

pro•teso

PC3 Series programmable controller

“The configurable single board computer for railway and transport applications”



- ✓ Rail hardened
- ✓ EN50155 compliant
- ✓ Web based maintenance software
- ✓ Data logging and event logging
- ✓ IEC61131-3, IEC61499 and “C” programmable
- ✓ All major TMS interfaces supported
- ✓ Class TX operating temperature (-40°C to +85°C)



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international programming standards

IEC61131-3 and IEC61499 – The IEC compliant programming workbench is a complete programming environment used to develop highly portable applications.

It fully supports all IEC61131-3 languages:

- ladder diagram
- function block diagram
- sequential function charts
- structured text
- instruction list
- plus flowcharts

The workbench is also IEC61499 compliant and provides tools for editing, debugging, code generation, documentation, library management, archiving, on-line monitoring, off-line simulation and on-line changes.

The PC3 is also available as a “C” programmable device offering **Linux, Windows CE** and **NET+OS (ThreadX)** operating system support.

EN50155 compliance

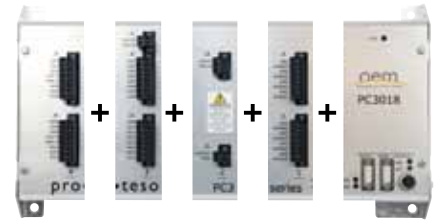
The PC3 has been designed specifically for high reliability applications such as the railway industry.

The PC3 is compliant to the EN50155:2007 Standard, including formal testing for:

- Class TX Operating Temperature (-40°C to +85°C)
- EFTB Immunity (EN 61000-4-4), Surge Immunity (EN 61000-4-5) and ESD Immunity (EN 61000-4-2)
- Conducted Disturbances RFI Immunity (EN 61000-4-6) and Radiated Disturbances RFI Immunity (EN 61000-4-3)
- Radiated and Conducted Emissions (EN 55011)
- Shock and Vibration (EN 61373 – Category I Class B)

maximum configurability

Select any number and type of PC3 I/O modules from a wide range of off-the-shelf modules. Once you have chosen your configuration, the PC3 controller is quickly manufactured via a remarkable new process to create a flexible railway compliant single board computer.



If your requirements are slightly different to our off-the-shelf offering, OEM Technology Solutions can provide the ISO9001 accredited design services to customise the PC3 controller to suit your application. We have a suite of off-the-shelf electronic and software building blocks to create your ideal solution.



PC3010 train saloon HVAC

- 110Vdc Input Voltage
- 40 x high side switched digital inputs (current sinking) 110Vdc, 1mA
- 32 x current sourcing, short circuit protected and self resetting FET digital outputs, maximum channel load 1.0A @ 110Vdc
- 14 x analogue inputs, 12 bit resolution, individually configurable as 0-10Vdc, 0-20mA or NTC thermistor
- IEC61131-3 programmable
- M12 Ethernet, RS485, RS232
- MVB (EMD) Train Management System Interface
- Data logging, alarms and events



PC3050 tram vehicle location server

- 12 x high side switched inputs (current sinking) 24Vdc, 7mA
- 12 x current sourcing outputs, maximum channel load 1.0A @ 24Vdc
- 4 x analogue inputs, 12 bit resolution, individually configurable as 0-10Vdc, 0-20mA or NTC thermistor
- C programmable (NET+OS ThreadX)
- Ethernet, RS485, RS232, GPS
- 19" Rack mounted solution
- Digital inputs and outputs
- All I/O available from front panel



“The configurable single board computer for railway and transport applications”

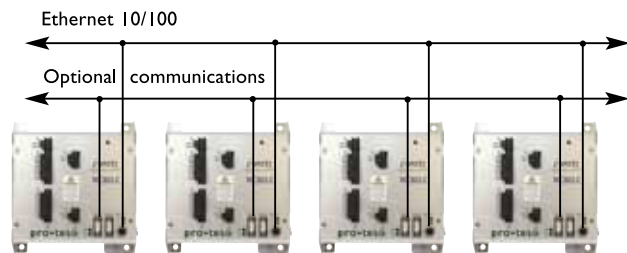
communications capability

With M12 10/100 Base-T Ethernet capability as standard, the PC3 series programmable controller offers state of the art communications capability. Out of the box features include:

- 10/100 Base-T Ethernet (M12 connector)
- 1 x Isolated RS485
- Modbus TCP/IP
- 1 x RS232

Optional modular expansion is available for:

- USB2.0
- MVB (Type EMD)
- 802.11 b/g WiFi
- Profinet
- IPTCom
- CANopen
- LONWorks



maintenance software interface

The PC3 is optionally available with a powerful web based maintenance software interface.

