



# MILTECH™ 9028

Military-Grade, 1GE and 10GE Managed 28-Port Ethernet Router/Switch

## FEATURES DESCRIPTION

Ethernet is becoming the standard for IP-based components in military and commercial applications on land, sea and air platforms.

The MILTECH9028 is specifically designed for battlefield C4ISR, voice, video, sensor data acquisition and communications in platforms that handle large quantities of real-time data. With 24 triple-speed (10/100/1000Mbps) ports and 4 10Gbps fiber optic ports, the MILTECH9028 is ideal for mobile platforms and shipboard systems that deal with high resolution video and other data-intensive signaling.

The MILTECH9028 features both L2/L3 network switching and routing capabilities, including virtual LANS (VLANs), traffic prioritization/QoS, IPv4/IPv6 support, and bandwidth aggregation. It supports all the latest networking protocols for redundancy, security, multicast, and management.

The MILTECH9028 offers the best performance and combination of size, weight, and power (SWaP) in the industry, saving valuable real estate for devices that make mobile platforms highly effective.

The MILTECH9028 is MIL-STD, fully managed, and military grade. Its 1GE/10GE transmission speeds and 24VDC power make it instantly compatible with network devices and power systems. An optional redundant power connection adds to overall system survivability.

Developed for military and harsh ground applications, the MILTECH9028's mechanical packaging enhancements are designed for MIL-STD-810F airborne and ground environmental compliance and high reliability. The unit has been especially hardened to improve ingress, impact, and shock/vibration protection, as well as eliminate all moving parts through the use of passive cooling. Sealed SCE2 Amphenol circular connectors give the MILTECH9028 an IP67 rating.

## SPECIFICATIONS

<b>ETHERNET PORTS:</b>	<ul style="list-style-type: none"> <li>Router/switch layer 3 managed 28x10/100/1000 TX ports+4x1G/10G fiber ports – Total of 1G ports</li> </ul>
<b>NETWORKING:</b>	<ul style="list-style-type: none"> <li>Wire-speed hardware-based 28 ports gigabit and 10 Gigabit Ethernet switch – L2, L3, L4 Capabilities</li> <li>L3-Routing capabilities:static,RIPV1,V2,OSPF V2/V3 Multicast Routing, BGP4*,VRRP,ECMP Routing</li> <li>Multicasting (IGMP Snooping), GARP, GMRP, MLD and GVRP up to 8K groups for both IPv4 and IPv6</li> <li>Broadcasting and flooding Control up to 8K Groups</li> <li>802.1q Tagged based VLAN up to 4K VLAN groups</li> <li>Bridge Support for VLAN Q-in-Q , manual tunneling</li> <li>Link Aggregation 802.3ad, up to 16 members in group</li> <li>Link Aggregation mechanism based on L2/ L3/ L4 parameters</li> <li>Jumbo Frame support up to 10K</li> <li>WEB, CLI, Telnet , SNMP V2/V3 management</li> </ul>





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<p><b>NETWORKING:</b> Quality of Service:</p>	<ul style="list-style-type: none"> <li>• QoS Multi-Layer Classifier: 802.1p, EtherType, VLAN-ID, IPv4/6 DSCP/ToS, and UDP/TCP ports &amp; ranges traffic classification.</li> <li>• Per port WFQ and Strict Queuing scheduling</li> <li>• DSCP remarking for both IPv4 and IPv6 frames</li> <li>• Ingress policer and ingress shaper per port with 500Kbps granularity</li> <li>• Egress shaper per port with 500Kbps granularity</li> <li>• Full-duplex flow control (IEEE802.3X) and half-duplex backpressure, symmetric and asymmetric</li> </ul>
<p><b>NETWORKING:</b> Security:</p> <p>Redundancy and ring protection:</p>	<ul style="list-style-type: none"> <li>• Security via Radius Authentication 802.1x, Port / MAC access control</li> <li>• Port Security</li> <li>• Per port ingress and egress port mirroring including 10G mirroring</li> <li>• Mirroring per VLAN and per content awareness match</li> <li>• Private VLAN support per VLAN (Isolated and Promiscuous ports)</li> <li>• Content Aware Policers: <ul style="list-style-type: none"> <li>• 128 Content Aware Policers</li> <li>• 16 Content Aware rate policers with rates from 1fps to 32 million fps</li> <li>• 8 UDP/TCP port range policers</li> </ul> </li> <li>• Advanced ACL through hardware based match patterns</li> <li>• Content Aware Policers for generic MAC, ARP, IPv4, IPv6 protocols</li> <li>• No restriction on any mix of entries to Content Aware Policers</li> <li>• Content Aware Policers actions are permit/deny, police, count, snoop and mirror</li> <li>• Special support for IP fragments, UDP/TCP port ranges</li> <li>• Extensive CPU DoS prevention</li> <li>• Surveillance functions by Content Aware Policers counters</li> <li>• Multiple ACLs per port for optimal usage of Content Aware Policers</li> <li>• Storm controllers for flooded broadcast, multicast and unicast</li> </ul> <ul style="list-style-type: none"> <li>• Spanning Tree (802.1d), RSTP (802.1w) and multiple Spanning Tree (802.1S) for fast recovery rings</li> <li>• RPR for up to 30 units per ring with recovery time &lt;50ms hardware based</li> <li>• 20-Gbps bandwidth for ring topology</li> <li>• QoS consistency across stack / ring</li> <li>• Mirroring across stack / ring</li> <li>• Link aggregation groups spanning multiple switches in stack / ring</li> </ul>
<p><b>CONNECTORS:</b></p>	<ul style="list-style-type: none"> <li>• 1 x Power Connector Type: MIL-D-38999/24WC04PN</li> <li>• 24 x LAN Connector Type: - SCE2-B-76A07-145N (4 ports are Gigabit Combo ports - 10/100/1000 or 1000FX Fiber)</li> <li>• Fiber Connector Types: See ordering information table</li> <li>• 1 x Serial interface, shared with LAN port #1</li> <li>• LED Indication: Per Port (Speed, Link/Activity)</li> </ul>
<p><b>CHASSIS:</b></p>	<ul style="list-style-type: none"> <li>• Low profile rugged aluminum extrusion</li> <li>• Conductively cooled w/custom internal heat-sinks</li> <li>• Ingress protection against sand, dust and moisture</li> <li>• Anodize Coating, MIL-A-8625, Type II, Class 2</li> </ul>
<p><b>STANDARDS:</b></p>	<ul style="list-style-type: none"> <li>• MIL-STD-1275B   MIL-STD-704A   MIL-STD-461E   MIL-STD-810F GM   IP67</li> </ul>



