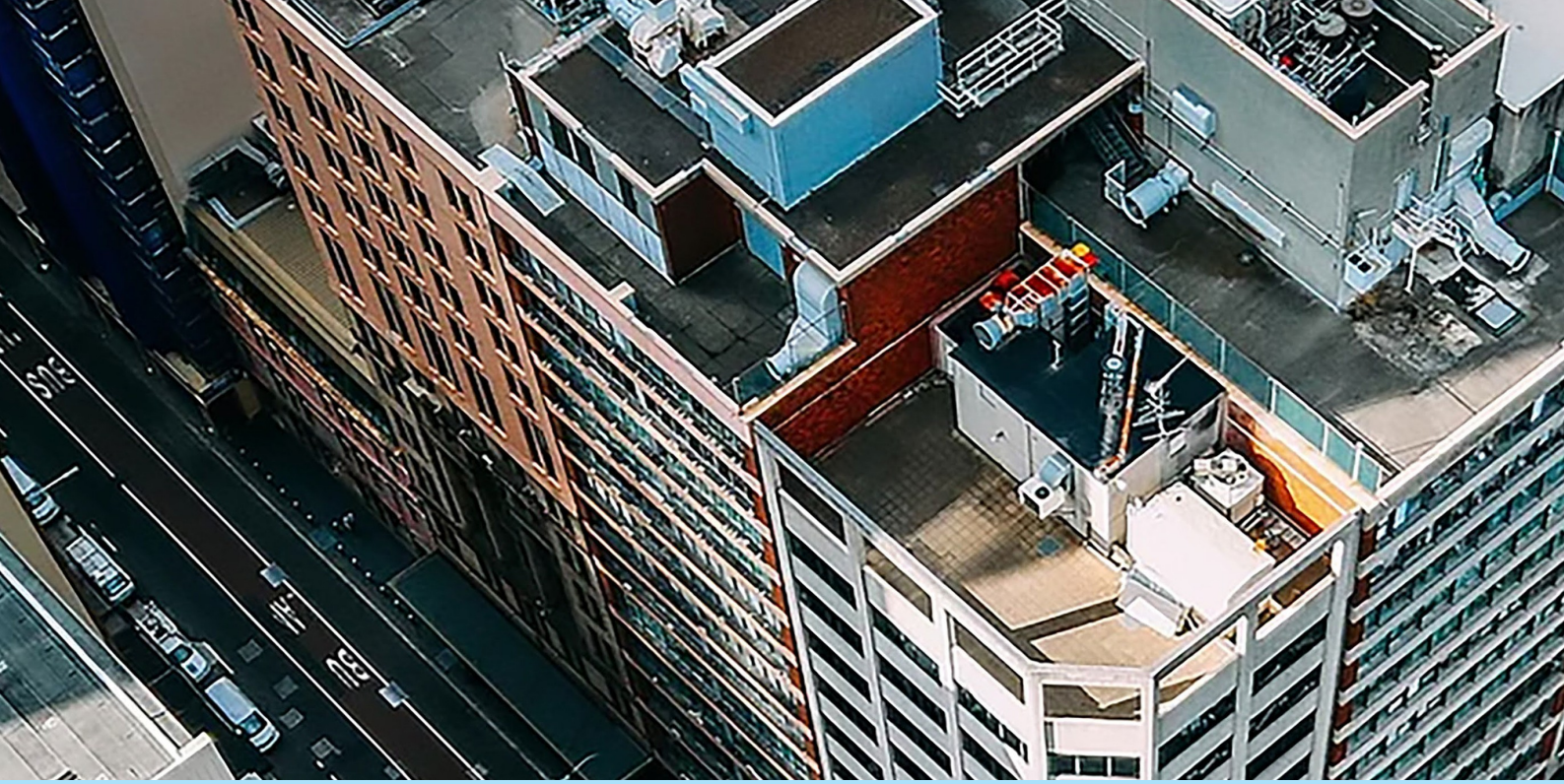
ALDELTA
APPLIED SOLUTIONS

Technical product description

High quality Video over Cellular (VoC) solution

For Security and Smart-City cameras



ALDELTA's plug-and-play Video over Cellular (VoC) Solution

Quick set-up in any location

We connect large numbers of video surveillance cameras over the limited cellular network bandwidth to a VMS in the control-room without physical cables, allowing fast deployment, low infrastructure cost, and the operational flexibility to quickly relocate cameras based on specific requirements.