Features of the interface:

- User programmable and fully configurable
- Real time monitoring and control of your PC3 application
- Graphical user interface
- PC3 datalog, event log and CSV file download
- Multi language support
- Data variable recording and playback capability (on-line and off-line)
- PC3 software upgrade facility



PC3009 train door monitoring

- 110Vdc Input Voltage
- 16 x high side switched digital inputs (current sinking) 110Vdc, 1mA
- 12 x current sourcing, short circuit protected and self resetting FET digital outputs, maximum channel load 1.0A @ 110Vdc
- IEC61131-3 programmable
- M12 Ethernet, RS485, RS232
- Data logging, alarms and events



PC3018 train drivers cabin HVAC

- 110Vdc Input Voltage
- 16 x high side switched digital inputs (current sinking) 110Vdc, 1mA
- 12 x current sourcing, short circuit protected and self resetting FET digital outputs, maximum channel load 1.0A @ 110Vdc
- 8 x analogue inputs, 12 bit resolution, individually configurable as 0-10Vdc, 0-20mA or NTC thermistor
- IEC61131-3 programmable
- M12 Ethernet, RS232
- 1 x Isolated RS485 for TMS Interface
- Data logging, alarms and events



PC3 series programmable controller – board specifications

Processor Modules

PM3000	32 bit ARM9	ARM9, 4MB FLASH, 16MB SDRAM, 512KB BBSRAM, Real Time Clock, 1 x 10/100 Ethernet (RJ45), 1 x Isolated 3-wire RS485 (Plug/socket), 1 x 3-wire RS232 (RJ12), 1 x USB2.0 (Optional)
PM3001	32 bit ARM9	ARM9, 4MB FLASH, 16MB SDRAM, 512KB BBSRAM, Real Time Clock, 1 x 10/100 Ethernet (M12), 1 x 5-wire RS232 (DB9F) 1 x Isolated 3-wire RS485 or 1 x Isolated RS232 via build option (DB9F), 1 x USB2.0 (Optional)

Power Supply Modules

PS3000	110→24Vdc	110Vdc to 24Vdc isolated DC/DC converter
PS3010	72→24Vdc	72Vdc to 24Vdc isolated DC/DC converter

Digital Input Modules

IO3000	16 x DI 24Vdc	Quantity sixteen (16) high side switched inputs (current sinking) 24Vdc, 5mA
IO3010	16 x DI 72-110Vdc	Quantity sixteen (16) high side switched inputs (current sinking) 72-110Vdc, 1mA

Digital Output Modules

IO3100	8 x DO 24Vdc	Quantity eight (8) high current sourcing outputs, maximum channel load 1.5A @ 24Vdc
IO3130	12 x DO 72-110Vdc	Quantity twelve (12) high current sourcing outputs, maximum channel load 1.0A @ 72-110Vdc

Analogue Input Modules

IO3200	14 x AI	Quantity fourteen (14) analogue inputs, 12 bit resolution, individually configurable as 0-36Vdc, 0-20mA or NTC thermistor. Build option via zero ohm resistors.
IO3210	8 x AI	Quantity eight (8) analogue inputs, 12 bit resolution, individually configurable as 0-36Vdc, 0-20mA or NTC thermistor. Build option via zero ohm resistors.

Analogue Output Modules

IO3300	4 x AO	Quantity four (4) analogue outputs, 10 bit resolution, individually configurable as 0-12Vdc or 0-20mA. Build option via zero ohm resistors.
IO3310	8 x AO	Quantity eight (8) analogue outputs, 10 bit resolution, individually configurable as 0-12Vdc or 0-20mA. Build option via zero ohm resistors.

