RES3000

Rugged Fully Managed Ethernet Switch Family

The RES3000 is a family of High Performance Fully Managed Layer 2/3+ Standalone Rugged 1GbE and 10GbE Switches. Switch configurations include twelve (12) 1000BaseT ports, twenty-four (24) 1000BaseT ports, and twenty-four(24) 1000BaseT ports plus four (4) 10GigE ports. The product family is highly configurable allowing additional configuration options to be accommodated. The RES3000 products support wire speed switching of L-2 and L-3 packets including IPv6 switching and routing.

The RES3000 rugged design allows it to meet the needs of a wide range of challenging MIL/AERO environments. For example the products are switch compatible with the new VICTORY initiative by the United States Army. The RES3000 high speed network capability via the 10GbE links makes it ideal for applications such as situational awareness, imaging, and sensor data. In addition, all models are size, weight and power (SWaP) optimized allowing them to be used in areas where space is at a premium and available power is restricted.

Proven, high-performance architecture and a multilayer switching fabric provides a rich feature set, broad functionality, scalability, and product life longevity. Based on a switch fabric with an integrated ARM management processor, the RES3000 has wire-speed Layer 2/3 switch capabilities as well as the ability to support higher Layer 4-7 functionality when required.

The switch management environment for the RES3000 is our in-house developed and supported OpenWare™. OpenWare offers comprehensive management features for Layer 2/3 switching and routing. There is support for a wide range of RFC's and MIB's with extensive capabilities for Multicast, Quality of Service, VLANs, and Differentiated Services. In addition, OpenWare™ is VICTORY switch compliant and can be modified to meet particular customer requirements.

The RES3000 has built-in-test capability including Power-On-BIT, Continuous BIT and Initiated BIT. In addition precision time protocol 1588v2 transparent clock functionality is supported to enable local synchronization.

FEATURES:

- VICTORY switch compliant
- Three models ranging from twelve(12) 1000BaseT ports up to twenty-four (24) 1000BaseT plus four (4) 10GBASE-SR ports
- Rugged design to support deployment in harsh environments.
  - Size, Weight and Power (SWAP) Optimized
  - Convection and Conduction Cooled capable
  - Supports MIL-STD-1275D power supply and an option for 50ms hold up
- Fully managed Layer 2/3
- Wire speed switching and routing of L-2 and L-3 packets (including IPv6)
- L-3 protocol support including OSPF, RIP and VRRP
- OpenWare™ Switch Management software
- Multicast Support: IGMP Snooping Querier and MLD Snooping Querier
- Allows up to 4096 VLANS
- Built in Test (BIT)
- Sanitization capability
- 1588v2 precision time protocol support
- Denial of Service attack prevention
- Out of Band Management port
- RS232 serial console
- MIL-D38999 series 3 connectors
- -40°C to +71°C operating temperature
- Natural Convection cooled or baseplate cooled
- Meets a wide range of MIL-STD-810G and MIL-STD-461G specifications

KEY SPECIFICATIONS

- IEEE 802.3-2005
- IEEE 802.1D (Prioritization)
- IEEE 802.3ad (Link aggregation)
- IEEE 802.1Q (VLAN tagging)
- IEEE 802.1Q-2005 (Multiple Spanning Tree)
- IEEE 802.1X (Port Authentication)
- IEEE 802.3az Energy Efficient Ethernet
- IETF RFC 4541 (IGMP & MLD Snooping)
- RoHS 2011/65/EC compliant

abaco SYSTEMS

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OpenWare Management Software

OpenWare™ is available exclusively on selected NETernity fully-managed Layer-2/3 Ethernet switches. Comprehensive and powerful, this switch management environment provides integrated management services including configuration, monitoring, switching control, addressing, routing and all supported protocols. Configuration and monitoring functions are accessible from a serial console or via a network. Supported access methods include Telnet, SSH, Web and SNMP.

OpenWare features:

- IPv6 support for improved security, reliability and flexibility, enhanced support for mobile computing devices, and larger address space for global reach and scalability. IPv4 is also supported offering a path forward which protects existing investments.
- Easy deployment and management that results from the wide range of protocols supported. These protocols are defined by RFCs, and cover a range of operations: Switch, VLANs, Aggregation, Multicast, Filtering, Routing, QoS, and Management. NETernity switches with OpenWare support a wide range of network communications capability.
- OpenWare makes use of Linux® based software to allow faster implementation and easy updates to firmware as part of standard releases or when customization is required. Customizations may be leveraged across all NETernity/ OpenWare platforms. Standard Linux commands may be used as well as open source protocol and routing capabilities.
- Using a combination of open source protocol software and OpenWare allows us in certain instances to provide full software source to customers. Additionally, full control over the software environments permits customization for specific requirements such as customerspecific handling of failover conditions.

