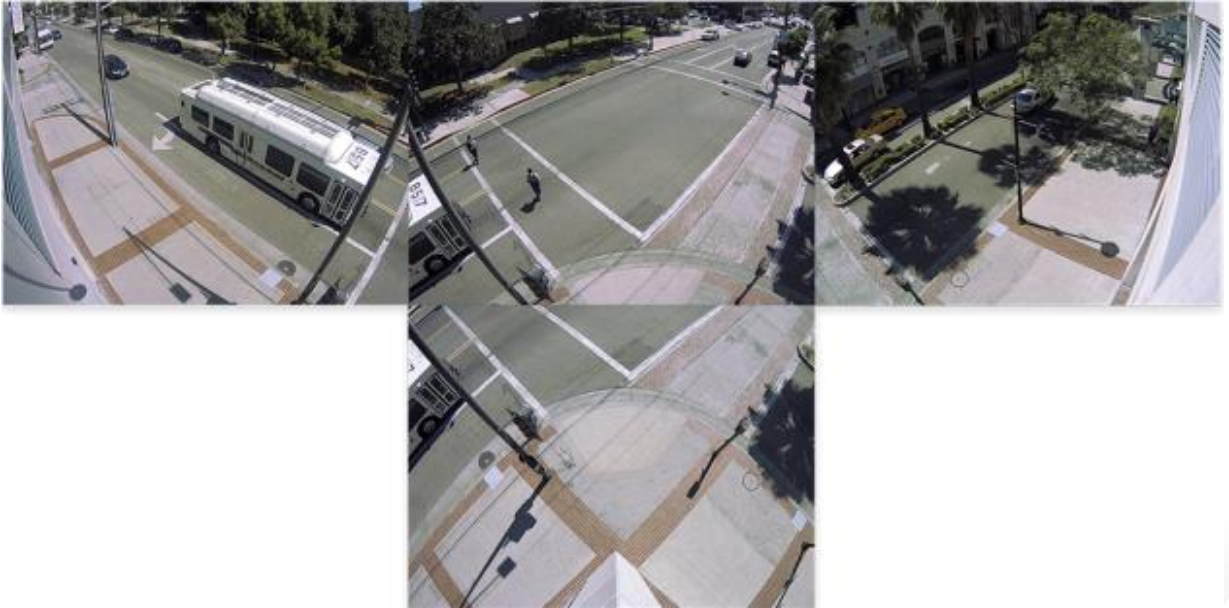
The SurroundVideo Omni is customizable beyond standard 180°, 270°, and 360° configurations. Installing the camera over an assembly line, using two standard lenses directly below the Omni and two telephoto lenses on the sides, will capture the furthest reaches of the assembly line. This will allow for a comprehensive view, and reduce the camera count for single sensor cameras from four to one SurroundVideo Omni.



SurroundVideo Omni Use Cases – *Street Corner*

A popular use of SurroundVideo Omni is for coverage of a corner, with three sensors providing 270° coverage and the fourth pointing straight down to eliminate any blind spots below.

270° Street Intersection plus Blind Spot Coverage Below - Daytime

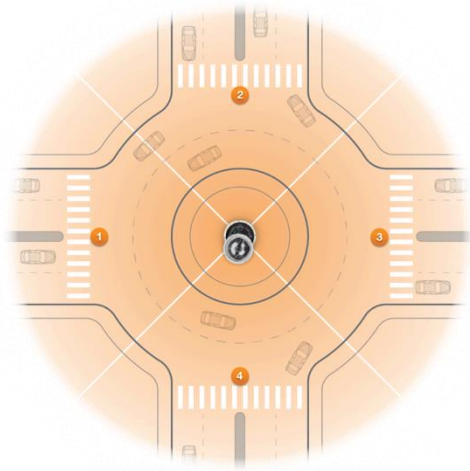
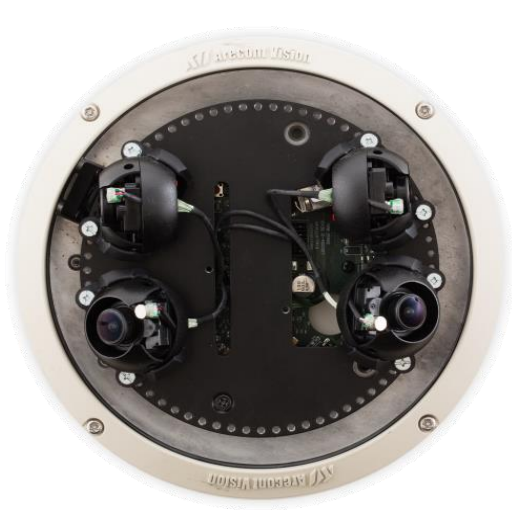


