AVANTGARDE

IR | MW | DT

IP Based Active Barriers

SICURIT

PERIMETER PROTECTION SYSTEMS

Italian Technology | Worldwide Applications

About SICURIT Perimeter Protection Systems

#Need4PIDS

SICURIT Perimeter Protection Systems (SICURIT PPS) is an Italian leading Perimeter Intrusion Detection Systems (PIDS) developer and manufacturer.
Formally established in 2013 as a dedicated division of SICURIT Alarmitalia SpA, SICURIT PPS started its journey in early 90' and since then has been always committed to innovation and product diversification.
Thanks to the long expertise acquired in more than 50 years of activity, SICURIT PPS has been able to anticipate market demands with technologically advanced IP based solutions for both Layer 1&2 requirements able to meet the highest product classification (Grade 4 according to EN 580131-1).
Additionally SICURIT PPS constantly cooperate with major VMS and PSIM developers to provide to its clients the right solution and to assure the maximum effectiveness of its integrations; and to ensure the quality of our installations and integrations around the world, we've built an international certified network of VAD & VAR partners.

EXPERIENCE | RELIABILITY | INNOVATION | DIVERSIFICATION | QUALITY

" ITALIAN TECHNOLOGY | WORLDWIDE APPLICATIONS "
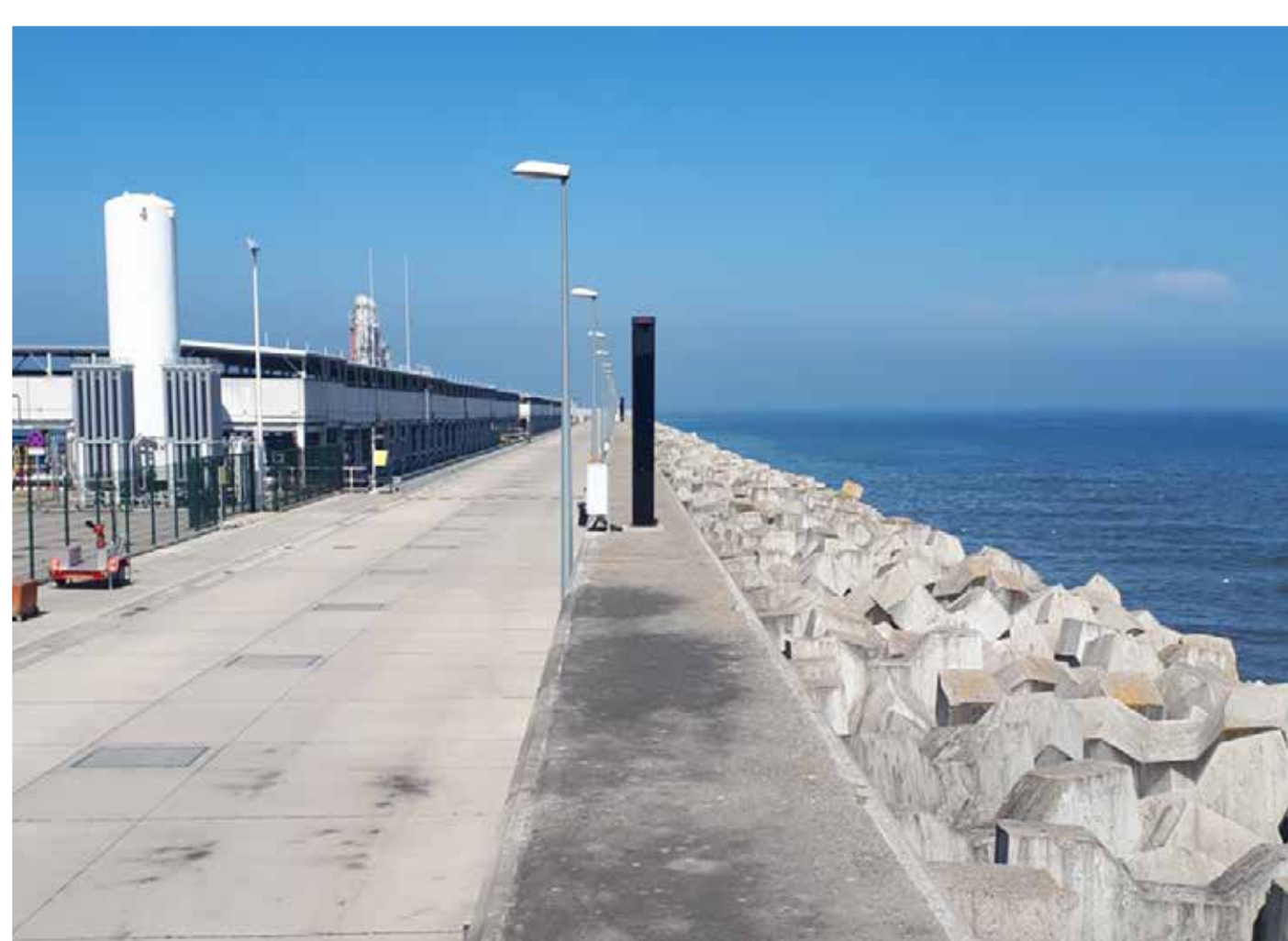
The value of Perimeter Intrusion Detection Systems (PIDS)

