

G102

Fully Managed 29 Gbit/s Industrial Ethernet Switch, X-Coded 3U CompactPCI Serial

- » Fully managed rugged Ethernet switch
- » Up to 24 Gigabit Ethernet ports
- » 29 Gbit/s carrier grade switch matrix
- » -40 °C to +85 °C
- » EN 50155 compliant (railways)
- » PICMG CPCI-S.0 CompactPCI Serial system slot and peripheral card



A Flexible Switch in a Common Modular Format

The G102 is a fully managed 3U flexible multiport Gigabit Switch, with a 29 GBit/s switch matrix, implemented as a CompactPCI Serial board. It occupies one system slot or one peripheral slot using a 4 HP front panel with three Gigabit Ethernet ports on M12 X-coded connectors on the front panel. A good alternative for a version with M12 A-coded connectors is the **G101**. The intelligent backplane concept for MEN switches allows high flexibility in network applications and management.

High Speed, High Efficiency and Extensive Protocols

The G102 guarantees high speed, high efficiency and an extensive firmware supporting various protocols like security, time synchronicity, stability, as well as for temperature needs. The switch supports EEE (Energy Efficient Ethernet) and IEEE1588v2 as a standard on all ports.

Various Connection Possibilities due to Various Port Options

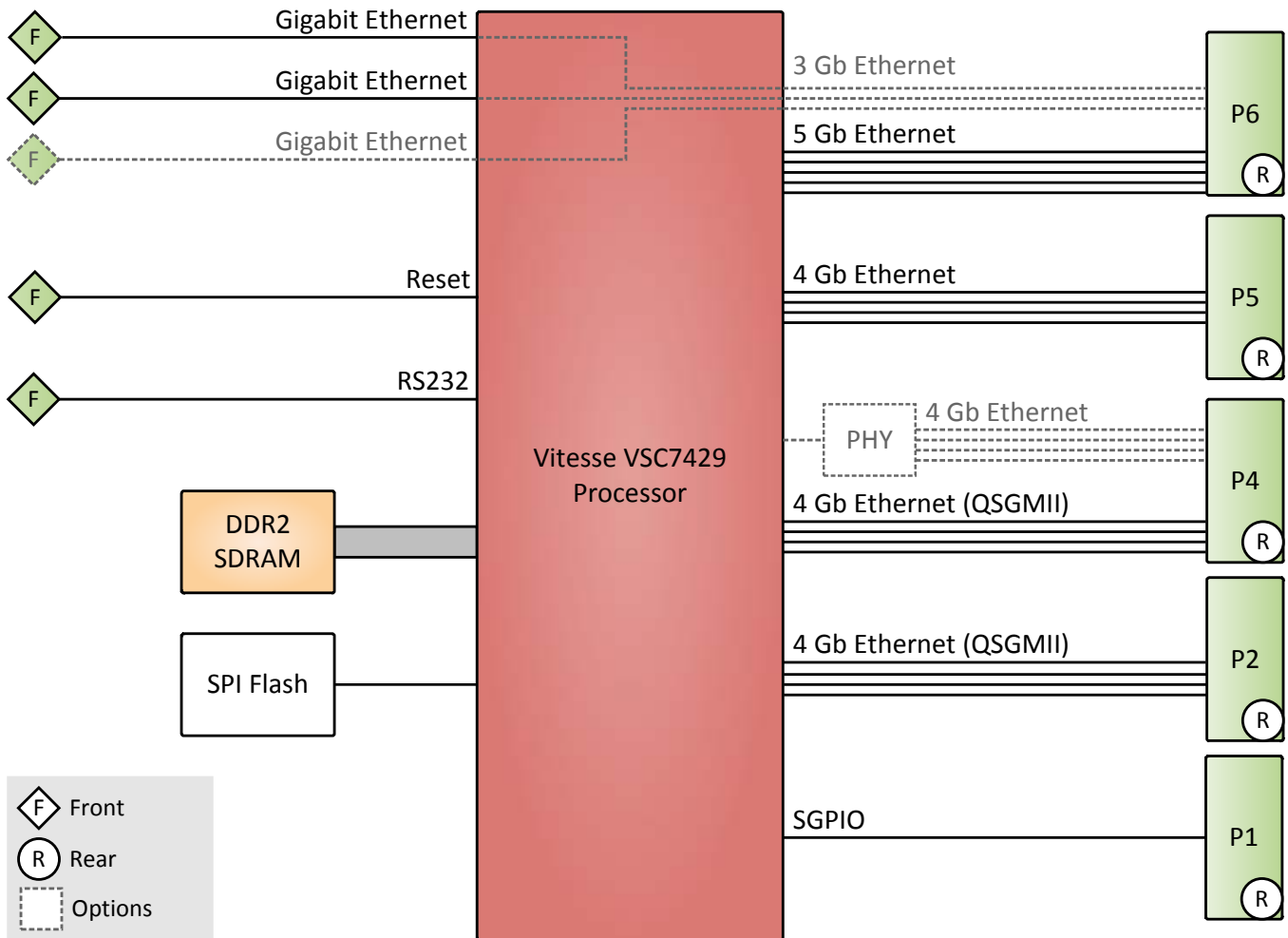
The G102 features three Ethernet ports on the front. Alternatively these are available on the rear, where a total of 24 ports is possible. These include 12 ports with integrated 10/100/1000 Mbit/s copper PHYs. For the configuration of additional ports controlled via the backplane MEN offers a number of different **line cards**.

