



PC3

Data Sheet

Modular Programmable Controllers

Combination of processor, I/O modules and communication interfaces for flexible control and monitoring in railway systems

- **CRA-ready with PM4000 processor module and duagon OS**
- **Designed for railway applications**
- **Supports applications like passenger vehicle Condition Based Monitoring or HVAC Control Systems**
- **Remote monitoring for real-time system management**
- **Multiple power supply options available**
- **Wide range of I/O configurations, enabling complex control integrations**
- **Multiple protocols supported for seamless integration**
- **Scalable design for easy configuration adaptation**
- **Rapid application development with IEC 61131 PLC or C-API programming**
- **EN 50155:2021 compliant**

Product Description

Flexible Design for Railway Subsystems

If the standard PC3 Controllers do not meet your requirements, the PC3 modular system offers unparalleled customization, allowing you to design the ideal configuration for your unique requirements. With duagon's wide selection of processor modules, I/O modules, power supply options, and communication interfaces at your disposal, you can tailor the system to meet the specific needs of your application or project. This flexibility ensures that you get exactly what you need, without compromise.

I/O Modules and Communication Interfaces

Select any number and type of PC3 I/O modules and communication interfaces from our wide range of certified off-the-shelf modules. Once you have chosen your configuration, the PC3 Controller is quickly manufactured to create a flexible, railway compliant controller. If your requirements are slightly different to our standard product offering, we can provide our ISO 9001 accredited design services to customize 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.

I/O Module	Power Supply	Digital Inputs	Digital Outputs	Analog Inputs	Analog Outputs
IO3000	24 V DC	16	-	-	-
IO3010	110 V DC	16	-	-	-
IO3010R³⁾	110 V DC	16 (RIA-12)	-	-	-
IO3020	110 V DC	8 Isolated	-	-	-
IO3030³⁾	24 V DC	8 Isolated	-	-	-
IO3100	24 V DC	-	8	-	-
IO3130	110 V DC	-	12	-	-
IO3200	24 V DC	-	-	14 ¹⁾	-
IO3210	24 V DC	-	-	8 ¹⁾	-
IO3220	24 V DC	-	-	8 ¹⁾ Isolated	-
IO3230³⁾	24 V DC	-	-	8 RTD ¹⁾	-
IO3300	24 V DC	-	-	-	4 ²⁾
IO3310	24 V DC	-	-	-	8 ²⁾
IO3400	24 V DC	8	8	-	-
IO3410	110 V DC	8	8	-	-
IO3500	24 V DC	4	4	4 ¹⁾	-
IO3520	24 V DC	-	-	4 ¹⁾	4 ²⁾
IO3530	24 V DC	-	-	6 ¹⁾	2 ²⁾
IO3545	24 V DC	24	18	8 ¹⁾	2 ²⁾

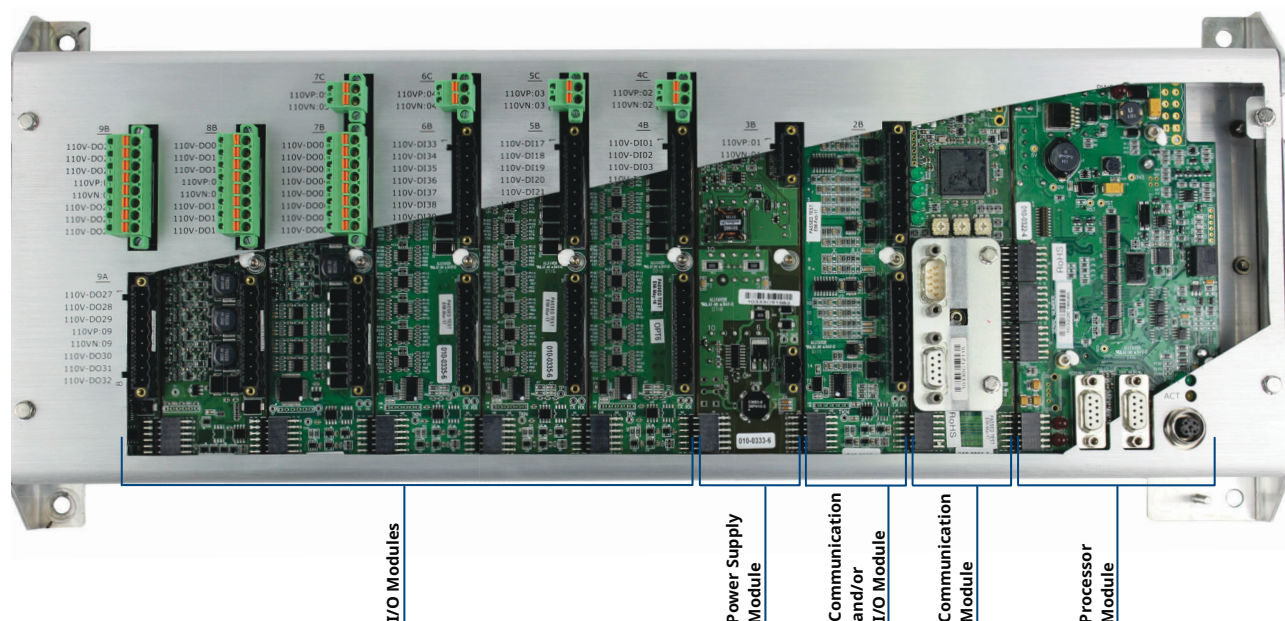
1) Configurable inputs. See analog input characteristics technical data.

