T4030a-6U VME or cPCI Ethernet Switch

Gigabit with Layer 2 / Layer 3

The **T4030a** is a 21 port layer 2 / 3 gigabit Ethernet switch available in CompactPCI and VME form factors. The switch features 12 front panel ports and 9 rear ports, with an option for up to 8 front panel fiber ports and 4 copper ports.

Description

T4030a is built on the latest generation Gigabit switch engine and PHY transceivers. It combines a layer 2+ switch and a full layer 3 router with optimized power consumption.

T4030a supports full-wire speed L2 bridging and L3 routing with L2-L4 advanced traffic classification, filtering and prioritization. It can forward up to 37 Mpps. The eight levels of queue priority combined with QoS policy and the Access List management makes easy network bandwidth tuning in critical applications.

The **T4030a** offers:
- 4 copper GigE ports using RJ45 connectors on the front panel.
- 8 supplementary GigE on the front panel which can be replaced by daughter boards offering 4 or 8 fiber 1000SX/LX or 100FX ports (using LC or MTRJ connectors)
- 9 GigE ports routed on the J3/P0 rear connectors (PICMG2.16/VITA31.1)

The optical interfaces provide full immunity against radiated or conducted interferences. Fiber lines can be routed regardless of high power conductors. These interfaces comply readily with EMC directives and provide complete electrical isolation. The **T4030a** optical channels are the current best solution for secure critical data transfer.

Features
- Up to 21 Gigabit Ethernet ports (12 on front panel, 9 on rear connector)
- Layer 2 Switching capabilities:
    - 16K entry forwarding database
    - Automatic or controlled learning and aging routing table
    - Full-line rate switching engine
    - Port and MAC access control
    - Flow control and backpressure
    - 9 KB Jumbo Frame
    - IPV4 IGMP snooping
- Link aggregation static or LACP

Bandwidth management:
- Multicast & broadcast limiting
- Egress rate shaping with rate ranging port from 64K to 1Gbs
- Minimal bandwidth guarantee per traffic Class L2..4 Access List

VLANs services:
- 4K actives VLANs
- 1K Bridge multicast groups
- Flexible VLAN assignment 802.1Q port -based, protocol based 802.1v, service Vlans 802.1ad, Policy-based Vlans

Quality of Service engine:
- 8 priority queues per port
- Traffic Class assignment according to 802-1p tag, MAC address, Port, DiffServ CP or Policy engine
- L3 IPV4 routing:
- 1K UC ARP entries
- RIPV2, OSPF V2
- Proxy-ARP, DHCP relay
- IGMP Querier

Advanced Security features:
- 802.1X Port authentication
- MAC flooding prevention
- Multicast/Broadcast limiting
- STP/RSTP protocol
- Flexible management tools:
- Web or CLI management
- Standard & private MIBs

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Chassis

Ethernet Switches

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Management Capabilities

The **T4030a** can be monitored from a browser, a CLI or SNMP. A comprehensive Built-in test makes maintenance of the switch easy. Many additional functions are provided on this full managed version:

- Configuration of all the PHY and switch parameters: ports monitoring, static MAC address, QoS policy, Multicast and VLAN control, STP protocols, MAC security
- Monitoring of all statistical counters and an extensive list of RMON counters
- Advanced Security (secure access, network shield, MAC flooding control, etc)

The Switchware GUI software provides layer 3 functions, allowing local IP forwarding, static and dynamic protocols (RIP, OSPF) routing, proxy-ARP and DHCP-relay. These L3 functions are managed through a CLI interface. The IP routing and the L3 protocols are carried out by an on board processor and the forwarding is carried out by a full-speed L3 engine router. More information about the switches services are shown in the Switchware user's manual available on request.

Flexible Configurations

Its 6U form factor allows the T4030a to be integrated in VME, cPCI applications. The T4030a is available in standard, extended and rugged environmental grades.

Physical Layer

- Up to 24 auto-sensing 10/100/1000Mbs ports.
- Optional front SX or LX Fiber (LC) interface 802.3u compliant.
- Auto-Negotiation with Downshift
- Automatic MDI/MDIX crossover for all 3 speeds of operation.
- Automatic polarity correction.
- Online virtual cable tester.
- Optional fast Ethernet out of band management port

Switch Management

Onboard firmware is implemented with comprehensive Built-In Test (loop back mode used during the diagnostic), maintenance functions and network (BootP) updating functions.

Switchware is open source application software which runs on an on-board PowerPC processor. It provides a wide range of configuration L2/L3 functions on any port: transmission speed/mode, VLAN, STP parameters, mirroring, QoS, etc.

MIB, RMON counters can be viewed via SNMP agent, web-browser and CLI for layer functions.

Layer 2 Switching

- 802.1D/Q Compliant with a full-line rate Ethernet switching engine 16000 MAC address database
- Automatic or controlled aging and learning
- Tag extraction and insertion
- (802.1p), Jumbo frames up to 9 KBytes
- Back pressure for half-duplex, IEEE 802.3x for full-duplex
- Discard broadcasts above critical threshold
- Link aggregation with static or dynamic LACP (7 trunks of 8 channels)
- Enhanced port mirroring
- IGMP & MLD snooping

VLAN

- 802.1Q compliant: supports Layer 2 domain partitioning of up to 4000 active VLANs
- VLANs can be programmed to any value from 1 to 4094. Protocol-based VLAN (802.1v) or Port-based VLAN (802.1v)

Security

- Port and MAC access control compliant with 802.1X authentication

L2/3 QoS

- Eight queues per port
- Minimal and maximal bandwidth affectation per traffic class using weighted round robin and strict priority scheduling
- 72 quality of service (QoS) profiles for traffic class drop precedence

L3 services

- IGMP V2
- RIP V2
- OSPF V2
- UDP relay
- STP/RSTP provides redundant link support. Rapid STP capability for minimizing STP convergence

Power

VME: +3.3, +5, ±12 V
CompactPCI: +3.3 V

Power Supply

Estimated max = 24 Watts for 21 ports
3.3VDC / 5VDC

Standards Conformance

Laser AEL Class I per US 21 CFR(J) and IEC60825-1
Emissions: EN55022 Class A
Immunity: CEI 6000-4-2 (ESD), 6000-4-3 (Electric field), 6000-4-4 (Burst), 6000-4-5 (Surge).
Security: EN60950

Environment

See ordering grade Information.

Environmental Specifications

Please consult the T4030a page at
http://www.elmasystems.com/new_site/networking.htm

Ordering Information

Please contact our sales department at (215)-956-1200 or via email at sales@elma.com.

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