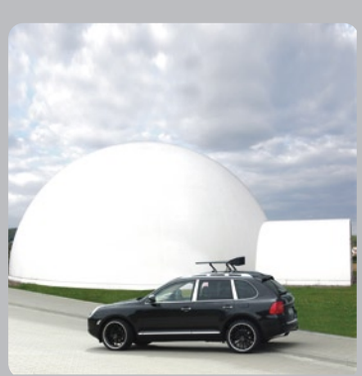
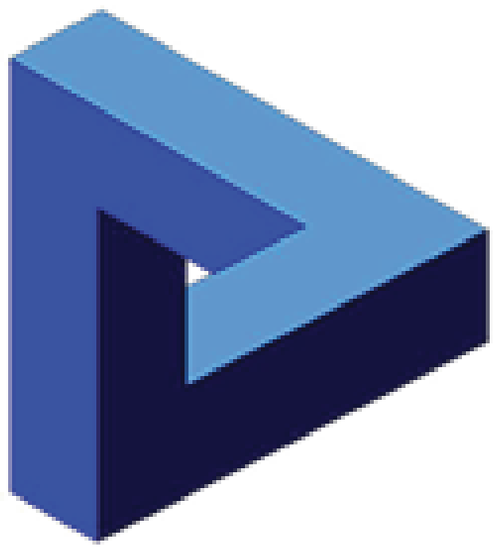
SIS GmbH

SIS GmbH · Digital Wideband FPGA Jammer





SIS GmbH
Birkenweg 25
31162 Bad Salzdetfurth
Germany

tel +49 5063 273630
fax +49 5063 273636

info@sis.ag
www.sis.ag

Digital bomb jamming 2.0 - Wideband FPGA Jammer

Our FPGA digital jammer is built-up in a modular design based on one FPGA unit and at least one output stage module. A booster module can be integrated into the system to realize up to 500W output power.

Features
· modular system 20Mhz - 8Ghz
· 16 programmable signal outputs in one FPGA
· USB and Ethernet programming interface
· output stage class for each frequency range
· 500W Booster optional

Based on its modular design and configuration our FPGA digital jammer can be easily operated, upgraded, serviced, repaired and adapted to its required use. Electric supply and cooling are integrated into the system.

The general design of the system meets military requirements as well as international quality standards and requirements. Our industrial in-house quality management system guarantees highest quality standards in terms of performance, reliabilty and long-life cycles.

Based on our general design, we can further customize our systems to client-specified scenarios both for military and civil applications in order to provide the best individual solution. Based on long-term development partnerships with our clients we further develop new technical solutions that are fully customized in design and use.

Technical Data Booster modules

frequency range:	25 - 140 Mhz or 120 - 500 Mhz or 470-960 MHz
output power:	up to 500W CW
ripple:	-1 up to +1,5 dB
auxiliary shafts:	- 60 dB
system impedance:	50 Ohm
input adjustment:	min. 10 dB
VSWR:	1:2,0
gain:	13 dB
ambient temperature:	5°C -30°C
weight:	ca. 17kg
dimensions permodul:	19“, 3U, 400mm deep
Hf-connections:	N socket backside
conformity:	EN CE and ETSI

Technical Data digital FPGA Jammer
Modular design with one FPGA module and one output stage-module.

FPGA-module

frequency range:	20Mhz-8Ghz
signal output ports:	16, full programmable
programming interface:	USB, Ethernet
dimensions:	19”, 2U

