

19"/2® ESW4101



NGVA Switch in a 19"/2® form factor

The 19"/2® ESW4100 Series switch gives you reliable, high performance switching on TWELVE GigE and FOUR 10GigE Multimode Fibre Ethernet ports in a compact rugged form factor that is optimized for low Size, Weight and Power (SWaP) to meet military requirements without sacrificing reliability, ruggedness or performance.

Small form factor

The MilDef 19"/2 form factor is optimized for reduced size, weight, and power (SWaP) to meet industry and military requirements without sacrificing reliability, ruggedness or performance.

Flexible mounting

The 19"/2 standard enables flexible mounting options for a wide array of integration scenarios. The unit can be mounted in a standard 19" rack, half racks, or directly on to a surface and at any angle.

Customizable

Are you looking for additional features and functions? MilDef specializes in customized solutions, to

include change of connectors, chassis modifications, mounting solutions, etc. Contact your nearest MilDef Sales Office and we will help you tailor a solution to meet your exact requirements.

Military-relevant rugged design

MilDef products are designed to operate in extreme environmental conditions and challenging electromagnetic operational scenarios. Operationally proven, MilDef products are actively employed in military operations in over 60 countries.

Features

- 10GBASE-SR, MM 850nm
- Based on the Microchip SparX-5i
- Management through Serial and Web
- IGMP and MLD support
- RSTP and MSTP support
- Layer 3 capabilities
- 12-36 VDC
- DEF-STAN 59-411, Land Class A
- Passively cooled

Connector Interfaces

SERVICE (back)	• 1x RS232 Service
X1 DC IN (front)	• 1x Power
X2 (front)	• 1x Console RS232
X3-X5 (front)	3 connectors which each has: <ul style="list-style-type: none"> • 2x ETH 1000BASE-T
X6-X7 (back)	2 connectors which each has: <ul style="list-style-type: none"> • 2x ETH 10GBASE-SR
X8-X10 (back)	3 connectors which each has: <ul style="list-style-type: none"> • 2x ETH 1000BASE-T

Other Interfaces

10x LAN indicator (back)
6x LAN indicator (front)
1x System button (front)

Technical Specification

Blanking	Enable/disable all externally visible indicators from emitting light via the "blinking command"
Blanking	Double-pressing the System button
Fiber characteristics	MM 850 nm 50/125
Forwarding rate	Nonblocking wire-speed switching performance for all frame size
High availability	VRRP
LAN 1000BASE-T	1000BASE-T standard
LAN 10GBASE-SR	10GBASE-SR, MM 850nm
Layer 2 switching	IEEE 802.1 + 802.3 standard, LLDP, Link Aggregation, Trunking, Mirroring, MSTP, RSTP
Management	ICLI, Web UI, MIB, SNMP, Syslog, DHCP server
Multicast	IGMP snooping, IGMP filtering, IGMP querier, MLD snooping
Quality of service	Policing, shaping and autoQoS
Reference design	Based on the Microchip SparX-5i
Routing	IPv4/IPv6 Layer 3 static and dynamic routing (IPv4 only is supported)
Security	802.1x, DHCP snooping, dynamic ARP inspection, IP source guard, SSH, RADIUS, BPDU guard, ARP Snooping
Timing and synchronization	NTP
Virtualization	VRF-lite

Electronics ground to chassis	Isolated
MIL-STD-1275E	Fully compliant
Polarity protection	Protected against incorrect polarity connection on the power input within the normal operating voltage range
Power consumption	30 W
Power input	12-36 VDC
Power to chassis	Isolated
Power to electronics ground	Isolated
Chassis material	Aluminum
Coating and color	AE0305-6603120 Axalta (RAL 6031)
Cooling	Passively cooled
Dimensions depth	321 mm (11.8 in) back connectors included
Dimensions width and height	220 x 43.4 mm (8.66 x 1.71 in) (WxH)
Earth point	M6 12 mm
Surface treatment chassis	Chromit-Al
Weight	2.7 kg (6 lbs)
MTBF	172,627 h
CE	Compliant

Environmental Specification

Functional shock - Operating	MIL-STD-810H, Method 516.8, Procedure I - Functional shock. Table 516.8-IV, Terminal peak sawtooth pulse, Ground materiel 40 g 11 ms
High temperature - Operating	MIL-STD-810H, Method 501.7, Procedure II - Operation 65 °C (149 °F) (Optional 71 °C (160 °))
High temperature - Storage	MIL-STD-810H, Method 501.7, Procedure I - Storage 71 °C (160 °F)
Humidity	MIL-STD-810H, Method 507.6, Procedure II - Aggravated 95 ± 4% RH Ten 24-hour cycles
IP Class (Solid Particle Protection)	IP Class 6X
IP Class (Water)	IP Class X7
Low air pressure - Rapid decompression	MIL-STD-810H, Method 500.6, Procedure III - Rapid decompression 2,438 m (8,000 ft) 12,192 m (40,000 ft)

