

# PC2100 Programmable Controller for Rail Vehicles

*EN 50155 Compliant Programmable Controller for Rail Applications with LCD and Keypad*

The PC2100 is an ideal multi-purpose Controller for Railway Applications. The PC2100 is comprised of the following I/O: 7 digital inputs, 10 digital outputs, 7 universal inputs, 2 analogue outputs and 2 relay outputs.

The PC2100 is programmable via iecTeso IEC61131-3 (LD, FBD, SFC, IL, ST) environment as well as "C" Programmable.

## Features and benefits

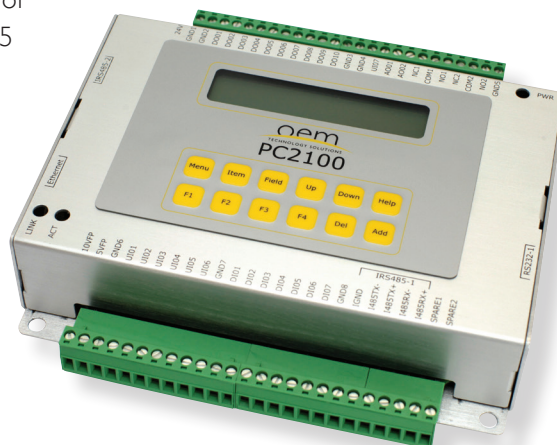
- Backlit 2x20 character LCD
- Tactile 12 key keypad
- 10/100 Mbps Ethernet
- One RS232 serial communications port
- I/O Expansion: One 3-wire isolated RS485 serial communications port
- One isolated RS422/RS485 port
- 7 Digital Inputs
- 10 Digital Outputs
- 7 Universal Inputs, individually factory configurable as Digital Inputs or Analogue Inputs
- 2 Analogue Outputs. Individual analogue output channels are factory configurable
- 2 Relay Outputs
- Suitable for nominal battery voltages of 24VDC in accordance with EN 50155
- Operating temperature range with LCD and keypad: -20°C to +70°C
- Conformal Coating
- EN 50155 Compliant

## Applications

- Passenger Vehicle Condition Based Monitoring
- Heating Ventilation Air Conditioning (HVAC) Control Systems
- Locomotive Performance and Condition Monitoring
- Trackside Monitoring and SCADA
- Industrial Control Systems
- Onboard controls for fire protection, power packs and doors
- Drop In Replacement for Z-World PK2100

## Ordering Information

- Part Number: 070-0589



PC2100 CONTROLLER

# Specification

Description	PC2100-1		PC2100-2
Environmental	Operating temperature range: -20°C to +70°C		
	Storage temperature range: -20°C to +70°C		
	Relative Humidity: 5% to 95% non-condensing		
	Shock and Vibration: EN 61373:2010 Category I – Class B		
Power Supply	Nominal Input Voltage	24VDC	
	Minimum Input Voltage	14VDC (EN50155 Class C1)	
	Maximum Input Voltage	36VDC	
	Nominal Input Current	220mA	
Processor Features	Processor	Freescale Vybrid VF50N, CPU clock: 400MHz, DMIPS:628	
	NAND Flash	128MB	
	DDR3 RAM	128MB	
	Non-volatile MRAM	128kB	
	Battery-Backed Real Time Clock		
Watchdog	Hardware Watchdog		
Digital Inputs	Seven (7) digital inputs configured as 5mA @ 24V. Current sourcing (low side switching)		
Digital Outputs	Ten (10) digital outputs 24VDC 0.5A Current sinking (low-side switching)		
Universal Inputs	Seven (7) universal inputs 12-bit resolution, configurable via jumper as:		
	Universal Input 1	Digital Input or Resistor (5 K $\Omega$ NTC)	Digital Input or Current (0 - 20mA)
	Universal Input 2	Digital Input or Resistor (5 K $\Omega$ NTC)	Digital Input or Current (0 - 20mA)
	Universal Input 3	Digital Input or Resistor (5 K $\Omega$ NTC)	Digital Input or Resistor (5 K $\Omega$ NTC)
	Universal Input 4	Digital Input or Voltage (0 - 36VDC)	Digital Input or Voltage (0 - 10VDC)
	Universal Input 5	Digital Input or Current (0 - 20mA)	Digital Input or Voltage (0 - 10VDC)
	Universal Input 6	Digital Input or Voltage (0 - 10VDC)	Digital Input or Resistor (5 K $\Omega$ NTC)
	Universal Input 7	Digital Input or Voltage (0 - 10VDC)	Digital Input or Resistor (5 K $\Omega$ NTC)
Analogue Outputs	Two (2) channels 10-bit resolution, configurable via jumper as:		
	Analogue Output 1	Voltage 0-10VDC or Current 0 to 20mA	Voltage 0-10VDC or Current 0 to 20mA
	Analogue Output 2	Voltage 0-10VDC or Current 0 to 20mA	Voltage 0-10VDC or Current 0 to 20mA
Relay Outputs	Two (2) electromechanical SPDT (1 Form C) relay outputs 40VDC 3A		
Communication Ports	Ethernet	10/100 Mbps IEEE 802.3	
	Non-isolated RS232 (TIA-232F)	Five-wire with RxD, TxD, RTS and CTS signals	
	RS-422/RS-485 port	RS422/485: Five-wire Rx(+), Rx(-), Tx(+), Tx(-) 2.5kVrms Isolation barrier	
I/O Expansion	Isolated RS485 port	RS485: Three-wire RS485+, RS485-, GND	
Data Access Tool	LCD	2 row by 20 column, 5 pixel wide by 8 pixel high, backlit on/off character LCD	
	Keypad	12 Key keypad	
Mechanical	Product dimensions (LxWxH): 178mm x 172mm x 41mm		
Enclosure Material	Aluminium with Anodised Screen-Printed Lid		
Ingress Protection (IP) Rating	IP20 (in accordance with EN 60529)		
Reliability	MTBF 361,913 hrs @ 40°C Standard: Telcordia SR-332 Issue 2 – Parts Count Method		
Terminations	Power I/O: Plug/Socket Connectors		
	Ethernet: M12 D-Coded Female		
	RS485 I/O Expansion: Plug/Socket (Molex MiniFit)		
	RS485 Phoenix Plug/Socket Connectors		
	Non-isolated RS232: RJ12		
Standards	EN 50155:2007	Railway Applications – Electronic Equipment Used on Rolling Stock	
	EN50121-3-2:2015	Railway Applications – Electromagnetic Compatibility Part 3-2: Rolling Stock - Apparatus	
	EN 61373:2010	Railway Applications Rolling Stock Equipment Shock and Vibration Tests	
	EN 45545-2:2013	Railway Applications – Fire Protection for Railway Vehicles Part 2: Requirements for Fire Behaviour of Materials and Components	
Programming	ISaGRAF V5 - IEC61131-3 (SFC, FBD, LD, ST, IL, FC) "C" Programmable		

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