

PC2610 Standard Controller for Rail Vehicles

*EN 50155 Compliant Software Configurable
Programmable Controller for Railway
Applications on Rail Vehicles*

The PC2610 has been proven to survive the rigors required for Railway Vehicles including:

- Electrical surges and transients of EN 50155 / EN 50121-3-2.
- Shock and vibration in accordance with EN 50155 / EN 61373.
- Operating temperature range of -40°C to +70°C and relative humidity 5% to 95% non-condensing.

Features and Benefits

- Six software configurable analogue inputs
- Sixteen software configurable digital inputs
- Sixteen low-side (sinking) digital outputs
- Three software configurable universal inputs (analogue or digital)
- Two software configurable universal outputs (analogue or digital)
- Remote I/O Expansion through isolated RS485 port
- 10/100 Mbps Wired Ethernet
- Two RS232 serial communications ports
- One 2-wire non-isolated RS485 serial communications port
- MicroSD card interface
- Suitable for nominal battery voltages of 24VDC in accordance with EN 50155
- Operating temperature range: -40°C to +70°C (+85°C for 10 minutes)
- Conformal Coating

Applications

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

Ordering Information

- Part Number: 070-0825-3



Specification

Description	PC2610 Standard Controller for Railway Applications	
Environmental	Operating Temperature Range: -40°C to +70°C (EN50155 Class OT4)	
	Switch-on Extended Operating Temperature Range: To +85°C (EN50155 Class ST1) for 10 min	
	Storage temperature range: -40°C to +85°C	
	Relative Humidity: 5% to 95% non-condensing	
	Shock and Vibration: EN 61373:2010 Category 1 – Class B	
Power Supply	Nominal Input Voltage	24VDC, Reverse polarity protected
	Minimum Input Voltage	14VDC
	Maximum Input Voltage	40VDC
	Nominal Supply Current	250 mA Maximum
Processor Features	Processor	NXP®Vybrid™ VF50N, CPU clock: 400MHz, DMIPS: 628
	NAND Flash	128MB
	DDR3 RAM	128MB
	Non-volatile MRAM	128kB
	Non-volatile Real Time Clock with Battery backup	
	Inbuilt Micro SD Card Socket, supports SD 3.0 or SDXC Cards up to 2TB	
Watchdog	Core Module Watchdog	
User Programmable LEDs	Two (2) Red LEDs	
Digital Inputs	Sixteen (16) digital inputs software configurable in two banks of eight as sinking (pulled down to 0V) or sourcing (pulled up to 24V)	
	Nominal sinking/sourcing current: 8mA	
	Maximum input voltage: ±40V Pulse counting up to 500Hz on all channels	
Digital Outputs	Sixteen (16) low-side (sinking) digital outputs	
	Maximum load current: 1A. Outputs can be connected in parallel for loads requiring more than 1A	
	Short circuit and over-load protected with automatic reset	
Analogue Inputs	Six (6) analogue inputs 12-bit resolution individually configurable via software as: Current 0-20mA or Voltage 0-10V or NTC (optimised for 5kΩ)	
	Maximum input voltage: ±40V	
Universal Inputs	Three (3) universal inputs individually configurable as analogue or digital	
	Analogue Inputs:	12-bit resolution, individually configurable via software as: Current 0-20mA or Voltage 0-10V or Voltage -10 to +10V or NTC (optimised for 5kΩ) Maximum input voltage: ±40V
	Digital Inputs:	Individually software configurable as sinking (pulled down to 0V) or sourcing (pulled up to 24V) Nominal sinking/sourcing current: 8mA Maximum input voltage: ±40V
Universal Outputs	Two (2) outputs individually software configurable as analogue or digital	
	Analogue Outputs:	10-bit resolution individually configurable via software as: Current 0-20mA or Voltage 0-10V
	Digital Outputs:	Low-side (sinking) digital outputs Maximum load current: 1A. Outputs can be connected in parallel for loads requiring more than 1A Short circuit and over-load protected with automatic reset
Communication Ports	Ethernet	10/100Mbps IEEE 802.3
	Non-isolated RS232 (TIA-232-F) x 2	2-wire plus GND + 6-wire GND
	Non-isolated RS485 (TIA-485-A)	2-wire plus GND
	Isolated RS485 (TIA-485-A)	2-wire plus GND, 500VAC Isolation
	PC3 Parallel Bus	For PC3 Communications Modules (IO36XX)
Protocol Support	Ethernet Protocols	Ethernet IP (CIP), XCP, NTP, IPTCom, IEC61375 (TCN Open), TRDP, Modbus Client/Server
	Parallel Bus Communications	MVB (EMD+ ESD+), 3G + GPS, MELCO (HDLC, 20mA), FIP, LONWORKS, CANopen, J1939
	Serial Protocols	Modbus RTU Client/Server
Mechanical	Enclosure Material: Aluminium with Anodised Screen Printed Lid	
	Product Dimensions: 147mm x 204mm x 42mm	
	Weight: 0.6 kg (with plug connectors)	
Ingress Protection (IP) Rating	IP20 (in accordance with EN 60529)	
Reliability	MTBF: 270,664 hrs @ 40°C Standard: Telecordia SR-332 Issue 2 - Parts Count Method	
Terminations	I/O, Power and RS485-1	Plug/socket cage clamp connections (2.5 mm² max.) on a 5.08mm pitch
	Ethernet	M12 D-Coded Female
	RS2321-1, RS232-2	DE9 Female
	Isolated RS485-2	Molex Mini-Fir Jr (4-Way, Dual Row, Right Angle, Pin Header)
Standards	EN 50155:2017	Railway Applications – Electronic Equipment used on Rolling Stock
	EN50121-3-2:2016	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+A1:2015	Railway Applications – Fire Protection for Railway Vehicles Part 2: Requirements for Fire Behaviour of Materials and Components
Materials Compliance	REACH, ROHS, WEEE, EN45545-2	
Programming	• Linux "C" APIs	
	• iecTeso (ISaGRAF) IEC61131-3 Programmable	

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