

# ESW4100 40G Switch - Concept 3284



MilDef offers our customers complete realization of any product idea or concept within rugged electronics. Based on our long experience of designing and customizing products, our engineering team is ready to attack any technical problem thrown at them. A MilDef concept enables the possible implementation of customer specific requirements. Realization may involve NRE cost. This featured product is currently at a concept stage, contact us to further discuss your requirements.

## 40G Switch in a 19"/2" form factor

The 19"/2" ESW4100 Series switch gives you reliable, high performance switching capability including two 40 Gigabit Ethernet uplinks - all in a compact rugged form factor.

## 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.

## 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

- Based on the Microchip SparX-5i
- 40 Gigabit uplinks
- IPv4/IPv6 routing
- IPv4 tunnels
- TSN support
- 12-36 VDC
- Passively cooled

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## Connector Interfaces

<b>SERVICE</b> (back)	<ul style="list-style-type: none"> <li>1x RS232 Service</li> </ul>
<b>X1 DC IN</b> (front)	<ul style="list-style-type: none"> <li>1x Power</li> </ul>
<b>X2-X3</b> (front)	2 connectors which each has: <ul style="list-style-type: none"> <li>4x ETH 1000BASE-T</li> </ul>
<b>X4-X5</b> (front)	2 connectors which each has: <ul style="list-style-type: none"> <li>1x ETH 40GBASE-LR4</li> </ul>
<b>X6</b> (front)	<ul style="list-style-type: none"> <li>1x Serial Console</li> </ul>
<b>X7-X10</b> (back)	4 connectors which each has: <ul style="list-style-type: none"> <li>4x ETH 1000BASE-T</li> </ul>

## Other Interfaces

1x System button (front)

## Technical Specification

<b>Blanking</b>	Enable/disable all externally visible indicators from emitting light via the "blanking command"
<b>Blanking</b>	Double-pressing the System button
<b>Fiber characteristics</b>	MM 850nm 50/125
<b>LAN 1000BASE-T</b>	1000BASE-T standard
<b>LAN 40GBASE-LR4</b>	40GBASE-LR4, SM 1310nm
<b>Reference design</b>	Based on the Microchip SparX-5i
<b>Switch features</b>	Management through Serial and Web Link aggregation and DRNI per IEEE 802.1AX IGMPv2, IGMPv3, MLDv1, and MLDv2 support IEEE802.1Q switch with 4K VLANs and 32K MAC table entries RSTP and MSTP support IPv4/IPv6 unicast and multicast Layer 2 switching IPv4/IPv6 unicast and multicast Layer 3 forwarding (routing) IGMPv2, IGMPv3, MLDv1, and MLDv2 support IPv4 tunnels including GRE, 6to4, 6rd, 6over4, ISATAP, and 6in4 Eight QoS classes with a pool of up to 32K queues Priority-based flow control (PFC) (IEEE 802.1Qbb)
<b>Switch type</b>	Layer 2/3 IPv4/6
<b>MIL-STD-1275E</b>	Fully compliant
<b>Polarity protection</b>	Protected against polarization failure on the power input in the voltage range of normal operation
<b>Power consumption</b>	50 W with heater

<b>Power input</b>	12-36 VDC
<b>Chassis material</b>	Aluminum
<b>Coating and color</b>	Dupont AE0305-6603120 (RAL6031)
<b>Cooling</b>	Passively cooled
<b>Dimensions width and height</b>	220 x 43.4 mm (8.66 x 1.71 in) (WxH)
<b>Earth point</b>	M6 12 mm
<b>Surface treatment chassis</b>	Chromit-Al
<b>Weight</b>	4 kg (8.9 lbs)
<b>CE</b>	Compliant

## Environmental Specification

<b>Functional shock - Operating</b>	MIL-STD-810H, Method 516.8, Procedure I - Functional Shock. Table 516.8-IV, Terminal peak sawtooth pulse, Ground Material 40 g 11 ms
<b>High temperature - Operating</b>	MIL-STD-810H, Method 501.7, Procedure II - Operation 55 °C (131 °F)
<b>High temperature - Storage</b>	MIL-STD-810H, Method 501.7, Procedure I - Storage 71 °C (160 °F)
<b>Humidity</b>	MIL-STD-810H, Method 507.6, Procedure II - Aggravated 95 ± 4% RH Ten 24-hour cycles
<b>IP Class (Solid Particle Protection)</b>	IP Class 6X
<b>IP Class (Water)</b>	IP Class X5
<b>Low air pressure - Rapid decompression</b>	MIL-STD-810H, Method 500.6, Procedure III - Rapid Decompression 2,438 m (8,000 ft) 12,192 m (40,000 ft)
<b>Low air pressure - Operating</b>	MIL-STD-810H, Method 500.6, Procedure II - Operation/Air Carriage 4,572 m (15,000 ft)
<b>Low temperature - Operating</b>	MIL-STD-810H, Method 502.7, Procedure II - Operation -30 °C (-22 °F)
<b>Low temperature - Storage</b>	MIL-STD-810H, Method 502.7, Procedure I - Storage -40 °C (-40 °F)
<b>Noise level</b>	Maximum noise level of 40 dB SPL A-weighting at 1 m (3.3 ft) distance
<b>Salt fog</b>	MIL-STD-810H, Method 509.7 5 ± 1% (by weight) Two cycles, 24 h wet + 24h dry / cycle

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<b>Temperature shock - Operating</b>	MIL-STD 810H, Method 503.7, Procedure I-C, - Multi-Cycle Shocks from Constant Extreme Temperature 55 °C (131 °F) -30 °C (-35 °F)
<b>Vibration - Helicopter</b>	MIL-STD-810H, Method 514.8, Procedure I - General vibration, Category 14 - Rotary wing aircraft - helicopter
<b>Vibration - Loose Cargo</b>	MIL-STD-810H, Method 514.8, Procedure II - Loose cargo transportation, Category 5 - Truck/ trailer - loose cargo
<b>Vibration - Tracked Vehicles</b>	MIL-STD-810H, Method 514.8, Procedure I - General Vibration, Category 20 - Ground vehicles - ground mobile, Tracked vehicles
<b>Vibration - Wheeled Vehicle</b>	MIL-STD-810H, Method 514.8, Procedure I - General Vibration, Category 20 - Ground vehicles - ground mobile, Wheeled vehicles

## EMC Specification

<b>EMI conducted CE102</b>	MIL-STD-461F, Method CE102 BASIC CURVE 10 kHz to 10 MHz
<b>EMI radiated RE102</b>	MIL-STD-461F Navy Mobile & Army 2 MHz - 18 GHz
<b>EMS conducted CS101</b>	MIL-STD-461F, Method CS101, conducted susceptibility, power leads. CURVE #1 30 Hz to 150 kHz
<b>EMS conducted CS114</b>	MIL-STD-461F Army, Ground 10 kHz - 200 MHz
<b>EMS conducted CS115</b>	MIL-STD-461F Conducted susceptibility, bulk cable injection, impulse excitation
<b>EMS conducted CS116</b>	MIL-STD-461F 10 kHz - 100 MHz
<b>EMS radiated RS103</b>	MIL-STD-461F Army 2 MHz - 1 GHz