2) Configurable outputs. See analog output characteristics technical data.

3) Available on request.

Communication Module	Fieldbus Functionality
IO3610	CANopen
IO3612	J1939
IO3620	MVB EMD Class II
IO3625	MVB ESD+
IO3647	2 × Serial ports, GPS/4G wireless
IO3650	20mA Current Loop
IO3660	HDLC485
IO3680	Extra Ethernet port + 16 × Status LEDs
IO3681	2 × Ethernet Fieldbus Interface ⁴⁾

4) See the [D013E data sheet](#) for available ordering options.



Technical Data

Digital Input Characteristics

- Input voltage: 24 V DC nom. or 110 V DC nom.
- Input type: High-side switch (load to ground)

Digital Output Characteristics

- Output voltage: 24 V DC nom. or 110 V DC nom.
- Maximum load current: 1 A, nominal
- Overload protection with automatic reset
- Output type: High-side switch (load to ground)

Analog Input Characteristics

- Channels with 12-bit resolution
- Configured as:
 - Current mode: 0 to 20 mA or
 - Voltage mode: 0 to 10 V DC or
 - Resistive mode: tuned for 5 k Ω NTC at 25 °C
 - 8 RTD input channels, 2-wire/3-wire/4-wire RTD, RTD sensors supported, PT100 or PT1000

Analog Output Characteristics

- Channels with 12-bit resolution
- Configured as:
 - Current mode: 0 to 20 mA
 - Voltage mode: 0 to 12 V DC

Wireless Functionality

- Possible functions: 4G, LTE, GPS

Fieldbus Functionality

- Possible functions:
 - MVB
 - CANopen
 - J1939
 - HDLC485
 - 20mA Current Loop
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CPU

- AM64x Sitara, Dual Arm Cortex-A53, 1 GHz max., or
 - i.MX6ULL, 800 MHz
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Memory

- System RAM: DDR4, 2 GB max.
 - NAND Flash: 16 GB MLC max.
 - Non-volatile RAM (NVRAM): 512 kB MRAM
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Mass Storage

- The following mass storage devices can be assembled: SD card (32 GB max.)
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Interfaces

- Digital I/O: non-isolated, Phoenix Contact FKC, 9-pin, receptacle
 - Analog I/O: non-isolated, Phoenix Contact FKC, 9-pin, receptacle
 - Ethernet: up to 2 × 10BASE-T/100BASE-TX, M12, D-coded, receptacle
 - Serial (with PM3005)
 - 1 × RS232, non-isolated, D-Sub, 9-pin, receptacle
 - 1 × RS485, isolated, D-Sub, 9-pin, receptacle
 - Serial (with PM4000)
 - 1 × RS232 (TIA-232F), isolated, D-Sub, 9-pin, receptacle
 - 1 × RS232 (TIA-232F) or RS485 (TIA-485), isolated, D-Sub, 9-pin, receptacle
 - MVB: 1 ×, D-Sub, 9-pin, plug and receptacle
 - CAN: 1 ×, D-Sub, 9-pin, plug and receptacle
 - LED
 - Status: 1 × power status
 - Ethernet: 1 × activity, 1 × link (per ETH interface)
 - User configurable: 1 × COM, 1 × STS
 - Earthing connection: M4 stud
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Supervision and Management

- Watchdog
 - Real-time clock, buffered by supercapacitor
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Electrical Specifications

- Supply voltage:
 - 24 V DC nom. or 110 V DC nom.
 - Optional: 72 V/110 V wide ranging power supply (43 V to 154 V)
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Mechanical Specifications

- Dimensions: (W) depending on selected quantity of modules, (D) 223 mm max., (H) 63 mm
- Mounting: Wall/flat surface
- Protection rating: IP20

Product Compliance: Rail - Rolling Stock

- Operating temperature: -40 °C to +70 °C, +85 °C for 10 min (EN 50155:2021, class OT4, ST1)
- Storage temperature: -40 °C (EN 50155:2021) to +85 °C (EN 60068-2-2, Bb)
- Altitude: +2000 m max. (EN 50125-1:2014, class AX)
- 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)
- Fire protection: EN 45545-2:2020, HL3
- EMC emission: EN 50121-3-2:2016 + A1:2019
- EMC immunity: EN 50121-3-2:2016 + A1:2019

Software Support

- Linux
 - "C" programmable with C-API libraries
 - duagon OS (with PM4000 for CRA compliance)
- iecTeso (IEC 61131-3:2025 SFC, FBD, LD, ST, IL)
- In-build web interface
- Data and event logging
- Cloud functionality