270° Street Intersection plus Blind Spot Coverage Below – Night Time



SurroundVideo Omni Use Cases – *Traffic Circle*

A popular choice for SurroundVideo Omni is to deliver 360° degrees of coverage, such as in the traffic circle example below.

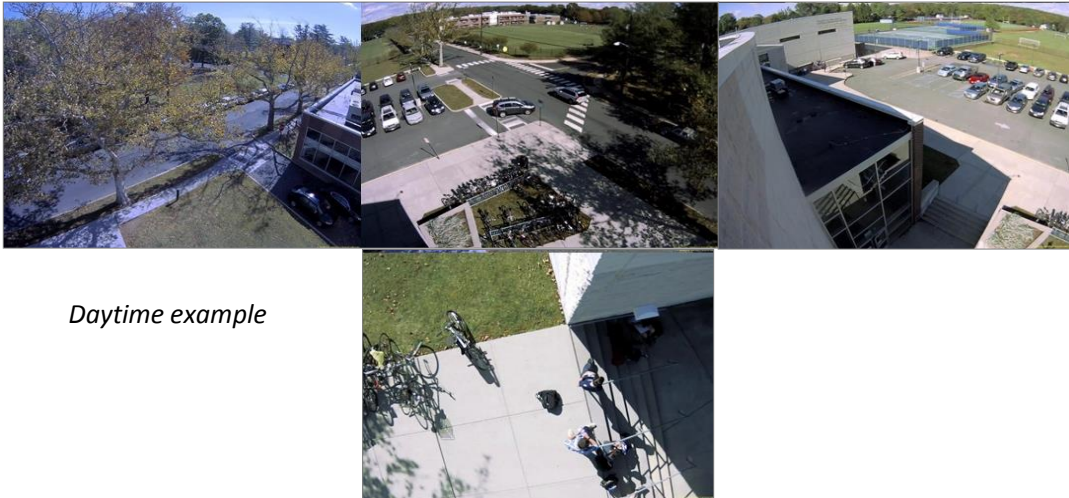


True 360° Traffic Circle
(Four 90° Lenses)



SurroundVideo Omni Use Cases – School Campus

For coverage of a school parking lot, entrance, and athletic fields, a SurroundVideo Omni omnidirectional camera can have each of its sensors focused on a different, user-settable area for a custom view.



Daytime example



Night time example

The SurroundVideo Omni covers the entire scene non-stop, even when digitally zoomed in any one area, day or night. Each sensor can be manually adjusted for view, and lenses can be individually changed to meet the scene's requirements. Any area can be zoomed in, provided significantly improved coverage for full situational awareness.

In this example, the SurroundVideo Omni is set to a 270° configuration by 3 sensors, with a 4th sensor pointing straight down to eliminate the blind spot below the camera itself at the entrance to the school.

Arrangement of the video displayed from each of the sensors can be adjusted by the VMS/NVR system to match customer preferences.

SurroundVideo Omni Use Cases – Restaurant or Cafeteria

Coverage of a large area, with the four sensor set to monitor the entire space, make restaurants and cafeteria applications ideal for SurroundVideo Omni.



SurroundVideo Omni Use Cases – Retail Store

SurroundVideo Omni reduces the cameras required to cover POS locations and other areas of a retail store.