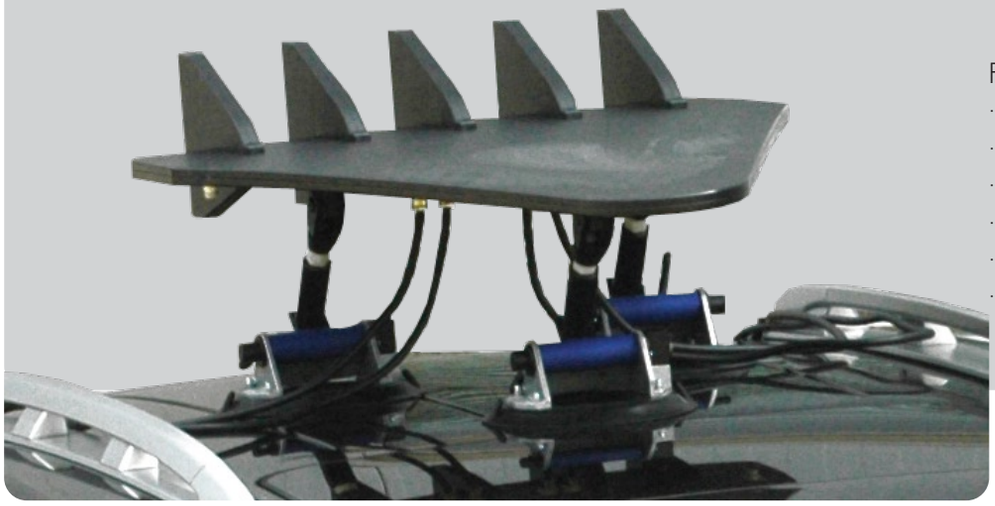
Output stage-modules

frequency range	output power
20 - 80 Mhz	10 - 120W
80 - 400 Mhz	10 - 160W
400 - 1000 Mhz	10 - 100W
1 - 3 Ghz	10 - 70W
3 - 8 Ghz	10 - 300W

system impedance:	50 Ohm
VSWR:	1:2,0
Hf-connections:	N socket backside
optional outputs:	HF monitoring outputs boost calibration external double hybrid IEEE-488.2 GPIB interface RS-232C interface USB interface
supply voltage:	200 - 240 V 50 - 60 Hz, 7A
ambient temperature:	0°C - +45°C
storage temerature:	-20°C - +85°C
humidity:	up to 95% (without condensation)
max operating height:	2000m over NN
dimensions:	19”

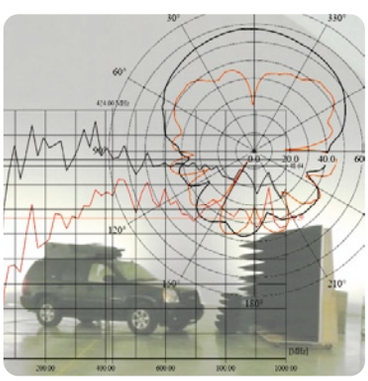
Digital bomb jamming 2.0 - Wideband Antenna V5

The latest version of our patented high-tech wideband antenna V5 is a mile-stone in terms of performance, functionality and design. Based on its modular design the antenna can be converted in the field to achieve best transmitting power, if needed.



Features
- wideband
- multi-mounting system
- plug & play
- high power HF transmitting
- transmitting and receiving
- versatile applications

With full plug-and-play functionality, our wideband antenna V5 can be upgraded to higher frequency bandwiths by exchanging the wings. This can be done swiftly with plug-and-play components. No new wiring or installation is necessary. Due to its diversity our wideband anennta V5 can even be dismanteled in the field within minutes. The same goes for switching between different cars. In order to acvieve highest quality standards the antenna's teflon board has a golden coat and is covered with a high-tech cover that ensures minimal damping while protecting the antenna against mechanical damage and environmental factors. The antenna system V5 can also be integrated into older jammer systems. Each antenna has to pass a comprehensive testing procedure through a certified laboratory before delivery. Contrary to most other antenna systems on the market our antenna can be used for high-speed convoy use as well as off-road use without any limitation.