Increased Reliability Through Built-In Test Mechanisms

The switch is fault tolerant and restores itself on its own: If a link is temporarily unavailable, frames can be sent via backup/redundant links (spanning tree protocol/link aggregation) and no data loss occurs. Its built-in test mechanisms make the G102 an even more reliable component in the communication system.

Rugged and Compliant to Railway Standards

The railway Ethernet switch is specifically designed for rugged rolling-stock communication systems. It is fully compliant with the EN 50155 railway standard and qualified for a -40 °C to +85 °C operating temperature.



Switch Key Features

- Switching Matrix
 - Total switching capacity of chipset: 29 Gbit/s
 - MAC address table size: 8192
 - Switching algorithm: Store-and-forward, TCAM high-speed (Ternary Content-Addressable Memory)
- General Network Support
 - IPv4
 - IPv6
 - IPv6 Ready Logo approved
- Protocols and Functionality
 - DHCP Option 82
 - DHCP Server/Client
 - DNS Client (RFC 2136)
 - DNS Proxy (RFC 5625)
- Ports and Port Control
 - Energy Efficient Ethernet (IEEE 802.3az)
 - ETH Signal Equalization and Power Control
 - Port state (admin), speed, duplex mode and flow control
 - Port frame size (Jumbo Frames: 9216 bytes/packet max.)
 - Port status (link monitoring) and statistics (MIB counters)
 - Port VeriPHY (cable diagnostics), ActiPHY and PerfectReach
 - Inband management (VRAP)
- User Configuration Interfaces
 - Command line interface (CLI) via console, SSHv2, Telnet
 - Web interface (HTTP/HTTPS) via IPv4, IPv6
- See the firmware product page for more information on the switch firmware features.
 - [14ETSW-02 Managed Ethernet Switch Firmware \(Gen 2\)](#)

Interfaces

- Ethernet
 - 3x 1000BASE-T, M12, X-coded, receptacle
 - 24x 1000BASE-T, backplane
 - 24 backplane ports is the maximum configuration possible in combination with line cards.
 - [For possible combinations contact MEN.](#)
- Serial
 - 1x RS232, M12, A-coded, receptacle
- Serial GPIO (SGPIO)
 - One channel, compliant with SFF 8485 specification
- LED
 - Status: board status
 - Ethernet: link, activity
- Dongle interface

Supervision and Control

- Temperature measurement
- Watchdog timer

Product Standard

- CompactPCI Serial: CompactPCI Serial PICMG CPCI-S.0 Specification
 - Based on CompactPCI Specification PICMG CPCI-S.0 with MEN switch extensions
 - System or peripheral slot

Electrical Specifications

- Supply voltage
 - +12 V (9.5 V to 15.5 V)
- Power consumption: 16 W max.
- Isolation voltage for Ethernet
 - IEE802.3 (2012), Section 1; 9.7 Electrical Isolation - Environment A

Mechanical Specifications

- Dimensions: 3U, 4 HP
- Cooling
 - Air cooling, forced convection, airflow 1.5 m/s

**Product Compliance: Rail
- Rolling Stock**

- Operating temperature: -40 °C to +85 °C (EN 50155, class TX)
- Storage temperature: -40 °C to +85 °C
- Altitude: -300 m to +2000 m
- Relative humidity (operation): max. 95% non-condensing
- Relative humidity (storage): max. 95% non-condensing
- Shock: 30 ms @ 50 m/s² (EN 61373:2010/AC:2017-09, vehicle body, cat. 1, class B)
- Vibration (Function): 1 m/s², 5 Hz to 150 Hz (EN 61373)
- Vibration (Lifetime): 7.9 m/s², 5 Hz to 150 Hz (EN 61373)
- Electrical Safety
 - EN 50155 (insulation, voltage)
- Flammability (PCBs)
 - UL 94 V-0
- EMC
 - EN 55022 (radio disturbance)
 - EN 61000-4-2 (ESD Immunity)
 - EN 61000-4-4 (burst)

Reliability

- MTBF: 729 000 h @ 40 °C according to IEC/TR 62380 (RDF2000)

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