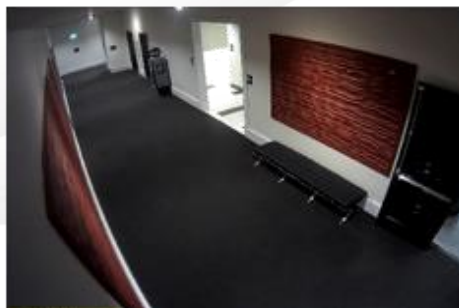
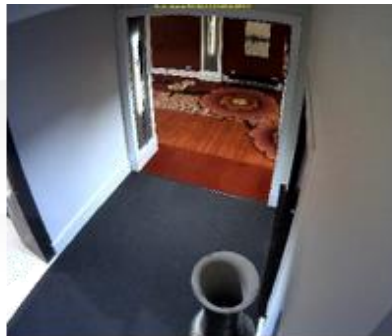
SurroundVideo Omni Use Cases – Bar

SurroundVideo Omni reduces the cameras required to cover POS locations and other areas of an entire bar.



SurroundVideo Omni Use Cases – Elevator Lobby

SurroundVideo Omni reduces the cameras required to monitor all aspects of an elevator lobby.



SurroundVideo Integration with Leading VMS/NVR Systems

Arecont Vision SurroundVideo cameras are integrated with the industry's leading VMS/NVR systems. Multi-sensor cameras from other vendors may not offer as many choices or as extensive integration.

Integration of SurroundVideo and other Arecont Vision cameras is accomplished through the Arecont Vision Technology Partner Program and its MegaLab™ Test and Certification facility. VMS/NVR manufacturer members and other program members use the facility jointly with Arecont Vision to validate integration.



Learn more about the Arecont Vision MegaLab online at:
<https://www.arecontvision.com/supports/megalab>.

Pretesting and integration goes beyond the ONVIF and PSIA standards, to ensure that all features and capabilities of Arecont Vision cameras are available and integrated with the VMS/NVR selected.

The graphic at right shows some of the VMS/NVR vendors certified via the MegaLab for use with Arecont Vision cameras. For a more current and detailed list, visit the Arecont Vision Technology Partner Program pages at:
<https://www.arecontvision.com/nvrmatrrix.php>.

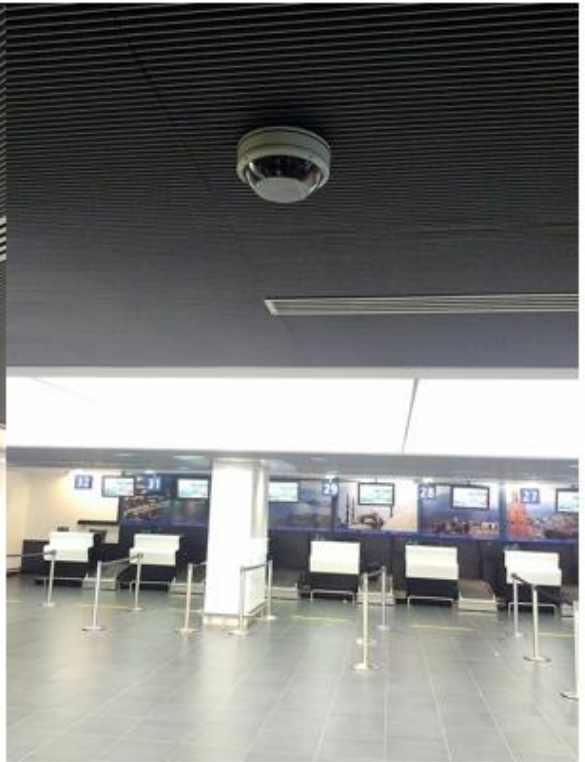
Onsite integration of Arecont Vision cameras is easy. For several brief video demonstrations of how easily and quickly setup of SurroundVideo multi-sensor cameras is accomplished using popular VMS or NVR products, visit:
<http://www.arecontvision.com/vms-videos.php>.