Powered by advanced machine learning algorithm

Our P-VAN™ (Predictive Video Aware Network), a novel technology, utilizes a powerful machine learning (ML) algorithm to optimize video streaming over the cellular network with high quality, high reliability, and uncompromising robustness. It allows the installation of 10+ times more cameras compared to current wireless technologies, while assuring the highest video quality.

Best for areas that lack infrastructure

Our solution is the best choice for smart-city camera projects mainly in areas with no, or limited, cable infrastructure, and when video quality, real-time, and robustness are essential. Ideal for infrastructure and construction projects, roads, remote areas, university and business campuses, trains, buses, and many other use-cases.

Advantages of the MuViS™ product

Most advanced cable-free wireless solution

ALDELTA offers the most advanced end-to-end solution for wireless connectivity of live video transmission from any Smart City and Security cameras. The solution includes cloud-based management software that analyses and decides in real-time the most efficient way to transmit the video streams over the cellular network, a communication unit that supports up to 4 cameras with our software, and a data SIM card.

The video is transmitted directly to the customer's control room and received in the same quality as it is received via physical infrastructure (fiber optic, etc.), using the existing applications and platforms, such as VMS, recording, analysis etc.

Utilizes existing infrastructure

Cellular networks (3G/4G(LTE)/5G) are an existing, available, and reliable infrastructure - allowing ALDELTA to offer MuViS™ as a plug-and-play, fast and easy installation that can redeploy at any time. Simply install the communication device, connect the cameras, insert a SIM-card and the cameras are connected to the control room!

4K resolution without additional compression

MuViS™ supports all video standards, including 4K resolution and 30fps. It transmits the video at the camera's output quality without additional compression. Ten times the number of cameras can be connected using our solution compared to connecting them without it: e.g., up to 100 cameras per km² (assuming typical 4G cellular coverage) and even more cameras at lower video resolution, but still HD.

MuViS™ guarantees that the entire video reaches the control room. No lost frames!

Gives significant advantages to mobile operators

MuViS™ is specifically designed for 3G/4G(LTE)/5G cellular networks. It enables a new revenue source from an untapped, rapidly growing market for mobile operators without affecting service quality and network KPI's.

MuViS™ analyses the cellular network's available bandwidth and allows for transmission of ten times the amount of video data over a cellular network using the existing uplink channels compared to alternate technologies. All without compromising network usage fairness and user experience of the network's active mobile phones.

In 5G networks, MuViS™ improves video management by utilizing network slicing to manage video traffic from multiple cameras.