SIS GmbH jammer

Technical Data

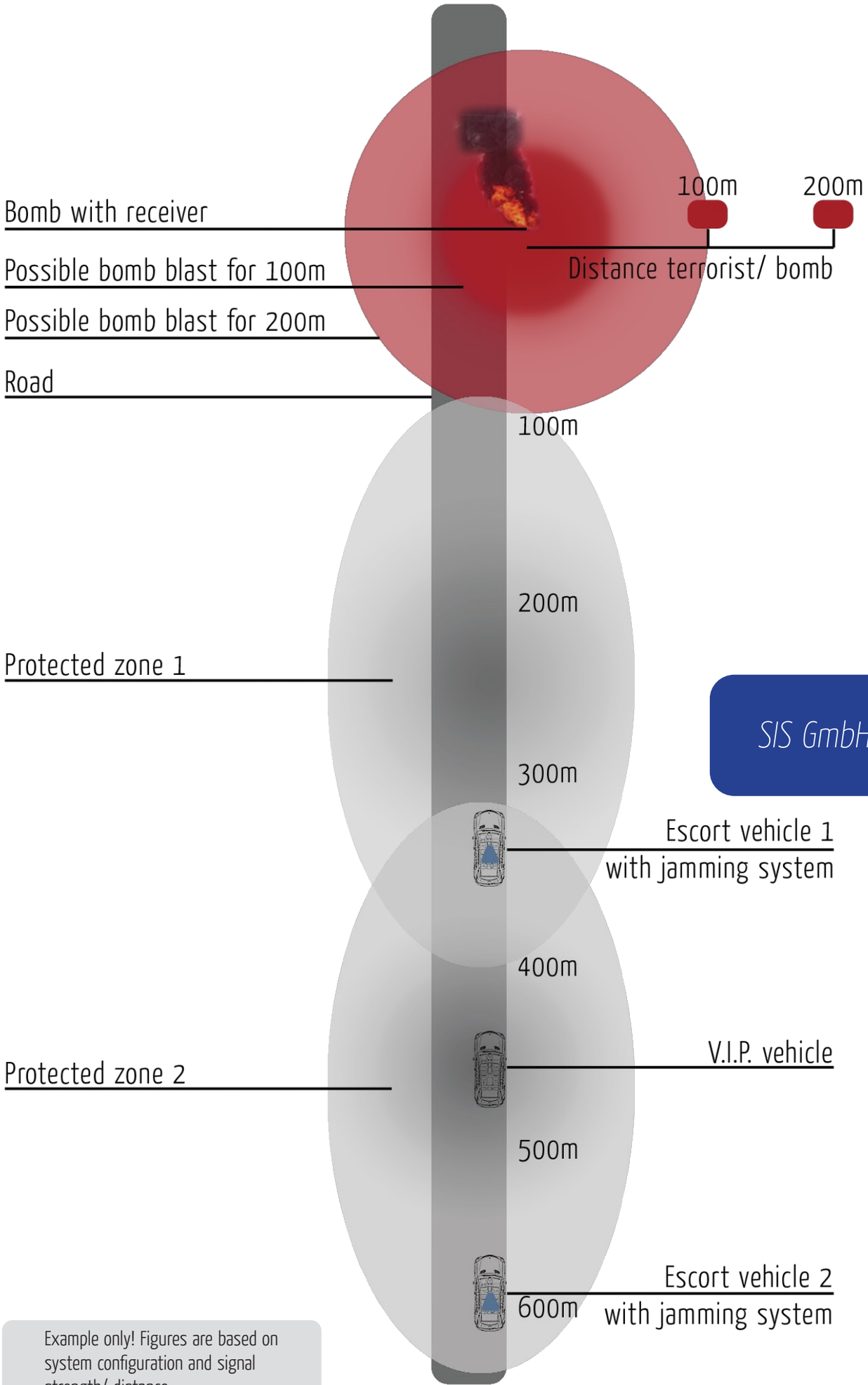
design:	modular logarithmic-periodic
frequency range:	20MHz - 10GHz
max. transmission power:	500W
nominal impedance:	50Ohms
VSWR (typ.):	< 2,5
gain (typ.):	5-7dBi
RF connection:	N socket
polarisation:	linear vertical/horizontal
dimensions l/ w/ d:	1100/ 700/ 180mm
weight:	ca. 15kg
wings:	5pieces
color:	black

Vacuum mounting kit

The easiest way to equip your vehicle with our wideband antenna.

- manual or automatic suction unit
- mounting without any damage

The automatic suction unit is battery powered and ensures permanent vacuum.



Example only! Figures are based on system configuration and signal strength/ distance.

Digital Wideband FPGA Jammer

Convoy and mission protection against roadside bomb attacks.

Digital bomb jamming 2.0 - the importance of digital bomb jamming as an essential part of mobile IED blast protection.

With multiple war-zones around the world especially in Iraq and Afghanistan, the threat-structure has changed significantly from ballistic protection to IED blast protection over the last years.

Today protection against ballistic assaults can be considered mostly accomplished, if the right ballistic materials such as ballistic steel and ballistic glass are being used during production and if the build quality & concept are in accordance to ballistic standards.

With blast protection, the story is much different. There are no standards to which vehicles can be protected. The winning formula seems to be: "The more, the better"! This is for the reason that self-made-IEDs don't follow any standards. To achieve a reliable blast protection many factors need to be considered such as speed, angle of impact, amount of explosives that are impossible to control or simulate. These factors can not be controlled in the field leaving too many variables. As a result a lot of current vehicle concepts have been changed from light-armoured vehicles back to heavy-armoured vehicle concepts.