Perimeter Intrusion Detection Systems (PIDS) detect intruders as soon as a protected area is entered and therefore are the first line of defence before intruders are able to gain access to people, valuable objects and assets. Their deployment, in conjunction with Video surveillance systems, provide a primary and fundamental layer of security by monitoring suspicious activities within perimeter boundaries.

PIDS are not only being used to prevent and detect intrusions in critical infrastructures, military sites, and other high-risk sites, but are now being used at commercial and residential sites, urban and remote areas and transportation sites. The rising issues surrounding illegal immigration and rising terrorist threats have urged governments to devise regulations and industry standards for perimeters security.

AVANTGARDE
IP Active Barriers

IP PoE

Reduced cabling Infrastructure

End-to-End integrations

4

Certified Grade 4

AVANTGARDE has been designed to meet the growing demand of **IP BASED PERIMETER INTRUSION DETECTION SYSTEMS (PIDS)**. Easy to integrate into existing or new IP backbone networks and virtually controlled from any location, advantages of IP-based solutions include **REMOTE ACCESSIBILITY** for system maintenance and diagnostics, **HIGH**

SCALABILITY, **SEAMLESS INTEGRATION** in third party SMS/VMS and enhanced installation **COST-EFFECTIVENESS**.

AVANTGARDE products family includes **Infrared** (IR), **Microwave** (MW) and **Dual Technology** (IR+MW) barriers.

AVANTGARDE-IR

IP Infrared Barrier

AVANTGARDE-DT

IP Dual Technology Barrier

AVANTGARDE-MW

IP Microwave Barrier

IP Infrared Barrier

AVANTGARDE-IR is a high security active Infrared Barrier enclosed in two tamper protected extruded aluminium columns equipped with Sicurit last generation of digital patented **bi-directional Infrared Technology** with range up to 200m purposely designed for the protection of Critical Infrastructures (Avantgarde meets Environmental Class IV, Grade 4 - Risk HIGH according to EN 50131).

BI-DIRECTIONAL INFRARED TECHNOLOGY
IMMUNE TO SUNLIGHT

AVANTGARDE is equipped with SICURIT's last generation of digital bi-directional Infrared Technology.
Thanks to the patented 3TX+3RX-Optics Beam head, in case of any false exposure to direct light sources (e.g. sunlight/car headlights) the inflicted receiver raises a pre-alarm, but as the corresponding receiver on the other side is getting a correct signal, AVANTGARDE will not set an alarm condition thus drastically reducing nuisance alarm rates.