SurroundVideo Omni – Customer Installations









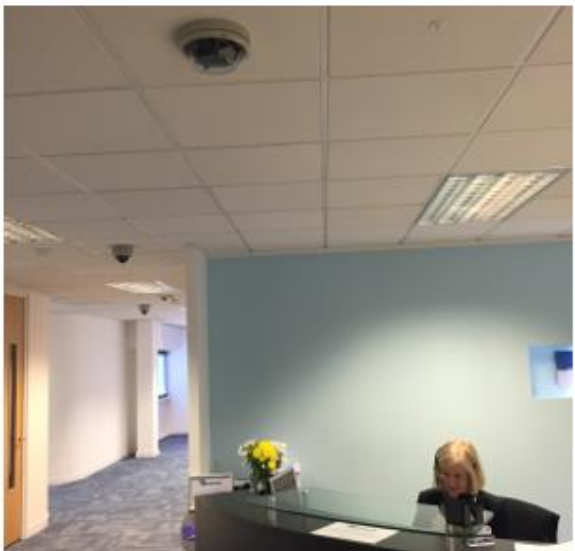
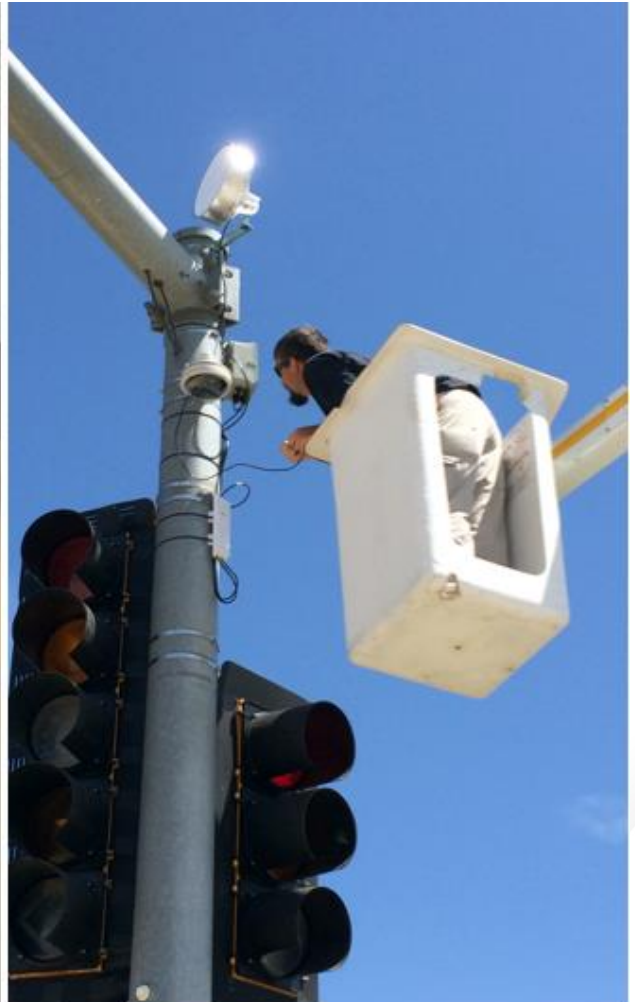






