

F403

3U CompactPCI Binary I/O Card for Railways

- » 4HP 32-bit/33-MHz CompactPCI
- » 16 bidirectional binary I/Os
- » Organized in 4 optically isolated groups
- » Connected via spring cage terminal blocks
- » Reduced wiring for fast installation
- » 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
- » Conformal coating
- » EN 50155 compliant



Binary I/O for Railway

The F403 is a binary I/O CompactPCI 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.

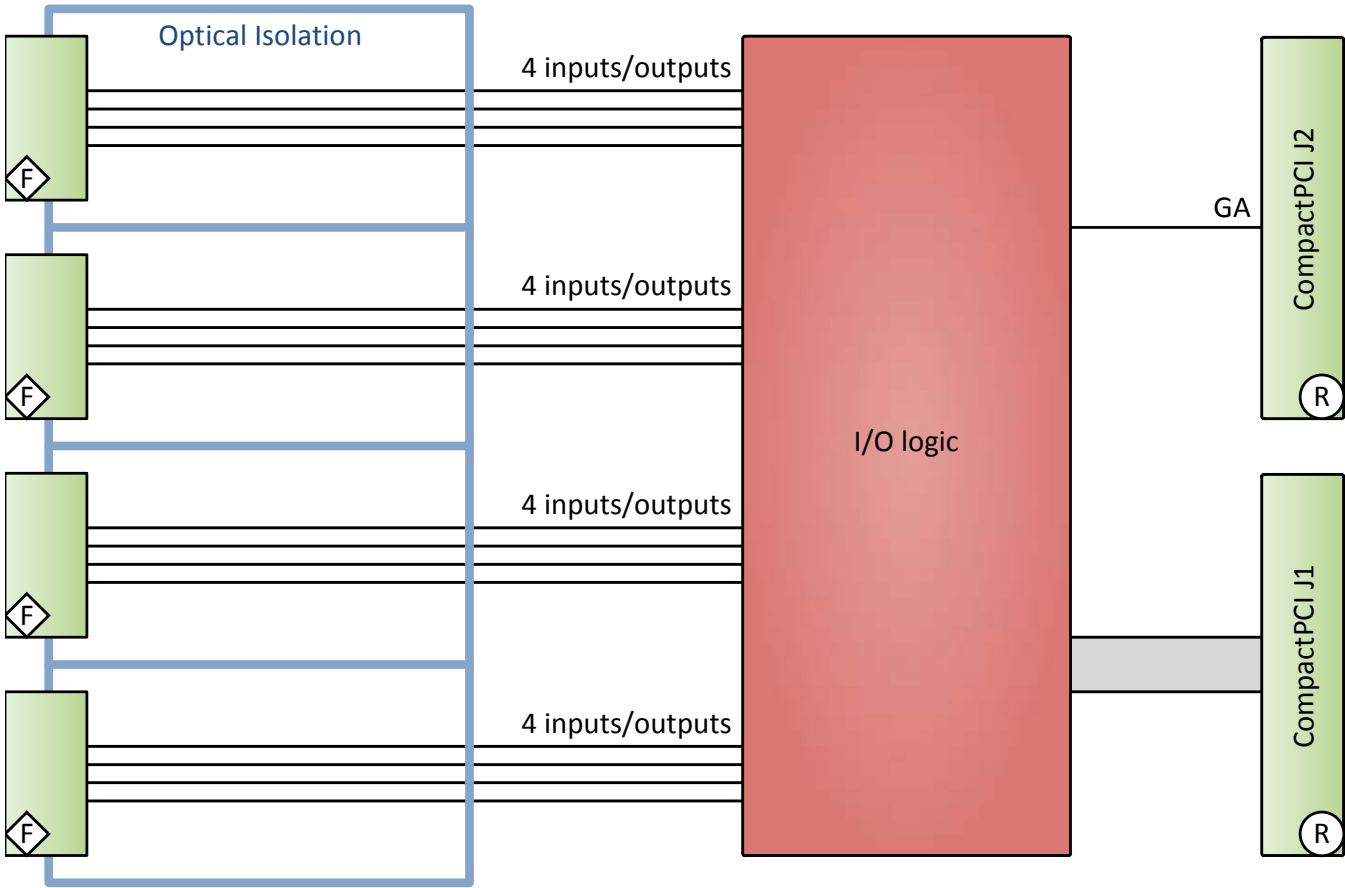
EN 50155 Compliance

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.



Note: The F403 is also available with 8 instead of 16 inputs/outputs.

◇ Front ○ Rear

Binary I/Os

- 16 binary signals
 - 4 optically isolated groups
 - 4 channels for each group
- The following I/O configurations are possible:
 - 16 inputs/outputs, or
 - 16 inputs (no outputs), or
 - 8 inputs/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: min. 400 µs (rise time) / min. 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

CompactPCI Bus

- Compliance with CompactPCI Core Specification PICMG 2.0 R3.0
- Peripheral slot
- 32-bit/33-MHz PCI Bus, or
- 32-bit/66-MHz PCI Bus
- V(I/O): +3.3 V
- J2 connector with geographical addressing for distinguishing boards in a system with several boards

Electrical Specifications

- Isolation voltage:
 - 1500 VAC between isolated side and digital side
 - 1500 VAC between the channels
- Supply voltage/power consumption from CompactPCI:
 - +5V (+5%/-5%), 130 mA typ.

Mechanical Specifications

- Dimensions: conforming to CompactPCI specification for 3U boards
- Front panel: 4 HP with ejector
- Weight: 292 g

Environmental Specifications

- Temperature range (operation):
 - -40..+85°C (qualified components)
 - 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 +3000 m
- Shock: 50 m/s², 30 ms (EN 61373)
- 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)
- Conformal coating (standard)

MTBF

- 418 612 h @ 40°C according to IEC/TR 62380 (RDF 2000)

Safety

- Flammability
 - UL 94V-0
- Electrical Safety
 - Insulation measurement test according to EN 50155 (10.2.9.1)
 - Voltage withstand test according to EN 50155 (10.2.9.2)
 - Information technology equipment test according to EN 60950

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 F403 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/f403/

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