Switch Fabric and OpenWare Protocol Features

- Supports both Layer-2 (L2) and Layer 3 (L3) packet switching. Packets are categorized by the MAC addresses for L2 switching and by IP addresses for L3 switching.
- QoS prioritization (IEEE 802.1D) permits classifying packet priorities which is beneficial in delay-sensitive applications.
- Packet filtering to prevent forwarding of certain packets; filtering capabilities are available in Layers 2 - 7.
- Link aggregation (IEEE 802.3ad) links a group of physical ports creating a single logical port to provide higher bandwidth and increase redundancy between switches. The fabric is capable of full wire speed switching, allowing a maximum aggregate throughput that is the sum of all aggregated ports.
- Virtual LANs (VLANs) (IEEE 802.1Q) defines a forwarding (switching) domain; supports up to 4096 VLANs.
- Multiple Spanning Tree Protocol (MSTP) (IEEE 802.1Q) enables automatic and rapid determination of an optimal loop-free topology from an arbitrary network of enabled switches with duplicate and redundant connections; supports rapid reconfiguration in the event of a link or switch failure; backward compatible with RSTP and STP.
- Broadcast storm control screens excessive traffic and controls the rate limit for each port and prevents flooding in the network.
- IGMP/MLD snooping permits the switch to monitor IGMP/MLD interactions between hosts and routers and to adjust its forwarding tables accordingly resulting in more efficient bandwidth use.
- Port mirroring eases debug and packet pattern study. This is a method to observe on one port traffic that is flowing on another port.

L-3 IP Routing Protocols

- OSPF (Open Shortest Path First), a flexible link state protocol, tests the state of links and transmits that information throughout the system to establish the shortest path to the destination. This protocol also load balances by distributing traffic equally among routes. Messages may also be routed based on the type of service so that critical messages can transverse the most reliable routes.
- RIP (Routing Information Protocol), an easy- to-configure, dynamic routing protocol, allows routers to exchange information for computing routes through networks. Routing tables are used to store destination and metric pairs.
- VRRP (Virtual Router Redundancy Protocol) eliminates single points of failure on a network. Using an election protocol to provide failover for forwarding packets, VRRP provides a higher availability default path.

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Specifications

Physical Interface
- Twelve (12) 1000BaseT ports, or Twenty-four (24) 1000BaseT ports, or Twenty-four (24) 1000BaseT ports plus four (4) 10GBASE-SR ports
- Communications Port and Power connections

Full wire speed performance
- Switch does not 'bottleneck' Network Performance

Store and forward switching architecture
- Lowest possible latency

16K MAC address table
- Automatically learns network connections

Bandwidth Provisioning
- Guaranteed bandwidth for real-time services

Front Panel Connectors
- MIL-D38999 Series 3
- Mechanically keyed to be unique
- Chassis Mounting Point

Weights
- Without hold-up:
  - RES3120 1.7kg,
  - RES3240 2.5kg,
  - RES3244 2.75kg;
- With hold up:
  - RES3120 2.10kg,
  - RES3240 2.9kg;
  - RES3244 3.15kg

Power
- RES3120 approx 19 Watts
- RES3240 approx 23 Watts
- RES3244 approx 28 Watts

Environmental
- Operating Temp: -40°C to +71°C at the thermal interface per MIL-STD-810G Method 501.5 and 502.5
- Storage Temp: -50°C to +100°C per MIL-STD-810G Method 501.5
- Shock: 40g peak sawtooth, 11mS duration per MIL-STD-810G Method 516.6
- Vibration: Random, 0.1g2/Hz from 15 to 2000Hz per MIL-STD-810G Fig 514.6, Figure 514.6D-1, Category 12. ~12g RMS – Fixed wing aircraft - Jet aircraft
- Humidity: Up to 95% RH with varying temperature; 10 cycles, 240 hours per MIL-STD-810G Method 507.5
- Low Pressure (altitude): MIL-HDBK-5400 Class 1 airborne electric equipment up to 50,000ft altitude and TRC/DO-160F, sec 4.5
- Category D1. Decompression 8,000 to 50,000 feet for Decompression per DO- 160F paragraph 4.6.2.
- Rain Water: MIL-STD-810G Method 506.5, Procedure II – Water-tightness
- Salt fog: Continuous exposure to mist with 5% salt solution for 48 hours per MIL-STD- 810G Method 509.4
- Sand: Procedure II, Method 510.4 of MIL-STD-810G for blowing sand at 5700 feet/ minute
- MIL-STD-461G EMI/EMC specifications including CE101, CE102, CS101, CS115, RE101, RE102, RS101, RS103

Dimensions
- RES3120 148mm (W) 86mm(H) x 131mm(L)
- RES3240 244mm (W) 86mm(H) x 131mm(L)
- RES3244 244mm (W) 86mm(H) x 131mm(L)

Mean Time Between Failure (MTBF) for Ground Benign, 30 degrees C environment:
- RES3244 with 50ms hold up - 196,551 hours
- RES3240 with 50ms Hold Up - 461,854 hours
- RES3120 with 50ms Hold Up - 557,912 hours