Multi Digital I/O Modules

IO3400	8 x DI, 8 x DO 24Vdc	Quantity eight (8) high side switched inputs (current sinking) 24Vdc, 5mA
		Quantity eight (8) current sourcing outputs, maximum channel load 1.0A @ 24Vdc
IO3410	8 x DI, 8 x DO 72-110Vdc	Quantity eight (8) high side switched inputs (current sinking) 72-110Vdc, 1mA
		Quantity eight (8) current sourcing outputs, maximum channel load 1.0A @ 72-110Vdc

Multi Digital and Analogue I/O Modules

IO3500	4 x DI, 4 x DO, 4 x AI 24Vdc	Quantity four (4) high side switched inputs (current sinking) 24Vdc, 5mA
		Quantity four (4) current sourcing outputs, maximum channel load 1.0A @ 24V dc
		Quantity four (4) analogue inputs, 12 bit resolution, individually configurable as 0-36Vdc, 0-20mA or NTC thermistor. Build option via zero ohm resistors.
IO3510	24 x DI, 10 x DO, 8 x AI, 2 x AO 24Vdc	Quantity twenty four (24) high side switched inputs (current sinking) 24Vdc, 5mA
		Quantity ten (10) current sourcing outputs, maximum channel load 1.0A @ 24V dc
		Quantity eight (8) analogue inputs, 12 bit resolution, individually configurable as 0-36Vdc, 0-20mA or NTC thermistor. Build option via zero ohm resistors.
IO3520	4 x AI, 4 x AO	Quantity two (2) analogue outputs, 10 bit resolution, individually configurable as 0-12Vdc or 0-20mA. Build option via zero ohm resistors.
		Quantity four (4) analogue inputs, 12 bit resolution, individually configurable as 0-10Vdc, +/- 10Vdc, 0-36Vdc, +/- 36Vdc or NTC thermistor. Build option via zero ohm resistors.
IO3530	6 x AI, 2 x AO	Quantity four (4) analogue outputs, 12 bit resolution, +/- 12Vdc.
		Quantity six (6) analogue inputs, 12 bit resolution, individually configurable as 0-10Vdc, +/- 10Vdc, 0-36Vdc, +/- 36Vdc or NTC thermistor. Build option via zero ohm resistors.
		Quantity two (2) analogue outputs, 12 bit resolution, +/- 12Vdc.

Communications Modules

IO3600	4 Serial + GPS	1 x 5-wire RS422 (plug/socket), 1 x 3-wire RS485 (plug/socket), 1 x 5-wire RS232 (DB9M), 1 x GPS receiver (SiRF Star III chipset) or optional 9-wire RS232 port (DB9M)
IO3610	CANopen	1 x CANopen port, galvanically isolated (2 x DB9)
IO3620	MVB	1 x MVB port, EMD (Electrical Middle Distance) interface (2 x DB9)
IO3630	LONWorks	1 x LONWorks port (plug/socket), 1 x 5-wire RS232 port (DB9M)
COM3400	5 Port Ethernet Switch, 110Vdc	5 x Unmanaged Ports Ethernet Switch (M12 connectors), 110Vdc
COM3410	3 Port Ethernet Switch, 110Vdc	3 x Unmanaged Ports Ethernet Switch (M12 connectors), 110Vdc
COM3420	5 Port Ethernet Switch, 24Vdc	5 x Unmanaged Ports Ethernet Switch (M12 connectors), 24Vdc
COM3430	3 Port Ethernet Switch, 24Vdc	3 x Unmanaged Ports Ethernet Switch (M12 connectors), 24Vdc

Other Modules

FTM3000	Field Termination Module	2 banks of 8 terminals. Alternative terminals configurable as 24Vdc or 0Vdc or Chassis. Build option via zero ohm resistors. Typically used in conjunction with IO32xx Series Analogue Input Modules.
RIO3000	Remote I/O Module	Single module used to extend the PC3 I/O Bus to a second PC3 configuration.
SD3000	SD Memory Interface Module	An additional expansion module to the PM3xxx Series Processor Module to enable the addition of Secure Digital (SD) Cards to be added for extended memory applications.



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