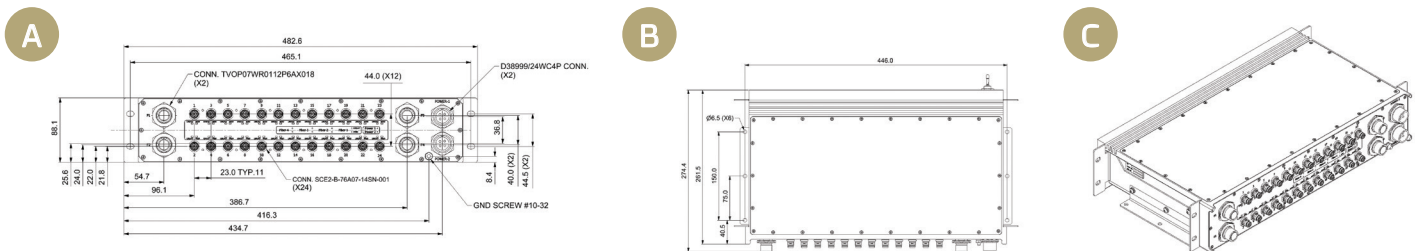
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<b>PERFORMANCE:</b>	<ul style="list-style-type: none"> <li>96.8 Mpps wire speed forwarding rate</li> <li>56 Gbps maximum forwarding bandwidth</li> <li>8K MAC Address</li> </ul>
<b>POWER:</b>	<ul style="list-style-type: none"> <li>Voltage Input: 24Vdc Nominal (18-32Vdc or 90-230VAC)</li> <li>Power Consumption: 30W Max</li> <li>Chassis grounding</li> </ul>
<b>ELECTROMAGNETIC:</b>	<ul style="list-style-type: none"> <li>MIL-STD-461E Electromagnetic compatibility</li> <li>CE-102, CS-114, CS-115, CS-116, RE-102, RS-103</li> </ul>
<b>SHOCK/VIBRATION/HUMIDITY:</b>	<ul style="list-style-type: none"> <li>MIL-STD-810F; 501.4I   501.4II   502.4I   502.4II   507.4   500.4II   514   516I   516VI   514.5   512.4</li> </ul>
<b>PHYSICAL:</b>	<ul style="list-style-type: none"> <li>Dimensions: 483mm (L) x 284mm (W) x 88.6mm (H), including connectors &amp; hardware, 2U, 19" rack.</li> <li>Dimensions: 19" (L) x 11.18" (W) x 3.49" (H), including connectors &amp; hardware, 2U, 19" rack.</li> <li>Weight: 5.5kg</li> </ul>
<b>INSTALLATION:</b>	<ul style="list-style-type: none"> <li>19" standard mounting ears</li> <li>Other mounting options are available</li> </ul>
<b>COOLING:</b>	<ul style="list-style-type: none"> <li>No Moving Parts. Passive Cooling.</li> </ul>
<b>OPERATING TEMP:</b>	<ul style="list-style-type: none"> <li>-45°C to +85°C (-49°F to +185°F) Cold Start-Up</li> </ul>
<b>STORAGE TEMP:</b>	<ul style="list-style-type: none"> <li>-45°C to +85°C (-49°F to +185°F)</li> </ul>

\* Currently not supported – software upgrade option.



\*All measurements are in millimeters



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## ORDERING INFORMATION (when the switch includes 24 X10/100/1000Mbps copper ports)

1-9028-A-B-C-D-E

A	Number of 10G fiber ports
0	None
1	1X10G fiber port
2	2X10G fiber ports
3	3X10G fiber ports
4	4X10G fiber ports

B	Number of 1G fiber ports
0	None
1	1X1G fiber port
2	2X1G fiber ports
3	3X1G fiber ports
4	4X1G fiber ports

C	Fiber types
0	None
1	MM fiber
2	SM fiber
3	WDMA fiber
4	WDMB fiber

D	Connector type
0	None
1	D38999 - 2 pins
2	D38999 - 4 pins
3	ARINC801 - 2 Pins
4	ARINC801 - 4 Pins
5	TVOP07WR0112P6AX018

E	Reserved for special configurations

\*Ordering Information for AC power supply version use 1-9028AC

## ORDERING INFORMATION

PART NUMBER	DESCRIPTION
2-CBL9028LAN	• LAN Harness for MILTECH9022/9028/9012/918/904
2-CBL9028PWR	• Power Harness for MILTECH9028
2-CBL9028LN+	• LAN and management Harness for MILTECH9022/9028/9012/918/904