AVANTGARDE results therefore to be the only active infrared barrier completely immune to direct light exposure.

CORE FEATURES

End-To-End Integration

AVANTGARDE is the only high security active barrier that can be integrated end-to-end in any security platform by means of bi-directional API or Modbus TCP protocols.

Additionally it is already integrated in Milestone, Genetec, Geutebrueck and IndigoVision thanks to the specially designed A-Bridge Gateway that allows to seamlessly connect up to 128 set without the need of any additional security management platform which would result, at this level, just useless.

Reduced cabling Infrastructure (PoE+)

Thanks to the optional built-in PoE+ splitter, AVANTGARDE easily integrates in new or existing IP Networks via a single Ethernet cable for data and power transmission. This reduces installation costs and allow grater system design flexibility.

Easy to Maintain - Predictive Maintenance Tools

AVANTGARDE requires very low maintenance, time to time an external front-cover cleaning to remove dust or sand. Using the built In Signal efficiency analysis function (SEA), periodic maintenance activities are not required as AVANTGARDE will promptly notify, with prior advance notice, the needs of such intervention.

TARGET DIRECTION ANALYSIS

5DS
5 DETECTION SCENARIOS

PREDICTIVE MAINTENANCE TOOLS

INFRARED BEAMS CONTROL

AVANTGARDE-IR

" How to secure sites surrounded by concrete walls (that contrary to metal fences can't be secured with typical fence mounted sensors or sensor cables) against climbing over intrusion attempts?

With AVANTGARDE, a fence on top of walls will be created "virtually", by means of short and discrete IR Beam barriers tailored for this application. **"**

KEY BENEFITS

- Linear detection with range up to 200m (100m in dense fog environments)
- Bi-directional Infrared technology completely immune to sunlight and car headlights
- End-to-end integration with SMS and purpose-designed Gateway for integration with major VMS
- Distributed Intelligence for unparalleled target discrimination (5DS)
- 12/24V, 230V or PoE+
- IP65 rating for water and dust resistance and temperature range up to -40°/+70°C
- Tested and Certified Grade 4 and Environmental Class IV (according to EN 50131)

TYPICAL SYSTEM ARCHITECTURE

TECHNICAL SPECIFICATIONS

FEATURES	IMTIR200/2.0	IMTIR200/2.5	IMTIR200/3.0
Outdoor range	Up to 200m (100m in dense fog environments)		
Number of IR beams	Default 3 (Max. 4)	Default 4 (Max. 6)	Default 5 (Max. 8)
Tower height*	2.0m	2.5m	3.0m
IR frequency	950nm		
Power supply	12VDC ±15% and 24VAC ±20% (Anti-mist heaters); PoE+		
Operating temperatures	-25°C to +70°C | -40°C to +70°C (with additional PTC heater)		
Alarm output	Contact Relay on M-TX and S-RX		
Tamper output	Contact Relay on M-TX and S-RX		
Auxiliary inputs	4x double balanced in each tower		
Auxiliary outputs	3x programmable O.C. in each tower		
Configuration	Built-in Web-server and Software (Windows® based)		
Integrated platforms	HyperPower, A-Bridge | Via A-Bridge: Geutebrueck, Genetec, Milestone, IndigoVision Via HyperPower: Geutebrueck, Milestone, Winguard, Lensec		
M2M communications	API, Modbus TCP		
Tower dimensions (mm)	155(w) x 166(l) x 2000(h)	155(w) x 166(l) x 2500(h)	155(w) x 166(l) x 3000(h)
Base dimensions (mm)	280 x 280		
Tower IP rating	IP65		
EMC	In compliance with European standards		
Product classification	Security Grade 4 - Environmental Class IV (EN 50131-1:2006, EN 50131-1-2-4:2008)		
Warranty	Comprehensive 3 years		

* For wall applications, Avantgarde is also available in 1.0m (2 IR) and 1.5m (3 IR) towers.

