

G304 – 3U CompactPCI® Serial Unmanaged 4-Port Rugged Industrial Ethernet Switch with

- **Unmanaged 4-port rugged Ethernet switch**
- **4 Gigabit Ethernet (front) on RJ45 (M12 optional)**
- **Power over Ethernet (PoE+) PSE (all ports)**
- **LEDs for link and activity status**
- **1 Gigabit Ethernet on rear I/O (optional)**
- **-40 to +85°C (screened)**
- **EN 50155 class Tx (railways)**
- **Direct Ethernet CPU connection over P1**
- **PICMG CPCI-S.0 CompactPCI® Serial**



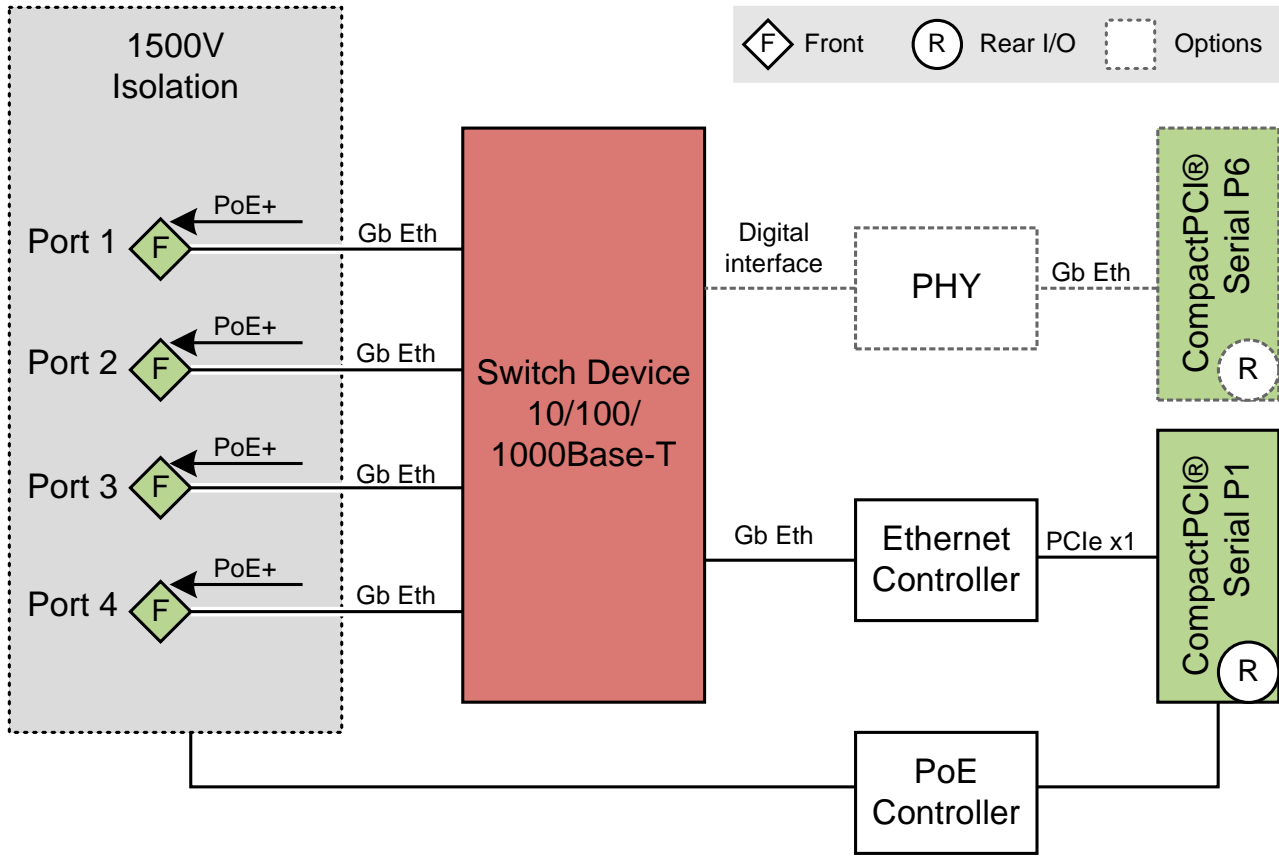
The G304 is an unmanaged 3U Ethernet switch implemented as a CompactPCI® Serial board. It occupies one peripheral slot, using a 4 HP front panel with 4 Gigabit Ethernet ports on RJ45 connectors, and one direct Ethernet connection to the CPU card using PCI Express® on P1. Options include M12 front connectors, and a P6 connector to extend the number of Ethernet channels available on the board to six. The G304 supports full-duplex and half-duplex operation with auto-negotiation, high-speed nonblocking store-and-forward switching, Quality of Service (QoS) support with four traffic classes IEEE 802.1p. Its built-in test mechanisms make the G304 an even more reliable component in the communication

system. In addition, the switch can act as Power over Ethernet Plus (PoE+) Power Sourcing Equipment (PSE), supplying other devices on all ports with up to 30 W (class 0, 1, 2, 3, 4) per port for power according to IEEE 802.3 Section 2 - Type 1 and 2 (formerly known as IEEE 802.3at). The maximum power available for one G304 is limited to 60 W, according to CPCI-S.0 specification.