Ordering information

RES3000-FH1X10XXX	Fully Managed Rugged Ethernet Switch with 12 1000BaseT ports and Power Supply with 50ms hold up
RES3000-FX1X10XXX	Fully Managed Rugged Ethernet Switch with 12 1000BaseT ports
RES3000-FH1X20XXX	Fully Managed Rugged Ethernet Switch with 24 1000BaseT ports and Power Supply with 50ms hold up
RES3000-FX1X20XXX	Fully Managed Rugged Ethernet Switch with 24 1000BaseT ports
RES3000-FH1X2411X	Fully Managed Rugged Ethernet Switch with 24 1000BaseT and four (4) 10GBASE-SR ports and Power Supply with 50ms hold up
RES3000-FX1X2411X	Fully Managed Rugged Ethernet Switch with 24 1000BaseT and four (4) 10GBASE-SR ports

RES3120C1-91	RES3120 I/O Cable Kit for UK
RES3120C1-92	RES3120 I/O Cable kit for U.S.
RES3120C1-93	RES3120 I/O Cable kit for EU

RES3240C1-91	RES3240 I/O Cable kit for UK
RES3240C1-92	RES3240 I/O Cable kit for US
RES3240C1-93	RES3240 I/O Cable kit for EU

RES3244C1-91	RES3244 I/O Cable kit for UK
RES3244C1-92	RES3244 I/O Cable kit for U.S.
RES3244C1-93	RES3244 I/O Cable kit for EU

Note: Additional configuration options may be available. Please check with your sales representative.

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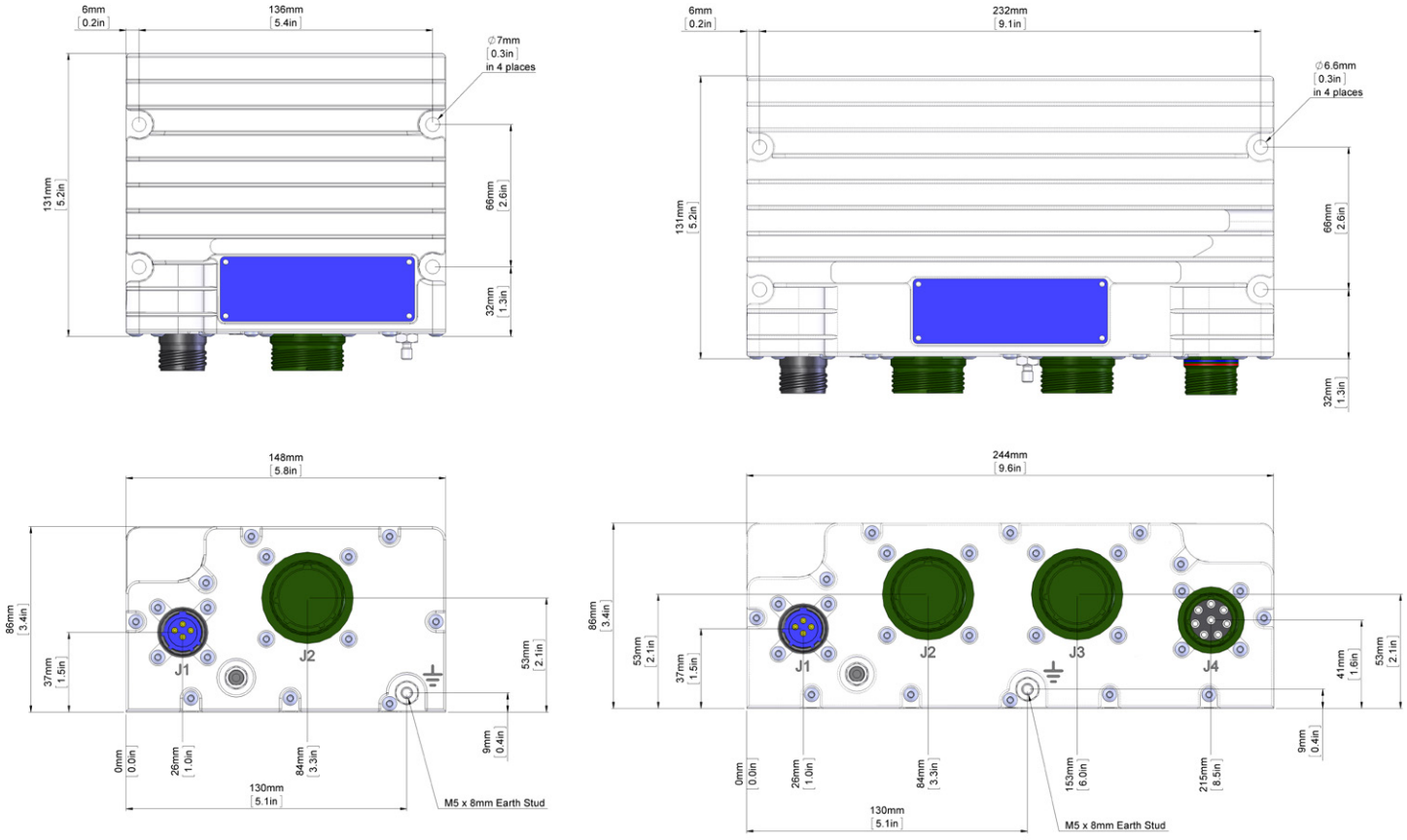
Diagram



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