

# PC3422 FIP to Ethernet Communications Gateway

*EN 50155 Compliant FIP to Ethernet Communications Gateway for Rail Applications on Rail Vehicles*

The PC3422 has been designed using PC3 Series modules that have 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

- 10/100 Mbps Wired Ethernet in accordance with IEEE 802.3 via M12 D-Code connector
- Supports FIP networks as per IEC61158 and IEC61784
- Slow FIP, Fast FIP and WorldFIP support at 1Mbps bus speed
- One RS232 serial communications port
- One isolated RS485 serial communications port
- Suitable for nominal battery voltages of 110VDC in accordance with EN 50155
- Operating temperature range: -40°C to +70°C (+85°C for 10 minutes)
- Connections for RS232 and RS485 via DB9 female connectors
- Connections for FIP via DB9 connectors (two male)
- Connections via cage clamp plug socket connectors
- Conformal Coating
- EN 50155 Compliant

## 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: 070-0895-1



PC3422 GATEWAY

## Specification

Description	PC3422 FIP to Ethernet Communications Gateway for Rail Applications on Rail Vehicles	
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	110 VDC
	Minimum Input Voltage	66 VDC (EN50155 Class C1)
	Maximum Input Voltage	154 VDC
	Nominal Input Current	13 mA
Processor Features	Processor	Freescall Vybrid VF50N, CPU clock: 400MHz, DMIPS: 628
	NAND Flash	128 MB
	DDR3 RAM	128 MB
	Non-volatile SRAM	128 kB
	Non-volatile Real Time Clock with Supercap	
Communication Ports	Ethernet	10/100 Mbps IEEE 802.3
	Non-isolated RS232 (TIA-232F)	Five-wire with Rx, Tx, RTS and CTS signals.
	Isolated RS485 (TIA-485)	Three-wire: A, B and SG. Isolated to 500 VAC
	FIP	Full station without bus arbiter (ST3)
FIP Features	Line Redundancy	Medium redundancy over FIP1 and FIP2 ports
	LED Indicators	4 x LEDs (FIP STS, FIP ERR, FIP TX, FIP RX)
	Device ID Selection	8 pins located in FIP1 and FIP2 (This allows for an 8-bit FIP Device ID. The application software can then override this value if required)
	Bus speed	1Mbps
	Physical Layers Compatibility	Slow FIP, Fast FIP and WorldFIP
Mechanical	Product dimensions: 184mm x 249mm x 64mm (with plug connectors installed)	
Enclosure Material	Extruded Aluminium with Anodised Screen Printed Lid	
Ingress Protection (IP) Rating	IP20 (in accordance with EN 60529)	
Weight	1.0 kg (without plug connectors)	
MTBF	389,408 hrs @ 40°C	Standard: Telcordia SR-332 Issue 2 – Parts Count Method
Terminations	Plug/socket cage clamp connections (2.5 mm <sup>2</sup> max.) on a 5.08mm pitch	
	Ethernet: M12 D-Coded Female	
	RS-232 and RS-485: DB9 Female	
	FIP Port1 & FIP Port2: DB9 Male with UNC 4-40 Screw Locks	
Standards	EN 50155:2017	Railway Applications – Electronic Equipment used on Rolling Stock
	EN 50121-3-2:2016 + A1:2019	Railway Applications – Electromagnetic Compatibility Part 3-2: Rolling Stock – Apparatus
	EN 61373:2010 + AC:2017	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 3, WEEE, EN45545-2	
Programming	<ul style="list-style-type: none"> <li>Linux “C” API's</li> <li>iecTeso (ISaGRAF) IEC61131-3 Programmable</li> </ul>	

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