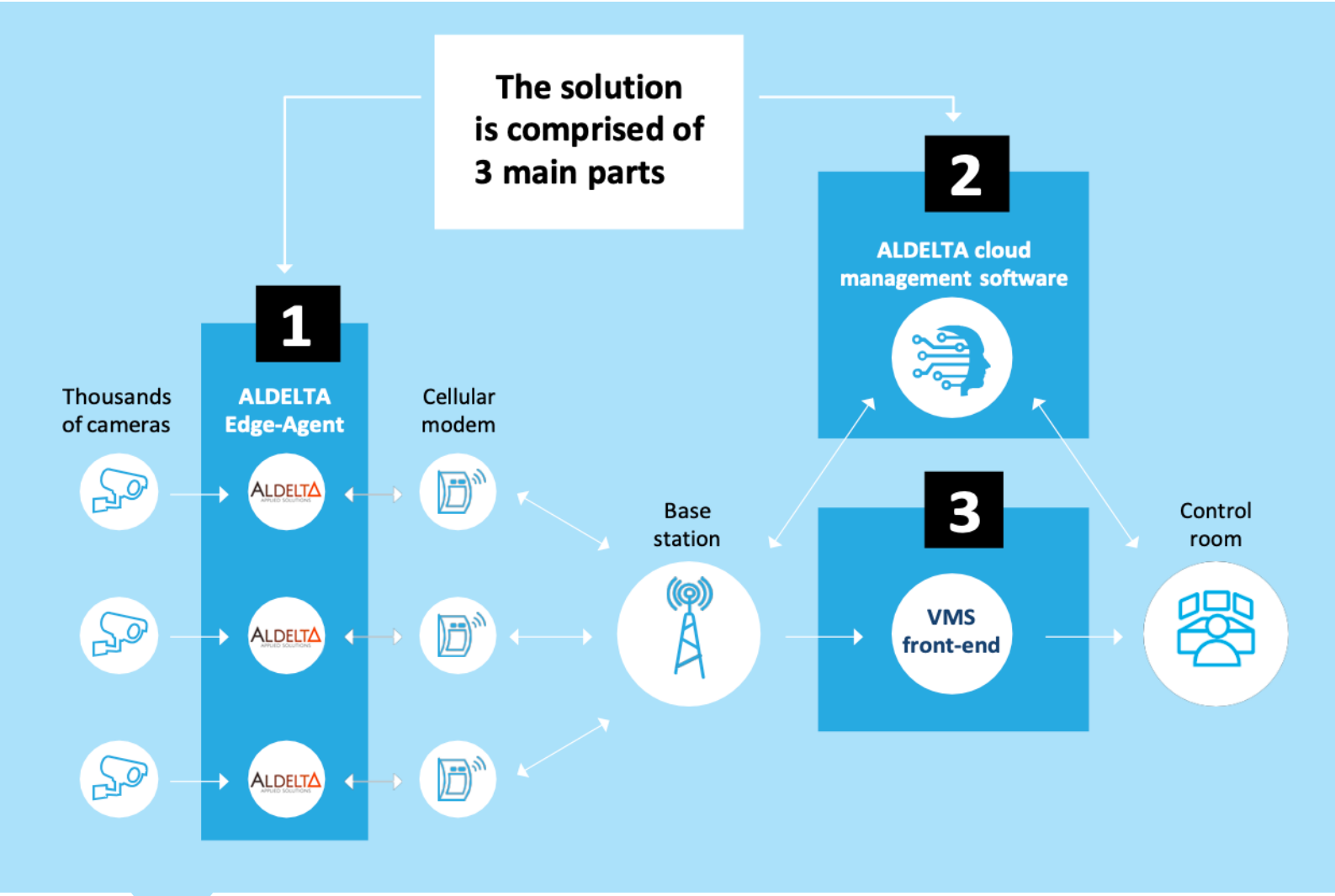
Proprietary cyber security

MuViS™ is designed with high security and privacy to provide absolute protection from hacking and intrusion by using proprietary cybersecurity methods. Video security is a top priority, it is as critical as ensuring that the video stream is flawless, robust, and reliable.

MuViS™ also can support a client's additional security requirements, such as encryption, secure management access, VPN, etc. or any unique tailored security requirements. The video streams are transmitted directly from the cameras to the control room. The entire solution can be installed on a private cloud or on premise.

Setting it up:
Simplicity & Easy Implementation

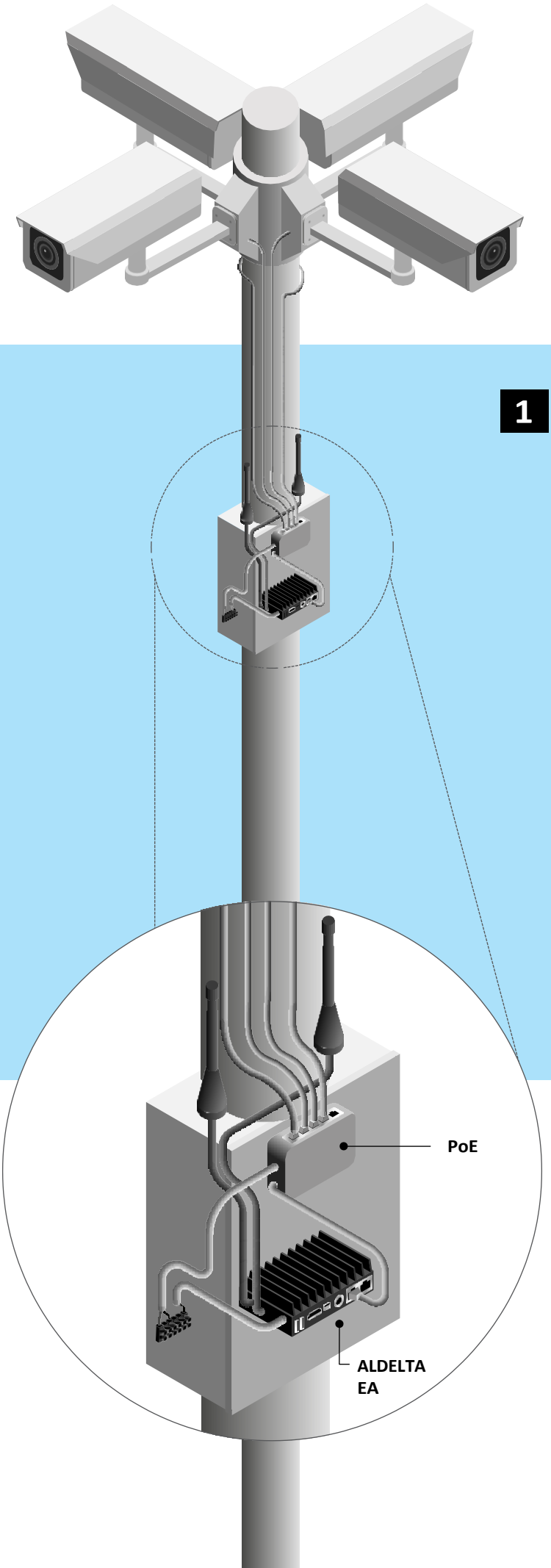
The MuViS™ solution is easy to test, install, and maintain. It requires only electricity and no further infrastructure or the burdensome operation to connect cameras over long distances.