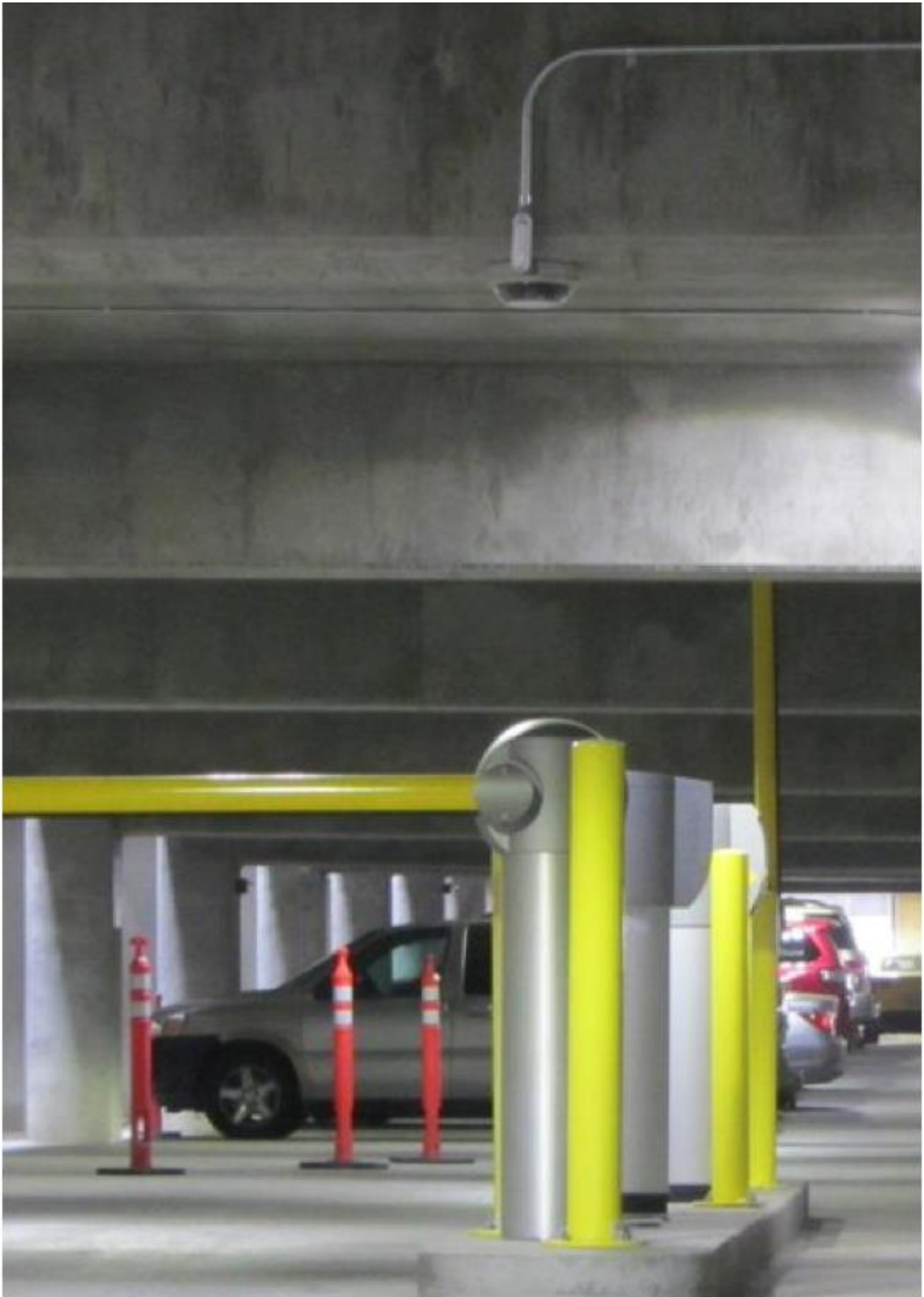












Conclusions

The SurroundVideo Omni was the first omnidirectional multi-sensor multi-megapixel camera family to be developed, introduced by Arecont Vision to the market in 2014. The Omni series remains the clear market leader due to ease of setup, size, features, VMS/NVR integration, upgradability, and cybersecurity protection.

With three individual series – *SurroundVideo Omni (G1)*, *SurroundVideo Omni G2*, and *SurroundVideo G3* – compose the Omni camera family to address varied project requirements. Each series offers individual feature sets and price points. All Omni models are able to deliver outstanding omnidirectional coverage of an entire scene with non-stop recording and multi-streaming for complete situational awareness.

SurroundVideo Omni eliminates the need for multiple fixed view or PTZ cameras while delivering high definition video for a wide range of surveillance project needs.