By using an application-specific configuration EEPROM, the G304 can act similarly to a managed switch with fixed settings. This enables features untypical for unmanaged models like 802.1p priority and port based priority, port based VLAN or IEEE 802.1q VLAN IDs.

The board is specifically designed for rugged mobile communication systems. It is therefore, for example, fully compliant with the EN 50155 railway standard, screened for a -40 to +85°C operation temperature and ready for coating.

Diagram



Technical Data

Key Features	<ul style="list-style-type: none"> ■ High-speed non-blocking, store-and-forward switching ■ Up to four 10/100/1000Base-T ports at front panel (Electrical isolation: 1500 Vrms) ■ One 10/100/1000Base-T port at rear connector (optional) ■ Port configuration: copper, 10/100 and 1000 Mbit/s ■ Auto-negotiation / Auto MDI/MDIX crossover on all ports ■ Layer2-based Policy Control List ■ 8K MAC address lookup table with automatic learning and aging
Supported Protocols and Standards	<ul style="list-style-type: none"> ■ Priority class based switching (classes: TOS, Diff-Serv, 802.1Q VLAN ID, Destination/Source MAC Address, 802.1p tagged frames) ■ IEEE 802.1x authentication on registered MAC Address Lists ■ Power over Ethernet support (IEEE 802.3 Section 2, Type 1 and 2 - classes 0, 1, 2, 3, 4) ■ VLAN/port-based VLANs GVRP/MVRP (IEEE 802.1Q, 2005)
Power Over Ethernet Features	<ul style="list-style-type: none"> ■ Power over Ethernet functions on all ports <ul style="list-style-type: none"> □ PSE (Power Sourcing Equipment) function □ Supports supply classes 0 to 4 □ Supplies up to four powered devices (up to 60 W total)
Front I/O	<ul style="list-style-type: none"> ■ Four Ethernet ports on RJ45 or M12 connectors ■ Four link and activity Ethernet status LEDs (two per channel)
Rear I/O	<ul style="list-style-type: none"> ■ One Ethernet link via PCIe®
CompactPCI® Serial	<ul style="list-style-type: none"> ■ Compliance with CompactPCI® Serial PICMG CPCI-S.0 Specification ■ Peripheral slot ■ Host interface: one PCI Express® x1 link <ul style="list-style-type: none"> □ PCIe® 1.x support □ Data rate up to 250 MB/s in each direction (2.5 Gbit/s per lane)
Electrical Specifications	<ul style="list-style-type: none"> ■ Supply voltage/power consumption <ul style="list-style-type: none"> □ +12 V (-3%/+5%), 3 W approx. (without PoE), 75 W with PoE max.
Mechanical Specifications	<ul style="list-style-type: none"> ■ Dimensions: conforming to CompactPCI® Serial specification for 3U boards ■ Front panel: 4HP with ejector ■ Weight: tbd g (with RJ45 connectors)/ 348 g (with M12 connectors)
Environmental Specifications	<ul style="list-style-type: none"> ■ Temperature range (operation): <ul style="list-style-type: none"> □ -40..+85°C (screened) □ Airflow: 1.0 m/s ■ Temperature range (storage): -40..+85°C ■ Relative humidity (operation): max. 95% non-condensing ■ Relative humidity (storage): max. 95% non-condensing ■ Altitude: -300 m to +3,000 m ■ Climatic tests according to EN 68068 ■ Shock and vibration tested according to EN 61373 ■ Conformal coating on request
MTBF	<ul style="list-style-type: none"> ■ tbd h @ 40°C according to IEC/TR 62380 (RDF 2000)
Safety	<ul style="list-style-type: none"> ■ Flammability <ul style="list-style-type: none"> □ PCB manufactured with a flammability rating of 94V-0 by UL recognized manufacturers
EMC Conformity	<ul style="list-style-type: none"> ■ EN 55022 (radio disturbance) ■ EN 61000-4-2 (ESD Immunity) ■ IEC 61000-4-4 (burst)

Configuration & Options

Options

Ethernet Switch	<ul style="list-style-type: none"> ■ Fixed managed version <ul style="list-style-type: none"> □ With fixed configuration according to customer requirements
Front Connectors	<ul style="list-style-type: none"> ■ RJ45 connectors or M12 connectors
Rear I/O	<ul style="list-style-type: none"> ■ CompactPCI® P6 connector <ul style="list-style-type: none"> □ For fifth Gigabit Ethernet 1000Base-T port (10/100 Mbit/s not supported)
Environmental specifications	<ul style="list-style-type: none"> ■ Conformal coating
Cooling Concept	<ul style="list-style-type: none"> ■ Also available with conduction cooling in MEN CCA frame

Please note that some of these options may only be available for large volumes. Please ask our sales staff for more information.

Ordering Information

Standard G304 Models	02G304-00	5-port unmanaged Gigabit Ethernet Switch (4 front ports, 1 rear port) with PoE+ (60 W max), USB PoE management, RJ45, -40..+70 (+85)°C with qualified components
	02G304-01	5-port unmanaged Gigabit Ethernet Switch (4 front ports, 1 rear port) with PoE+ (60 W max), USB PoE management, M12, -40..+70 (+85)°C with qualified components, conformal coating

Documentation

Compare Chart Industrial Ethernet switches for different platforms » [Download](#)

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