AVANTGARDE-IR

IP Dual Technology Barrier

AVANTGARDE-DT is a high security active Dual Technology barrier enclosed in two tamper protected extruded aluminium columns equipped with Sicurit last generation of digital patented bi-directional Infrared and active Microwave technology, all within one unit.

Because of the combination of the two technologies, the barrier offers a very high level of security even under conditions of thick fog, heavy rain, strong snowfalls and sandstorms all of which tend to trigger false alarms or unreliable performance when only one technology is used.

BI-DIRECTIONAL INFRARED TECHNOLOGY & BRAND NEW K-BAND MW

AVANTGARDE-DT is equipped with SICURIT's last generation of digital bi-directional Infrared Technology.

Bi-Directional IR Technology

Thanks to the patented 3TX+3RX-Optics Beam head, in case of any false exposure to direct light sources (e.g. sunlight/car headlights) the inflicted receiver raises a pre-alarm, but as the corresponding receiver on the other side is getting a correct signal, AVANTGARDE-DT will not set an alarm condition thus drastically reducing nuisance alarm rates.

New K-Band Microwave Technology

Additionally AVANTGARDE-DT makes use of latest digital planar antenna (K-Band) and Advanced Digital Signal Processing (ADSP) to reduce false alarm rates and distinguishing the type of intrusion attempt and eventual temporary obstructions specially during system arming.

Another innovation is the introduction of a random modulation channel shuffle-based algorithm that increases Microwave safety making AVANTGARDE-DT completely immune against attempts to tamper it.

CORE FEATURES

End-To-End Integration
AVANTGARDE is the only high security active barrier that can be integrated end-to-end in any security platform by means of bi-directional API or Modbus TCP protocols.
Additionally it is already integrated in Milestone, Genetec, Geutebrueck and IndigoVision thanks to the specially designed A-Bridge Gateway that allows to seamlessly connect up to 128 set without the need of any additional security management platform which would result, at this level, just useless.

Reduced cabling Infrastructure (PoE+)
Thanks to the optional built-in PoE+ splitter, AVANTGARDE easily integrates in new or existing IP Networks via a single Ethernet cable for data and power transmission. This reduces installation costs and allow grater system design flexibility.

Easy to Maintain - Predictive Maintenance Tools
AVANTGARDE requires very low maintenance, time to time an external front-cover cleaning to remove dust or sand. Using the SEA software tool (Signal Efficiency Analysis), periodic maintenance activities are not required as AVANTGARDE will promptly notify, with prior advance notice, the needs of such intervention.

TARGET DIRECTION ANALYSIS

5DS
5 DETECTION SCENARIOS

PREDICTIVE MAINTENANCE TOOLS

INFRARED BEAMS CONTROL

AVANTGARDE
IR | MW | DT

KEY BENEFITS

- Linear detection (and volumetric pre-alarm) with range up to 200m
- Dual technology operation (IR+MW)
- Bi-directional Infrared technology completely immune to sunlight and car headlights
- K-Band or X-Band (ref. ABSOLUTE PRO) according to country rules
- End-to-end integration with SMS and purpose-designed Gateway for integration with major VMS
- Distributed Intelligence for unparalleled target discrimination (5DS)
- 12/24V, 230V or PoE+
- IP65 rating for water and dust resistance and temperature range up to -40°/+70°C
- Tested and Certified Grade 4 and Environmental Class IV (according to EN 50131)

