



PC2220

Data Sheet

PC2 Programmable Controller for Rail Vehicles

Programmable Digital I/O Controller with optional LCD and Keypad

- **16 digital inputs, 14 digital outputs**
- **One 10BASE-T/100BASE-TX Ethernet interface**
- **One RS232 serial communications port**
- **One RS485 serial communications port**
- **Optional tactile 12-key keypad and backlit 2x20 character LCD**
- **Rapid application development with IEC 61131 PLC or C-API programming**
- **EN 50155 compliant**

Product Description

For Railway Applications on Rail Vehicles

The PC2220 is a compact programmable controller for railway applications on rail vehicles. It features 16 digital input channels and 14 digital output channels. It also supports the following optional tools: a tactile 12-key keypad and a backlit 2x20 character LCD.

Robust Wired Communication

The PC2220 provides one galvanically isolated 10/100Mbit Ethernet interface on an M12 connector. It also provides one non-isolated RS232 serial port on an RJ12 connector and one non-isolated 3-wire RS485 serial port for communication.

Solid Processing Performance

The PC2220 features an NXP® Vybrid™ VF50N processor. It features up to 128 MB NAND flash, 128 MB DDR3 RAM, and 128 kB non-volatile MRAM.

Ease of Programming

The PC2220 is programmable via iecTeso IEC61131-3 environment as well as "C" programming language.

Fanless Operation

The PC2220 is designed for fanless operation at temperatures from -20 °C to +70 °C (+85 °C for up to 10 minutes).

Rail Rolling Stock Compliant

The PC2220 is exclusively designed for harsh rolling stock environments and conforms to the EN 50121/EN 50155/EN 61373 standards.



Technical Data

Digital Input Characteristics

- 16 channels: configurable via software
- Input voltage
 - 36 V max.
 - 24 V DC for semiconductor sensors
 - 24 V DC for electro-mechanical contacts
 - 5 V DC for Dallas DS1820 1-wire digital temperature probes
- Input current
 - 5 mA, for semiconductor sensors
 - 5 mA + fritting for electro-mechanical contacts
 - 1.5 mA + for Dallas 1-wire temperature probes
- Pulse counting: 500 Hz max. on channels configured for 24 V semiconductor mode

Digital Output Characteristics

- 14 channels with status feedback
- Load current: 0.5 A max.
- Output type: Low-side (sinking) outputs

Ethernet Interface Functionality

- Protocols
 - EtherNet/IP - CIP
 - IPTCom
 - TRDP

CPU

- NXP Vybrid VF50N, 1 core, 400 MHz, or
- i.MX6ULL, 800 MHz

Memory

- System RAM
 - DDR3
 - 512 MB max.
- NAND Flash: 512 MB
- Non-volatile RAM (NVRAM): 128 kB MRAM

Interfaces

- Digital I/O
 - Digital inputs: non-isolated, Phoenix Contact FKC, 10-pin, receptacle, 2 connectors
 - Digital outputs: non-isolated, Phoenix Contact FKC, 10-pin, receptacle, 2 connectors
- Ethernet
 - 1 × 10BASE-T/100BASE-TX, M12, D-coded, receptacle
- Serial
 - 1 × RS232, non-isolated, RJ12, wired as DTE
 - 1 × RS485, non-isolated, 2-wire plus GND, Phoenix Contact FKC, 10-pin, receptacle
- LED
 - Status: power status
 - Ethernet: activity, link
- Data Access Tool (Optional)
 - LCD: 2 row by 20 column, 5 pixel wide by 8 pixel high, backlit on/off character LCD
 - Keypad: 12-key keypad

Supervision and Management

- Temperature measurement
- Power supply measurement
- Watchdog
- Real-time clock, buffered by battery

Electrical Specifications

- Supply voltage: 24 V DC nom.

Mechanical Specifications

- Dimensions: (W) 134.2 mm, (D) 140 mm, (H) 35 mm
- Weight: 380 g
- Mounting: Wall/flat surface
- Protection rating: IP20

Product Compliance: Rail - Rolling Stock

- Operating temperature: -20 °C to +70 °C, +85 °C for 10 min
- Storage temperature: -20 °C to +85 °C
- Shock: 30 ms @ 50 m/s² (EN 61373:2010/AC:2017-09, vehicle body, cat. 1, class B)
- Vibration: 10 min @ 1.01 m/s² (functional) and 5 h @ 5.72 m/s² (long-life) (EN 61373:2010/AC:2017-09, vehicle body, cat. 1, class B)

Reliability

- MTBF: 200 000 h predicted @ 40 °C according to IEC/TR 62380 (RDF 2000)

Software Support

- Linux
 - "C" programmable with C-API libraries
- iecTeso (IEC 61131-3:2025 SFC, FBD, LD, ST, IL)

Interfaces

