General Features

The i214 is an intelligent high-precision analog input output module for the ionia™ system. The module offers 3 analog outputs, 6 analog inputs and an auxiliary power supply output. The outputs, inputs and the supply output are grouped into three galvanically isolated groups with separated reference grounds.

The analog input and output group of the i214 can be individually configured as either voltage output/input or current output/input. The analog channels provide a resolution of 10 bits.

All configuration registers and the input/output values are accessible via a fast point-to-point connection from the central processing unit (CPU) module.

Configuring the i214 is done easily and time saving manner by using one of the five methods defined by IEC 61131.

The i214 is designed for harsh rolling stock environments and is fully compliant with EN 50155.
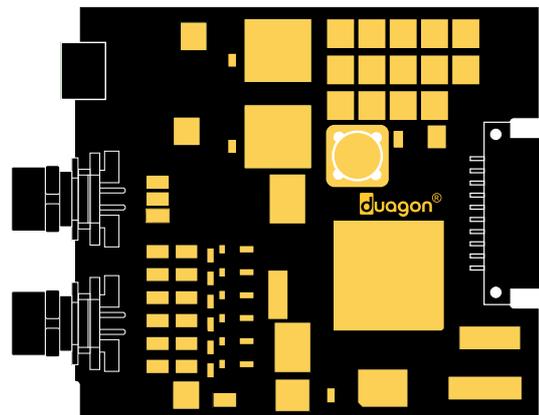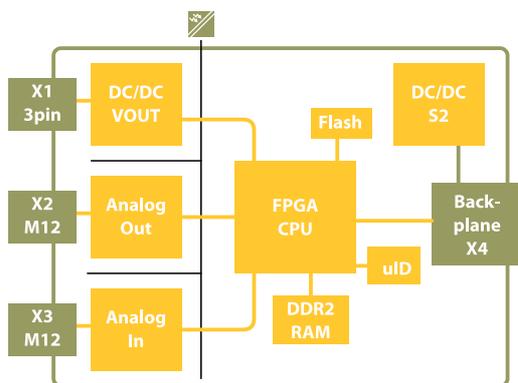
Key Benefits

- 3 analog outputs, individually configurable as voltage or current output
- 6 analog inputs, individually configurable as voltage or current input
- Provides an auxiliary 15V power supply output
- "Condition Monitoring" to detect overtemperature
- IEC 61131 for fast and easy programming
- No capacitor replacement necessary
- Fully compliant with EN 50155, EN 50121, IEC 61373

Application Examples

- Tachometers / speed gauge / analog gauge attachment
- Controlling any kind of analogue display
- Controlling analog actuators
- Voltage monitoring
- Current measurements

i214 Hardware Architecture

Life Cycle Cost

The use of an FPGA with included duagon own soft-IP minimizes the risk and costs in case of component obsolescence. Data access and firmware updates are easily don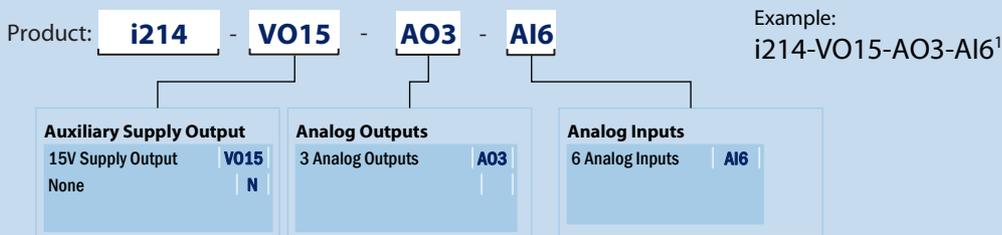e via the central processing unit (CPU). Further, to avoid service expenses, the i214 has strictly been designed without the usage of electrolytic capacitors.

Technical Data

CPU base System	– 32bit soft-CPU running at 100MHz (FPGA) – 128 MB RAM – Flash file system
Analog Outputs	– Individually configurable as voltage or current output – Voltage range: 0-10 V – Current range: 0-20 mA – 10 bits resolution
Analog Inputs	– Individually configurable for voltage or current measurement – Voltage range: 0-10 V – Current range: 0-20 mA – 10 bits resolution
Auxiliary Voltage Output	– 15 V Output Voltage – 1% Voltage Accuracy – Up to 50 mA output current
Configuration	– Programmable by the central processing unit using IEC 61131 compliant executor and IDE supporting LD, FBD, ST, IL and SFC
Security / Watchdog	– External supervisor for temperature monitoring → "Condition Monitoring"
Backplane Communication	– 100 Mbit/s duagon serial star (DSS) slave – Secure communication protocol – Configurable status scan cycle time; minimum: 1ms

Diagnostic / Service	– LEDs for visual information (power on, running, failure, …) – Diagnostic information readable through the CPU's interfaces
Power Consumption	– $P_{max} < 4.5W$ – Fully powered via backplane (no external power supply needed) – Interruption class S2 with ceramic capacitors
Operating Conditions	– Ambient temperature: -40 to +85°C (EN 50155, Class TX) – Relative humidity: 75%, max 95% for 30 days per year (conformal coating) EN 60068 – Shock and vibration: According to IEC 61373 category 1, class B – EMI: According to EN 50121 and EN 50155
Dimensions/ Weight	– 6TE x 92mm x 86mm fitting the ionia™ housing – <130g
Cabling	– Analog I/O connectors connector: 8pin M12 A-coded – Aux. voltage output connector: FMC 1,5/3-ST-3.5 or similar
Environment	– Fully compliant with RoHS and REACH

Product Ordering Table

Product: **i214** - **VO15** - **AO3** - **AI6**

Example:
i214-VO15-AO3-AI6[1]

Auxiliary Supply Output	
15V Supply Output	**VO15**
None	**N**

Analog Outputs	
3 Analog Outputs	**AO3**

Analog Inputs	
6 Analog Inputs	**AI6**

[1] default ordering options

Related Documents

Data Sheet i214   ⬜ i214_DS.pdf

available at www.duagon.com

Configure ionia™ online:

duagon®