In order to protect their people, organizations operating in crisis areas, therefore need to apply a multi-component-protection concept that needs to cover the armoured vehicle with aditional blast protection components as well as digital jamming systems to block all RCIED (radio or frequency controlled IEDs) attacks.

setting

2.0

· real-time jamming capability throught the complete frequency spectrum.
· field programmability for rapid adjustment
· modular construction for easy maintenance, repair and upgrade
· efficient power management & power supply
· vehicle shielding to protect passengers against jammer related EMV radiation

SIS GmbH jammer

The choice of the digital jamming systems needs to be considered under the following aspects a.o.:

· real-time jamming capability throught the complete frequency spectrum.
· field programmability for rapid adjustment
· modular construction for easy maintenance, repair and upgrade
· efficient power management & power supply
· vehicle shielding to protect passengers against jammer related EMV radiation

With our German made FPGA digital wideband jamming systems, we are providing the latest FPGA-chip-technology that makes high-efficiency real-time digital jamming possible for the first time. Each system can be customized to the clients capabilities and infrastructure thanks to it's modular structure. All core-components are certified in accordance to MIL-standards ensuring field-qualification.

We strive to make digital jamming transparent and user-friendly in order to provide real protection. Our clients will have access to our ressources in terms of in-house development and programming to ensure the best system-performance and integration possible. In addition all systems will be tested and approved under highest German quality standards including full EMI screening of the vehicle to provide full technical documentation of the system.

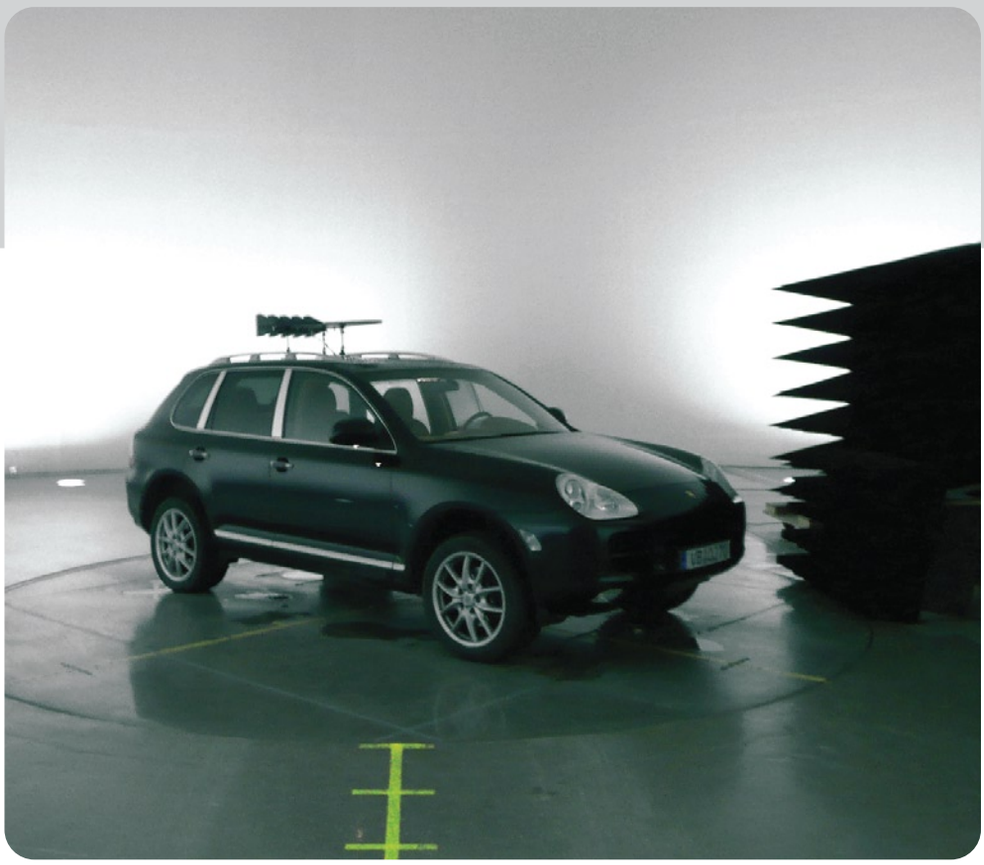
Digital bomb jamming 2.0 – setting future standards!

future standards

Digital bomb jamming 2.0 - EMV vehicle shielding

EMV protection for jamming vehicles is an essential part of the system to keep the exposure to radiation as low as possible.