TYPICAL SYSTEM ARCHITECTURE

200m

HyperPower™ SMS   A-Bridge   IMTIPLOG Output Module

TECHNICAL SPECIFICATIONS

	IMTDTA200/2.0	IMTDTA200/2.5	IMTDTA200/3.0
Outdoor range	Up to 200m		
Number of IR beams	Default 3 (-)	Default 4 (Max. 5)	Default 5 (Max. 7)
IR frequency	950nm		
Number of MW	1	1	Default 1 (Max. 2)
MW frequency	K-Band		
MW channels	16 crystal quartz		
Tower height	2.0m	2.5m	3.0m
Power Supply	12VDC ±15% and 24VAC ±20% (Anti-mist heaters); PoE+		
Operating Temperatures	-25°C to +70°C | -40°C to +70°C (with additional PTC heater)		
Alarm output	Contact Relay on M-TX and S-RX towers		
Tamper output	Contact Relay on M-TX and S-RX towers		
Auxiliary inputs	4x double balanced in each tower		
Auxiliary outputs	3x programmable O.C. in each tower		
Configuration	Built-in Web-server and Software (Windows® based)		
Integrated Platforms	HyperPower, A-Bridge | Via A-Bridge: Geutebrueck, Genetec, Milestone, IndigoVision Via HyperPower: Geutebrueck, Milestone, Winguard, Lensec		
M2M communications	API, Modbus TCP		
Tower Dimensions (mm)	155(w) x 166(l) x 2000(h)	155(w) x 166(l) x 2500(h)	155(w) x 166(l) x 3000(h)
Base Dimensions (mm)	280 x 280		
Tower IP rating	IP65		
EMC	In compliance with European standards		
Product classification	Security Grade 4 - Environmental Class IV (EN 50131-1:2006, EN 50131-1-2-4:2008)		
Warranty	Comprehensive 3 years		

AVANTGARDE-DT

SICURIT'S IR UNIQUE FEATURES

TARGET DIRECTION ANALYSIS

Avantgarde provides not only simple alarm information but even target direction (IN or OUT) information which makes even target tracking with perimeter CCTV cameras easier and more accurate.

5DS 5 DETECTION SCENARIOS

Being each Infrared beam equipped with microprocessor, individual crossing parameters can be set and up to 5 multiple intrusion detection scenarios can be programmed to better define detection target based on intrusion attempts behaviours.

PREDICTIVE MAINTENANCE TOOLS
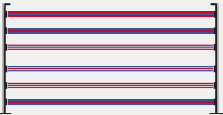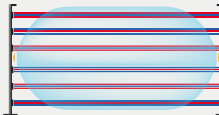
Another key innovation is the Signal Efficiency Analysis (SEA) which continuously monitor the optical communication efficiency of each IR beam which could decrease as for instance due to dirty Perplex or any other factor that can cause optical communication reduction.

INFRARED BEAMS CONTROL (ON-OFF)

Avantgarde can adapt itself to any drastic environmental change such as big snow falls, growing grass or sand storms by simply disabling without additional wire connections any Infrared Beam temporally obstructed thus preserving its capability of detection.

TECHNOLOGIES COMPARED

	CONVENTIONAL IR BARRIERS	MICROWAVE BARRIERS	AVANTGARDE IR	AVANTGARDE DT
SMALL BIRDS	False alarms	✓	✓	✓
SMALL ANIMALS	False alarms	✓	✓	✓
LEAVES PASSING BY	False alarms	✓	✓	✓
SUNLIGHT REFLECTION	False alarms	✓	✓	✓
HIGH FREQ. SIGNAL	✓	False alarms	✓	✓
FENCE INTERFERENCE	✓	False alarms	✓	✓
HARSH WEATHER/FOG	IR Disqualification	✓	Reduced range (100m)	✓

