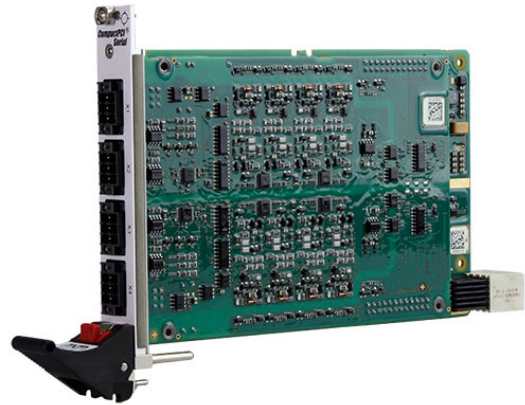


G403

Binary I/O Card for Railways 3U CompactPCI Serial

- » 4HP PICMG CPCI-S.0 CompactPCI Serial (PCIe 1.0)
- » 16 bidirectional binary I/Os
- » Organized in 4 optically isolated groups
- » Connected via spring cage terminal blocks
- » Flexible I/O configuration
- » Individual edge-triggered interrupts
- » I/O voltage range 14.4 VDC to 154 VDC
- » Current output 1 A at 24 V
- » Driver support for all common operating systems
- » -40 to +85°C with qualified components
- » EN 50155 compliant



Binary I/O for Railway

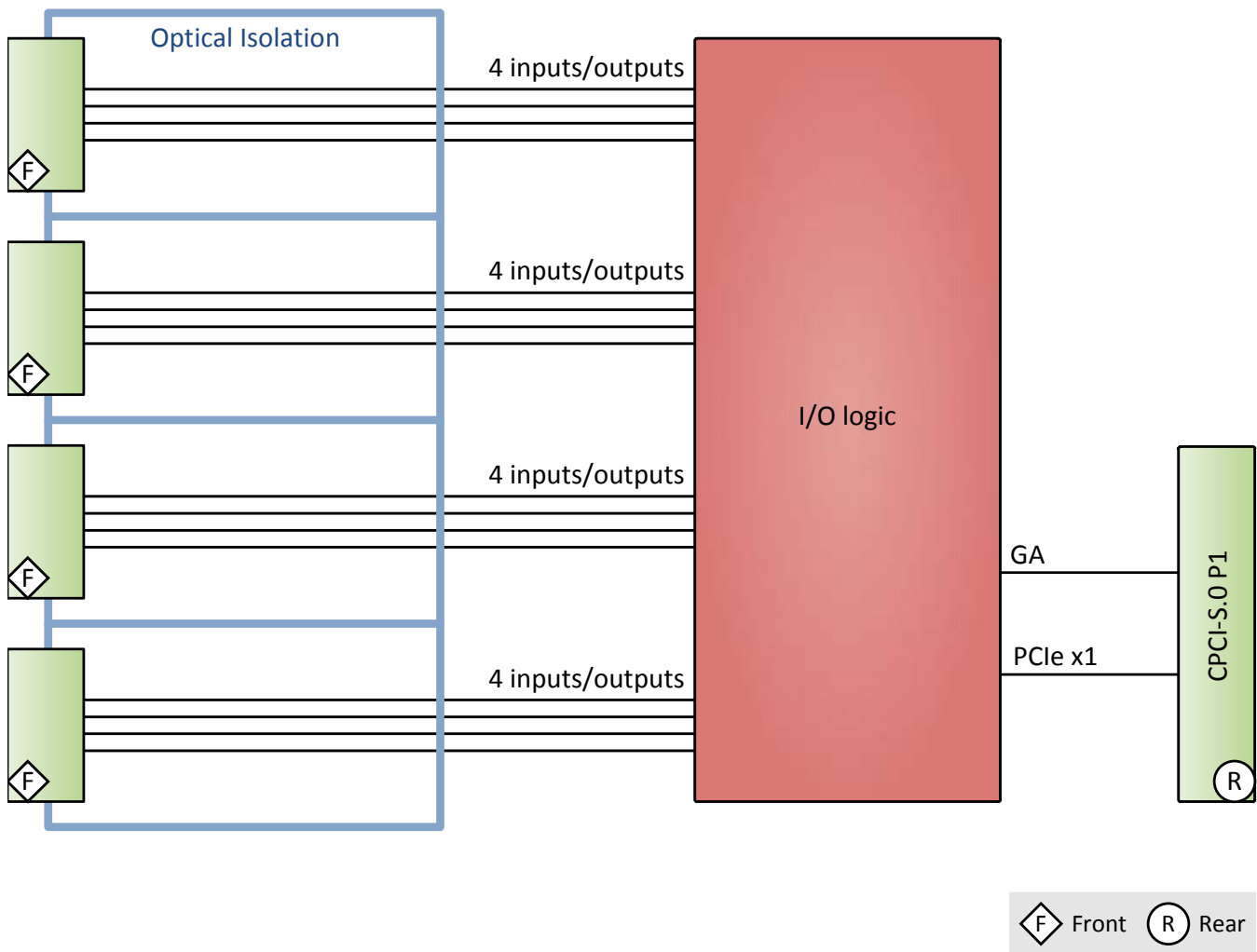
The G403 is a binary I/O CompactPCI Serial board especially designed for railway applications. The card is used for input/output of digital signals with different voltage levels and ground references. It supports 16 bidirectional digital input/output channels, which are separated into four optically isolated groups.