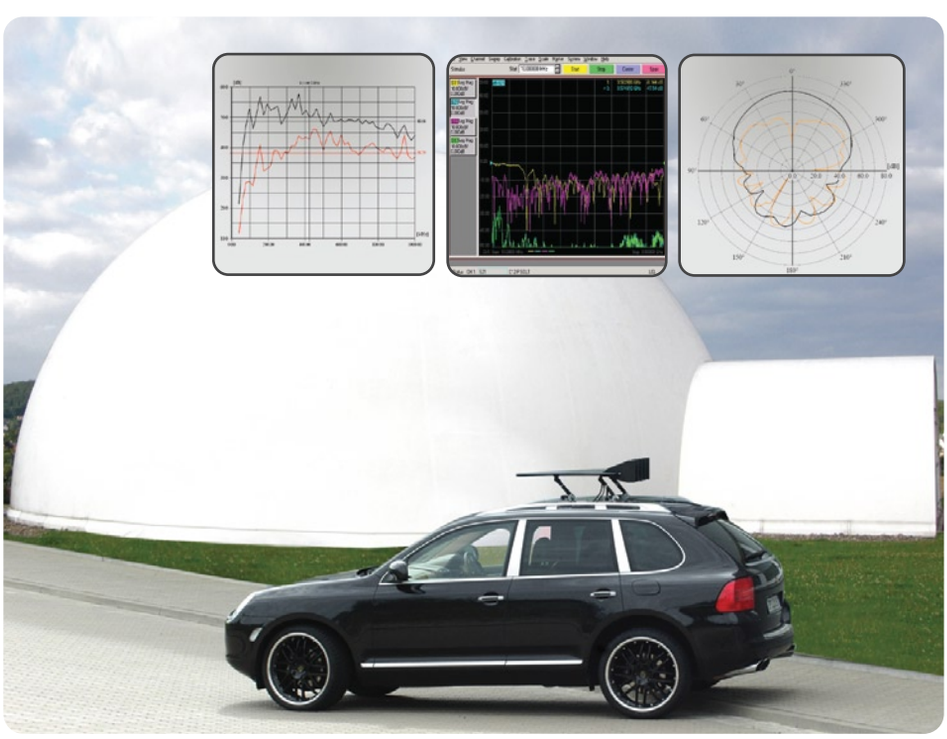
Features
- high shielding performance
- protection for passenger and electronic
- best shielding materials
- first-class shielding materials armoured and non-armoured



The use of electric energy means that the energy of electromagentic fields is converted into other forms of energy such as radiation energy, mechanical energy or warmth. These electro-magnetic fields can freely spread and can penetrate into electrical equipment causing malfunction.

The same applies for humans when exposed with electro-magnetic radiation above the critical values. Serious health effects are the consequence.

A jamming system in operation will create big amounts of harmfull HF waves and therefore shielding protection is absolutely necessary, as the Faraday-cage construction of a car can not protect against this type of radiation.



We have developed a special shielding procedure that absorbs the dangerous HF rays.

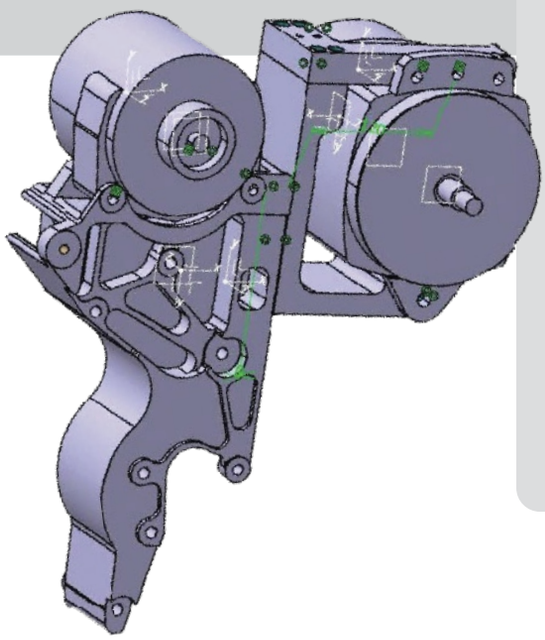
Each vehicle type will be individually developed to meet the technical requirements without changing the usability.

All vehicles are tested based on a "CE-certificated" testing cycle in the first step and will then undergo extensive measurements in a high-tech radome throughout the complete frequency band width.

Digital bomb jamming 2.0 - Multi Alternator Holder

Our adaptive generator holder has been developed especially to provide electronic systems such as digital jamming systems or other external system with sufficient power supply. With the second generator that operates indepently, also enough power in low speed scenarios is provided to operated the jamming system permanently. In the same time the manufacturers original warranty is not affected.