IP Microwave Barrier

AVANTGARDE-MW is brand new IP Microwave active barrier released by SICURIT R&D department to complete the IP based products family already composed of Infrared (AVANTGARDE-IR) and Dual Technology (AVANTGARDE-DT) barriers. Thanks to AVANTGARDE-MW, today Sicurit is able to fully respond to the requests of the most demanding markets, satisfying the growing demand for IP based products that allow remote accessibility for system maintenance and diagnostics, easy connections, better scalability, flexibility and enhanced installation cost-effectiveness.
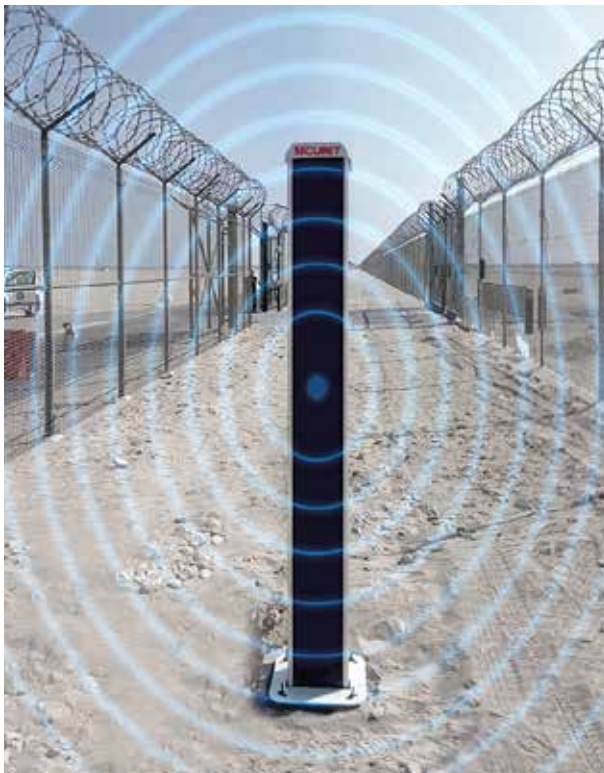
AVANTGARDE-MW makes use of latest digital RF planar link (24GHz) and Advanced Digital Signal Processing (ADSP) to reduce false alarm rates and distinguishing the type of intrusion attempt and eventual temporary obstructions specially during system arming.

16 Crystal-Quartz Channels

Thanks to the 16 Crystal-Quartz channels AVANTGARDE-MW enables more units to operate in close proximity to each other, including applications where 2 or even 3 units are stacked together within the same tower.

Another innovation is the introduction of a random modulation channel shuffle-based algorithm that increases Microwave safety making AVANTGARDE-MW completely immune against attempts to tamper it.
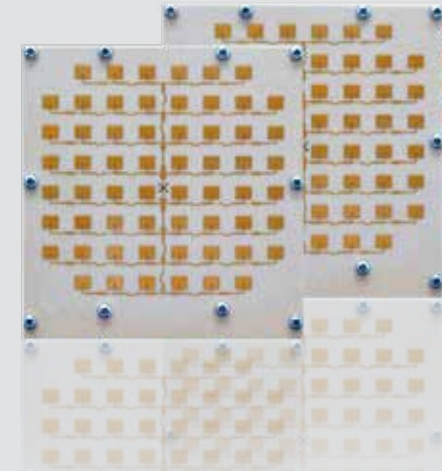
K-BAND ADVANTAGES

K-band microwave technology works on 24GHz frequency; this enables the device to deliver more accurate detection and uniform coverage of the detection area, minimizing false alarms from external movements (dimension of detection area limited and reduced compared to X-band, by proper setting of parameters). Additionally, the higher K-Band frequency enables AVANTGARDE-MW to reduce the power signal reaching the same distance.

BRAND NEW FEATURES

SEA and Temporary Obstruction Notification

The Signal Efficiency Analysis (SEA) continuously monitor the communication stability and efficiency of AVANTGARDE MW radio link and notifies any temporary obstruction that may cause gaps within the detection pattern, especially if caused by cars or trucks that might be used to bypass the system. AVANTGARDE MW provides an alert when the RF pattern is distorted for a certain period of time due to constant presence of bulky objects.

