Datasheet – SkyLANX ®
RF-Detektor

Password needed for full access

System Overview

System Designation	SkyLANX Laser Effector (Vehicle / Stationary Version)
System Type	High Energy Laser (HEL) — Directed Energy Weapon (DEW) for neutralizing small UAVs, FPV drones and loitering munitions.
Laser Source	Yb-fiber laser, CW / pulsed, optical output 2–20 kW (configurable)
Wavelength	1080 nm (standard) — optional 1940 nm (eye-safe variant)
Beam Control	Galvanometric scanner with adaptive beam expander 20–150 mm, precision auto-focus tracking
Target Tracking	Electro-optical / infrared (EO/IR), Radar cueing, LiDAR support
Fire Control / C2 Interface	GigE / OPC-UA / CAN Bus / MIL-STD-1xx (optional)
Cooling	Closed-loop liquid cooling (water-glycol 40 %) — air cooling optional for 2–5 kW variant
Servo Drive Precision	< 0.01°
Weight (Vehicle configuration)	approx. 900 kg including gimbal and cooling module
Dimension (H×W×D)	800 × 900 × 1800 mm
Power Supply	28 V DC or 230 V AC (vehicle or mains power)
Operating Modes	Continuous wave or pulsed (software configurable)
Beam Quality	M² < 1.3

Engagement / Kill Capability (Operational Performance)

Effective Neutralization Range (FPV / Mavic class)	approx. 2 500 m (validated under standard visibility conditions)
Target Type	small FPV drones (e.g., DJI Mavic class)
Maximum Target Velocity	up to 150 km/h (tracking and engagement within system design limits)
Destruction Time (Time to Kill)	< 7 seconds from laser engagement to functional neutralization
Wind Resistance	"Unaffected by wind" — system static beam path stability is not impacted by wind gusts (only target flight dynamics)
C2 Integration / Software	fully C2-connectable by default, supporting GigE / OPC-UA / MIL-STD-1553 / CAN Bus; open APIs and secure protocols (TLS / VPN / AES encryption) available
Engagement Policy & Forensics	fire authorization follows customer RoE; automatic event logging and EO/IR video overlay for forensic documentation

Technical Note: The stated range and kill time represent design-level values under defined atmospheric conditions. Heavy aerosol loading (fog, dust, rain) can affect transmission efficiency and required dwell time. Wind primarily influences target trajectory, not laser propagation.

Electrical & EMC Requirements

Electromagnetic Compatibility	MIL-STD-461G (CE101, CE102, RE102, RS103)
Power & Surge Protection	compliant with MIL-STD-1275E (vehicle power systems)
Ingress Protection	IP66 (dust- & water-resistant; optional IP67)
Grounding & Bonding	per MIL-STD-464C
Cable Shielding	braided shields and ferrite filters on all data and power lines

Mechanical Structure

Housing	Aluminium alloy 6061-T6; optional titanium / composite panels
Surface Coating	Epoxy primer + Polyurethane topcoat (MIL-PRF-85285 Type I, FS 36440 grey-white)
Fasteners / Seals	Stainless A4 screws, Viton O-rings
Mounting Interface	4-point gimbal mount, MIL-DTL-38999 compliant
Gimbal Motion	Azimuth ±170°, Elevation −20° … +80° (configurable)

Safety & Operation

Laser Classification	Class 4 (IEC 60825-1)
Hardware Safety	key switch, two-man rule, optical interlocks, emergency-stop
Software Safety	geofencing, no-fire zones, RoE enforcement, forensic logging
Auto Calibration	integrated alignment routine with zero-point check
Failsafe Logic	auto-shutdown on over-temperature, coolant loss, unauthorized access
Maintenance Intervals	inspection every 500 h, full service every 2 000 h

Operational Envelope & Conformity Status

Operating Altitude	0 – 3 000 m ASL
Temperature	−20 … +55 °C
Relative Humidity	0 – 95 % (non-condensing)
Precipitation	≤ 100 mm/h
Wind load	≤ 150 km/h (fixed position)
Shock load	≤ 20 g / 11 ms
Vibration	Land Vehicle Category II

Documented Conformity

Standard	Test Area	Status
MIL-STD-810H 501/502/503	Temperature	Design validation passed
MIL-STD-810H 507	Humidity	Passed
MIL-STD-810H 514	Vibration	Passed
MIL-STD-810H 516	Shock	Passed
MIL-STD-461G	EMC	Under validation
IEC 60825-1	Laser safety	Compliant (Class 4)

Environmental Testing (MIL-STD-810H Summary)

Test Item	Method	Condition	Verification Criteria	Status
High temperature	Method 501	Operation +55°C / storage +70°C	No temperature rise at +55°C	Passed
Low temperature	Method 502	Operation −20°C / storage −33°C	Functional CW power loss	Passed
Temperature shock	Method 503	−20…+55°C spot change	No functional optical misalignment	Passed
Humidity	Method 507	95 % RH, 10 cycles	No condensation/moisture	Passed
Vibration	Method 514	5 Hz to 2 kHz random	No mechanical optical damage	Passed
Shock	Method 516	20 g / 11 ms	Operational detected	Passed
Solar radiation	Method 505	1 120 W/m² solar loading, laser target spectra	Thermal test	Passed
Blowing sand / dust	Method 510	1.5 g/m³, sand 10 m/s 30 minutes	Sealed IP66 test	Passed
Salt fog	Method 509	5 % NaCl, 48 h	No corrosion/sealing on aluminium	Passed
Low pressure (altitude)	Method 500	15 000 m altitude 40 % 70 kPa	No operating tests	Passed
Immersion (pressure)	Method 512	1 m depth / 30 minutes	Ingress test IP67	Passed
Full range (optional)	Method 501	30 m/s at +55/0 °C	No outgassing/overheat	Optional

Notes & Recommendations

This datasheet defines design objectives and validated results of the SkyLANX Laser Effector. Formal qualification requires formal validation test clearance by acceptance documentation (e.g. in Yb, 1080, 55% conditions).

A laser "beam designation" can be associated with the SkyLANX dual-lattice signatures internal measurement prior to live operation.

Field validation is recommended to confirm neutralization range performance under local atmospheric conditions.

Export & legal compliance: to document export re-use and export licensing upon customer RoE scenarios.

Cybersecurity: secure firmware signing, authenticated network access and forensic logging required for C2 integration.

Manufacturer: SkyLANX — (Sub Vanguard Capital GmbH) Additional contact information on request.

Approval:
Internal / Restricted / Date