SurroundVideo Omni Benefit Summary

- Non-stop omnidirectional high definition video coverage
- 3 individual series to address any price point
- Adjustable views with multi-axis gimbals and patented omnidirectional track with 4 individual megapixel sensors for the best coverage and pixel density
- Coverage of an entire scene non-stop without constantly moving parts such as gears, motors, and belts that can wear out or need adjustment, as in a PTZ
- Full situational awareness of the scene, across any user-selectable coverage area
- Digitally zoom in without impacting or interrupting recording or live viewing, unlike a PTZ which is only able to record/monitor where it is focused at any one time
- Integrated with the industry's leading VMS and NVR systems, rather than being restricted to just just one or a few choices
- Proven and reliable technology installed around the world
- Updatable architecture when new features, capabilities, or security updates are available, for extended useful product life and enhanced security
- The cyber protection of the 5th generation SurroundVideo Massively Parallel Image Processing architecture and FPGA integrated circuit in each SurroundVideo Omni is superior to that of competitor cameras
 - *Arecont Vision cameras do not use of 3rd party code for core applications or include common operating systems such as Linux that are found in other vendor's cameras*
 - *Use of the MPIP architecture eliminates the risk of malicious code in 3rd party products or enabling known security vulnerabilities in common operating systems*
 - *Obtaining the ID and 16-digit ASCII password for a SurroundVideo Omni camera will only allow a cyber attacker to view the camera webpage or take it off line; it will not allow the camera to be repurposed for a Distributed Denial of Service (DDoS), ransomware, or network intrusion attack on other network enabled devices.*

Recommendations

1. SurroundVideo multi-sensor multi-megapixel cameras should be considered for any surveillance project where one or more PTZs had been planned or are already installed to cover an open area, intersection, or other large space. The enhancements that SurroundVideo multi-sensor cameras deliver with non-stop video coverage and enhanced situational awareness will dramatically improve the resulting video surveillance system.
2. SurroundVideo omnidirectional multi-sensor cameras offer flexible coverage of any scene, and deliver enhanced coverage with user-settable views. Learn more about SurroundVideo Omni cameras from the interactive page at: <https://www.arecontvision.com/landing-pages/omni/overview.php>.
3. SurroundVideo panoramic multi-sensor cameras are easy to set up and install, and should be considered for typical fixed-view 180° and 360° degree surveillance needs. Learn more about SurroundVideo panoramic cameras from the interactive page at: <https://www.arecontvision.com/landing-pages/surround-video/overview.php>.
4. Do not believe a data sheet without seeing the camera in action. Not all multi-sensor cameras are created equal. Other manufacturers have attempted to copy and duplicate Arecont Vision's continued leadership and multi-sensor designs in the market that we created and pioneered without matching the capabilities of SurroundVideo.
5. Compare multi-sensor cameras in real-world environments. The SurroundVideo Omni series is built upon the original Arecont Vision panoramic series, and is now in its 3rd generation.
6. Stay away from copies and clones. They lack the refinements and advanced features of SurroundVideo, such as not offering WDR or low light capability choices, cut corners to compete by offering low resolutions, reducing the number of sensors, or offering huge cameras that are hard to install, and are integrated with few of the leading VMS and NVR systems.
7. Buy only megapixel cameras that can be updated with new features, capabilities, and security enhancements that increase the useful life of the camera and protect against changing cyber threats. Competitor cameras do not offer our 5th generation Massively Parallel Image Processing architecture or the flexibility and performance of our FPGA-based custom circuit boards that together allow new features, enhancements, and full security updates for unmatched extended useful product life and cybersecurity protection.
8. Use the Arecont Vision Try-and-Buy program to obtain and install an Arecont Vision camera risk free for a trial at the customer site. SurroundVideo Omni and other Arecont Vision cameras can be purchased at a special price through the program to demonstrate their real-life advantages [see current Arecont Vision promotions online at <https://www.arecontvision.com/landing-pages/promos/overview.php#tryandbuy>].
9. Learn more about other industry-leading technologies that have been developed in house by Arecont Vision that benefit our customers every day at: <https://www.arecontvision.com/landing-pages/industry-leading-technology/overview.php>.
10. Contact Arecont Vision to arrange a demonstration of our multi-sensor cameras.
 - Look up the Arecont Vision contact for your region around the world online here: <https://www.arecontvision.com/where-to-buy.php>
 - Request information at: <https://www.arecontvision.com/contactform.php>
 - Email us at: sales@arecontvision.com
 - Call our corporate headquarters at: +1.818.937.0700
 - Visit us online at www.arecontvision.com

Learn More



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