Reduced mounting accessories and cabling infrastructure

AVANTGARDE MW's electronic circuits and RF modules has been designed to fit AVANTGARDE IP65 long lasting proven towers, decreasing overall installation costs of Microwave barriers that often require expensive poles, jaws and junction boxes used to lodge power supply and converters. AVANTGARDE towers were in fact designed to provide space for any MW-related accessory including back-up batteries. Additionally Field wiring is minimized as AVANTGARDE MW communicates between TX and RX via a coded modulation of the RF signal, with the RX unit communicating alarm and status information via built-in Ethernet interface and alarm/tamper status through on-board relay outputs.

TYPICAL SYSTEM ARCHITECTURE

" Parabolic X-Band Option
AVANTGARDE MW can be provided with X-Band Parabolic Antenna mounted in a discrete ABS housing adaptable to pole and wall-mounting applications. **"**

TECHNICAL SPECIFICATIONS

	IMTMW200/1.5	IMTMW200/2.0	IMTMW200/D
Outdoor range	Up to 200m		
Operating frequency	K-Band	K-Band	X-Band
Number of MW	1	2	1
MW channels	16 crystal quartz		
Alarm response time	From 20ms up to 2000ms		
Power supply	12VDC ±15%; PoE		
Operating temperatures	-25°C to +70°C | -40°C to +70°C (with additional PTC heater)		
Alarm output	Contact Relay on RX		
Tamper output	Contact Relay on TX and RX Optionally general tamper on RX only		
Auxiliary input	1x double balanced in each tower		
Auxiliary O.C. output	1x programmable O.C. in each tower		
Configuration	Built-in Web-server and Software (Windows® based)		
Integrated platforms	HyperPower, A-Bridge | Via A-Bridge: Geutebrueck, Genetec, Milestone, IndigoVision Via HyperPower: Geutebrueck, Milestone, Winguard, Lensec		
M2M communications	API, Modbus TCP		
Tower dimensions (mm)	155(w) x 166(l) x 1250(h)	155(w) x 166(l) x 2000(h)	N/A
Housing dimensions	N/A	N/A	280(w) x 140(l) x 390(h)
Base dimensions (mm)	280 x 280 (BET040)		240 X 240 (MESDAVE07)
Tower IP rating	IP65		
Electro magnetic compatibility	In compliance with European standards		
Product classification	Security Grade 4 - Environmental Class IV (EN 50131-1:2006, EN 50131-1-2-4:2008)		
Warranty	Comprehensive 3 years		

HyperPower

HYPERPOWER is an Alarm and Event Management Platform based on client-server architecture with integration in third party PSIM.
It features fully interactive mapping with secure communications, simple graphical configuration and optional remote diagnostic (IP Native only).
Supports serial and Ethernet I/O modules to connect any conventional PIDS.
Current Integrations: Geutebrueck, Lensec, Milestone, Winguard.

A-Bridge

A-BRIDGE is a smart Gateway to connect AVANTGARDE barriers in major third party VMS.
It allows End-to-End integration of up to 128 set without the need for additional management and control SW Platforms (e.g. HYPERPOWER) thus reducing useless costs for dedicated servers and its configuration.
Current Integrations: Geutebrueck, Genetec, IndigoVision, Milestone.

IMTIPLOG

IMTIPLOG has been designed to provide anywhere in the IP Network contact relays outputs from any connected AVANTGARDE barrier.
Additionally it provides watchdog functionality and e-mails or SMS messages to the System Integrator that wants to be notified in case of system malfunctions.
Supported by ONVIF Profile S and T, IMTIPLOG can also be configured to control any perimeter connected network camera.

Notes

SICURIT offers a wide range of perimeter solutions not limited to those reported in this document. To find out more visit our website **www.sicurit.it** or contact your sales representative.

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MENA Edition 1.2 - 012023

SICURIT
PERIMETER PROTECTION SYSTEMS

a dedicated division of
SICURIT Alarmitalia Spa
Via Gadames, 91
20151 - Milan - Italy
Tel: +39.2.38070.1
Fax: +39.2.308.80.67
export@sicurit.it
www.sicurit.it