Low air pressure - Operating	MIL-STD-810H, Method 500.6, Procedure II - Operation/air carriage 4,572 m (15,000 ft)
Low temperature - Operating	MIL-STD-810H, Method 502.7, Procedure II - Operation -40 °C (-40 °F)
Low temperature - Storage	MIL-STD-810H, Method 502.7, Procedure I - Storage -40 °C (-40 °F)
Noise level	Maximum noise level of 40 dB SPL A-weighting at 1 m (3.3 ft) distance
Salt fog	MIL-STD-810H, Method 509.7 5 ± 1% (by weight) Two cycles, 24 h wet + 24 h dry / cycle
Temperature shock - Operating	MIL-STD 810H, Method 503.7, Procedure I-C, - Multi-cycle shocks from constant extreme temperature 55 °C (131 °F) -40 °C (-40 °F)
Vibration - Helicopter	MIL-STD-810H, Method 514.8, Procedure I - General vibration, Category 14 - Rotary wing aircraft - helicopter
Vibration - Loose cargo	MIL-STD-810H, Method 514.8, Procedure II - Loose cargo transportation, Category 5 - Truck/trailer - loose cargo
Vibration - Tracked vehicle	MIL-STD-810H, Method 514.8, Procedure I - General vibration, Category 20 - Ground vehicle - ground mobile, Tracked vehicle
Vibration - Wheeled vehicle	MIL-STD-810H, Method 514.8, Procedure I - General vibration, Category 20 - Ground vehicle - ground mobile, Wheeled vehicle

EMC Specification

EMI conducted CE102	MIL-STD-461F, Method CE102, Conducted emissions, power leads BASIC CURVE 10 kHz - 10 MHz
EMI conducted DCE01.B	DEF STAN 59-411, Method DCE01.B, Conducted emissions on primary power lines Land service class A 20 Hz - 150 MHz
EMI conducted DCE02.B	DEF STAN 59-411, Method DCE02.B, Conducted emissions on control signal lines and secondary power lines Land service class A 20 Hz - 150 MHz

EMI conducted DCE03.B	DEF STAN 59-411, Method DCE03.B, Exported transients on primary power lines Land service 28 VDC Systems
EMI conducted DCS01.B	DEF STAN 59-411, Method DCS01.B, Conducted emissions on primary power lines Land service 20 Hz - 50 kHz
EMI radiated DRE01.B	DEF STAN 59-411, Method DRE01.B, Radiated emissions electric field Land service class A 10 kHz - 18 GHz
EMI radiated DRE02.B	DEF STAN 59-411, Method DRE02.B, Radiated emissions magnetic field Air, land and sea service 20 Hz - 100 kHz
EMI radiated DRE03.B	DEF STAN 59-411, Method DRE03.B, Radiated emissions electric field tuned antenna Land service class A 1.6 MHz - 30 MHz
EMI radiated RE102	MIL-STD-461F, Method RE102, Radiated emissions, electric field Navy Mobile & Army 2 MHz - 18 GHz
EMS conducted CS101	MIL-STD-461F, Method CS101, Conducted susceptibility, power leads CURVE #1 30 Hz - 150 kHz
EMS conducted CS114	MIL-STD-461F, Method CS114, Conducted bulk susceptibility Army, Ground 10 kHz - 200 MHz
EMS conducted CS115	MIL-STD-461F, Method CS115, Conducted susceptibility, bulk cable injection, impulse excitation
EMS conducted CS116	MIL-STD-461F, Method CS116, Conducted susceptibility, damped sinusoidal transients, cables and power leads 10 kHz - 100 MHz
EMS conducted DCS02.B	DEF STAN 59-411, Method DCS02.B, Conducted susceptibility on control, signal and power lines Land service non safety critical 50 kHz - 400 MHz
EMS conducted DCS03.B	DEF STAN 59-411, Method DCS03.B, Conducted susceptibility on control and signal lines Land and sea service 20 Hz - 50 kHz

EMS conducted DCS05.B	DEF STAN 59-411, Method DCS05.B, Externally generated transients Land and sea service
EMS conducted DCS06.B	DEF STAN 59-411, Method DCS06.B, Imported long transient susceptibility AC and DC systems 28 VDC land service 100 kHz
EMS radiated DRS01.B	DEF STAN 59-411, Method DRS01.B, Radiated susceptibility magnetic field Air, land and sea service 20 Hz - 100 kHz
EMS radiated DRS02.B	DEF STAN 59-411, Method DRS02.B, Radiated susceptibility electric field Land service class A 10 kHz - 18 GHz
EMS radiated DRS03.B	DEF STAN 59-411, Method DRS03.B, Magnetic field (DC) susceptibility Land and sea service
EMS radiated RS103	MIL-STD-461F, Method RS103, Radiated susceptibility, electric field Army 2 MHz - 1 GHz
ESD DCS10.B	DEF STAN 59-411, Method DCS10.B, Electrostatic discharge