The generator holder is shaped out of an aluminum block with a special automotive design that prevents drilling into the engine block for assembly.



The installation of our multi alternator holder is very simple and can be done in very short time.

The system can be dismantled without problems. In case of technical problems the connection can be redirected to the original alternator.

Various strap runs can be formed based on the specific vehicle.

SIS GmbH jammer

Predator HD InCar Observations-Workstation

Our Predator system was developed based on the growing demand to keep records of all missions that governmental organizations carry out in crisis areas to have burden of proof in case of critical incidents. The cameras are typically mounted in the front and rear of the car. The next generation will be installed under our digital wideband antenna V5 for 360 degrees recording.

Features

· Uncompressed and fluent recording of up to 2 X 1080 HD-videostreams and and up to 3 analog SD-video-streams in real-time.
· Integrated RAID-System for up to 8 harddiscs in mobile racks with status display.

APSS · Autonomous Power Supply Systems

Fuel cell · *Stand-alone fuel cell backup power supply for jamming systems*

Soldiers lives can depend upon the availability of power in the field. APSS provides reliable power for the operation of jammers, radios, night vision equipment or computers - integrated into tactical vehicles or in the field.

The APSS fuel cell is charging the batteries, silently, fully automatically, in any weather and maintenance-free.

Experience the ultimate power source for defense applications!

Fuel cell - Stand-alone fuel cell backup power supply for jamming systems

The fuel cell technology

Direct-methanol fuel cell (DMFC)
Liquid fuel → One step – direct conversion → Electric energy

- High efficiency
- 65 Watts
- Flexible fuel tank
- Very low emissions
- No moving parts, no wear out
- Quiet
- Lightweight and compact
- 100 % availability
- Robust and maintenance-free
- No hazardous emissions
- Thief-proofed installation

Extended mission duration

- Safe: Can be used on-board without hazardous emissions and with no significant heat and noise
- Stand alone power source

Challenges:

- Operation time of a battery is limited Generators are not an option: heavy, noisy, and have hazardous emissions
- Detectable: Engine must be started to recharge the on-board battery

stand-alone

Key Benefits

Ultra high energy capacity:
One 10 l (8.4 kg / 18.5 lb) fuel cartridge contains the same capacity as 52 BA5590 batteries (52 kg / 115 lb) or 10 lead acid batteries (300 kg / 661 lb), making APSS a real power horse in the field and in tactical vehicles.

Non detectable:
Compared to generators APSS fuel cells produce almost no noise (39 dB(A) at 1 m distance). They can be operated in vehicles, above or below ground, so they can be completely hidden from view.

Simply press the on-button!

Plug and play:
APSS can be hybridised with standard military batteries such as the BB2590 and any 12 / 24 V batteries without requiring any additional equipment.

Maintenance free long term operation:
APSS fuel cells are completely maintenance free. Equipped with sufficient fuel they can be left in the field for weeks without requiring any attendance. Of course, they can also be remote-controlled.

Product	APSS 12V	APSS 24V
Charging capacity	1560 Wh/day	1560 Wh/day
Nominal power	65W	65W
Nominal voltage	12 V	24 V
Nominal current	5,4 A	2,7 A
Weight	9,1 kg (20,1 lbs)	9,1 kg (20,1 lbs)
Noise emission	21 dB(A) *	21 dB(A) *
Operating temperature	-20 C (-4 F) to +40 C (104 F)	
Dimensions (L x W X H)	47,8 x 18,0 x 27,6 cm (18,8 x 7,1 x 10,9 inch)	
Fuel consumption	1,1 l/kWh - 1,3 l/100 Ah at 12 V	

* At 7 m distance

The AAPS Pro 1600 is the counterpart for civilian projects in our AAPS series.

- Versions for professional operations
- robust metal casing
- automatically charges 12 V and 24 V batteries
- established technology
- AAPS Pro 1600 Longlife with guarantee of 5.000 operating hours
- hybrid system: combination with solar panels possible

SIS GmbH APSS

Product	APSS Pro 1600
Max. energy output	1560 Wh/day
Nominal power	65W
Nominal current @ 12 V/ 24 V	5,4 A/ 2,7 A
Weight	8 kg (18 lbs)
Operating temperature	-20 C (-2 F) to +40 C (113 F)
Dimensions (L x W X H)	433 x 188 x 278 mm (17 x 8 x 11 inch)
Methanol consumption	0,9 l/kWh

backup power