EN 50155 Compliance

Its voltage range from 14.4 VDC to 154 VDC and its current output of 1 A at 24 V complies with EN 50155, which makes the board ready for immediate use in train applications.

Safety Measures for Mobile Environments

The four front connectors are implemented by using spring cage terminal blocks causing only low wiring outlay and supporting fast installation. The binary railway I/O supports all safety measures necessary for mobile environments like trains including voltage and temperature supervision and readback of outputs.



Diagram

Binary I/Os

- 16 binary signals
 - 4 optically isolated groups
 - 4 channels for each group
- The following I/O configurations are possible:
 - 16 inputs, or
 - 16 outputs, or
 - any combination of inputs and outputs
- Individual edge-triggered interrupts
- High-side output switches
- High output current: max. 1 A per channel at 24 V
- Temperature and voltage supervision

Output Characteristics

- Output voltage range
 - Limits continuous: 0 VDC to +138 VDC
 - Limits (duration <1s): 0 VDC to +154 VDC
- Switching time for output change: 400 µs (rise time) / 600 µs (fall time)

Input Characteristics

- Input voltage range
 - Limits continuous: -0.7 VDC to +138 VDC
 - Limits (duration <1s): -0.7 VDC to +154 VDC
- Input voltage of external supply voltage
 - Can be configured individually for each group
 - Nominal: +24 VDC to +110 VDC
 - Limits continuous: +16.8 VDC to +138 VDC
 - Limits (duration <1s): +14.4 VDC to +154 VDC
- Switching threshold: 40% (+15%/-15%) of external supply voltage

Front Interfaces

- 4 spring cage terminal blocks

Backplane Standard

- Compliance with CompactPCI Serial PICMG CPCI-S.0 Specification
- Peripheral slot
- P1 connector with geographical addressing for distinguishing boards in a system with several boards

Electrical Specifications

- Supply voltage
 - +12V (9.5 to 15.5 V)
- Power consumption
 - 5 W max.
- Isolation voltage:
 - 1500 VAC between isolated side and digital side
 - 1500 VAC between the channels

Mechanical Specifications

- Dimensions
 - 3U, 4 HP
- Weight: approx. 285 g

Environmental Specifications

- Temperature range (operation):
 - -40..+85°C (qualified components)
 - Airflow: 1.0 m/s
- Temperature range (storage): -40..+85°C
- Cooling concept
 - Convection cooling
- Relative humidity (operation): max. 95% non-condensing
- Relative humidity (storage): max. 95% non-condensing
- Altitude: -300 m to +3000 m
- Shock: EN 50155 (12.2.11) / EN 61373 category 1 class B body mounted
- Vibration: EN 50155 (12.2.11) / EN 61373 category 1 class B body mounted
- Conformal coating (standard)

Reliability

- MTBF: tbd h @ 40°C according to IEC/TR 62380 (RDF 2000)

Safety

- Flammability
 - UL 94V-0
- Electrical Safety
 - EN 62368-1 (former EN 60950-1)
 - Insulation measurement: EN 50155 (12.2.9.1)
 - Voltage withstand: EN 50155 (12.2.9.2)

EMC Conformity

- EN 55011 (radio disturbance)
- IEC 61000-4-2 (ESD)
- IEC 61000-4-3 (electromagnetic field immunity)
- IEC 61000-4-4 (burst)
- IEC 61000-4-5 (surge)
- IEC 61000-4-6 (conducted disturbances)

Software Support

- The G403 is supported by standard OS UART drivers
- [A demo application for Linux, Windows and VxWorks is available under Downloads.](#)

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Up-to-date information, documentation and ordering information:

www.men.de/products/g403/

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