1 **ALDELTA Edge-Agent (communication unit): Connected between the camera and the cellular modem. Performs sensing, processing, and provides control in both video and wireless domains.**

2 **Cloud management software: Performs whole system management by utilizing information from all Edge-Agents to configure the P-VAN™ (Predictive Video Aware Network) advanced machine-learning algorithm and sends routing and timing instructions to the cameras.**

3 **VMS front-end: Connects the video packets according to their timestamp to continuously present the original video to the VMS.**

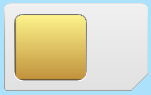


1 ALDELTA Edge-Agent (EA)

The communication unit that connects your cameras instantly

The ALDELTA EA is installed in the field near each camera or cameras. It can support up to 4 cameras that are in close proximity to each other – for example on a single pole, building side, roof, temporary installation, or any other location where you need them.

The unit includes a small computer with PoE switch, cellular router, connecting cables, and external antennas. They are installed inside a water resistant and weather protected box. It's small footprint and light weight allows it to be placed practically anywhere. In addition, its minimal power requirement allows flexible usage (e.g., cameras' power source, solar power etc.).



The 4 cameras are connected over a PoE switch and require a SIM-card with a sufficient data package. The amount of data depends on the required video quality (up to 4K and 30 fps).

2 Cloud management software

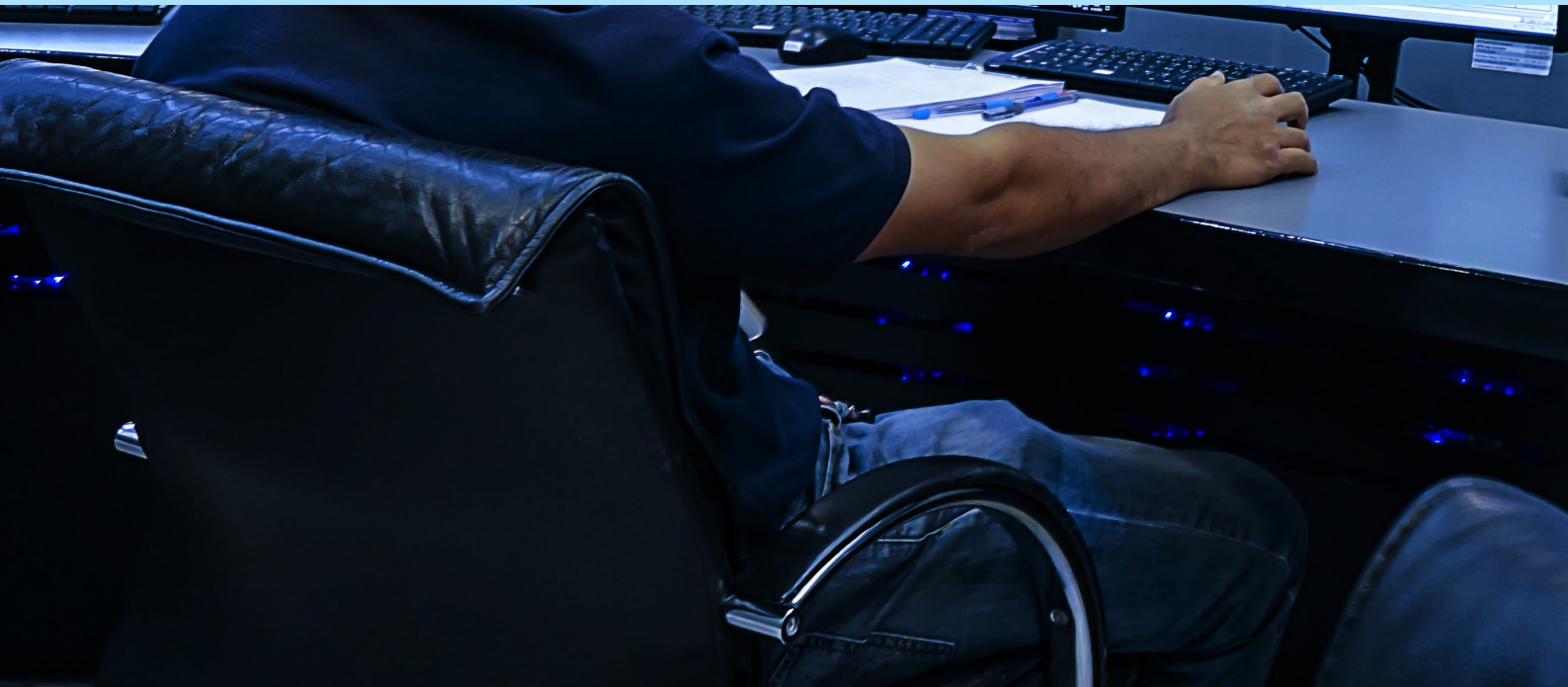
Applying an advanced machine learning algorithm for efficient video transmission

The ALDELTA management software is installed on a dedicated or shared server (with standard PC processing power) located in a control room or in the cloud. It is easy to configure and includes a management console that lets the client easily follow system operations. It determines if there is capacity for additional cameras in a designated area and allows the client to configure or change different parameters.

The management software uses a proprietary machine learning algorithm to manage video peaks to utilize all the available channel capacity in every available cellular tower in the vicinity, thereby allowing the transmission of the highest possible amount of video. When the video reaches a peak due to rapid movement of people or objects, it will split it between different routes or delay the transmission, so that the entire video streams are sent to the control room.

Delays are allowed only for non-critical cameras, e.g., cameras that go directly into recording mode and are not watched by an operator or used by a machine or application at a specific time. The definition of the permitted delays per camera are fully flexible and determined according to individual customer requirements. The more delays the customer allows the more cameras with higher quality can be used.

By using this state-of-the-art VoC Plug & Play solution to stream your video from the cameras in the field to the control room, the client can maintain the robustness they are used to in terms of quality and reliability. All while maintaining maximum flexibility to either quickly place or relocate the cameras when and where they are needed most at a significantly lower cost.



3 VMS front-end

Ensuring the integrity of the video and preventing loss of video during short network breaks

After the management system decides how to send the video packet, it will communicate it back to the Edge-Agent, and the video will be sent directly over the cellular network and into the control room. It will be received by the VMS front-end and assembled into the original video stream which then feeds the different control room systems and applications - as would have been the case with any video entering the control-room environment.

ALDELTA MuViS™

Modernize your cameras today: Simple, Elegant, Dynamic.

>> **For personal advice and additional information please contact us: gill@aldelta.com**

Technical data

Video specifications	
Supported cameras	Up to 100 cameras per Km^2
Video resolution	Up to 4K
Video frame rate	Up to 30 FPS
Edge Agent (EA) unit	
Cellular communications	3G / 4G / 5G
LAN	2 x Gbit ethernet ports
Input voltage	12VDC
Power consumption	15W
Operating temperature	0°C - 45°C Commercial -20°C - 70°C Extended (optional) -40°C - 85°C Indutrial (optional)
Shock and vibration	MIL STD 810G compliant
Dimensions	112mm X 84mm X 34mm
Weight	850 grams
Housing	All metal housing, aluminum/zinc die cast parts
Cooling	Fanless convection cooling through the housing, no vents
Mounting	VESA / wall mounting bracket / DIN-rail mounting bracket (optional)

ALDELTA Edge-Agent (EA)

Data SIM card