A high performance CPU module (i101, i103) with a real time operating system builds the core of all ionia devices. The flexible configuration of the platform allows for different combinations of communication, control, diagnostic, data logging and control applications. Such applications can easily be programmed by using either a graphical tool or a standard SW language (e.g. C). In order to help you to a very quick integration, the ionia platform provides various possibilities for configuration, debugging and monitoring.

Train communication and control as smart as it can be

ionia simplifies the realization and implementation of communication and control functions on-board of trains. The platform can combine different communication interfaces with different I/O types. E.g. I/O platforms for MVB, ETH, CAN can be realized with specific I/O numbers and types (analogue, digital,..). But also communication devices like WTB-to-MVB gateways or communication racks with different protocols (e.g. MVB, ETH, CAN,…) can be realized in one space- saving device. Each ionia can be easily programmed and configured. Our support team will support you during the Implementation of your specific application.

A flexible and compact solution full of benefits

- Our space-saving and light design enables mounting even where only little space is available
- Capable of running complex and large applications by using a high performance 32 bit ARM® processor
- Supports all train field buses: Ethernet (TCP/IP, UDP, CIP, IPTCom, PROFINET,...), MVB, WTB, CAN, RS485/422 and RS232
- Simple product configuration with our web-based tool (www.duagon.com)
- No board level maintenance needed due to electrolytic free design

Space-saving size
Height: 100 mm
Depth: 120 mm
Its variable length allows any configuration and mounts even into very small spaces.

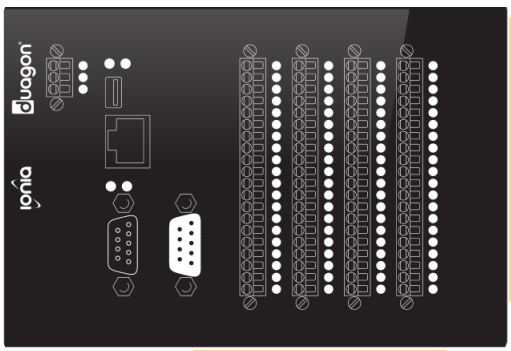
CPU
Leading-edge
32 bit CPU

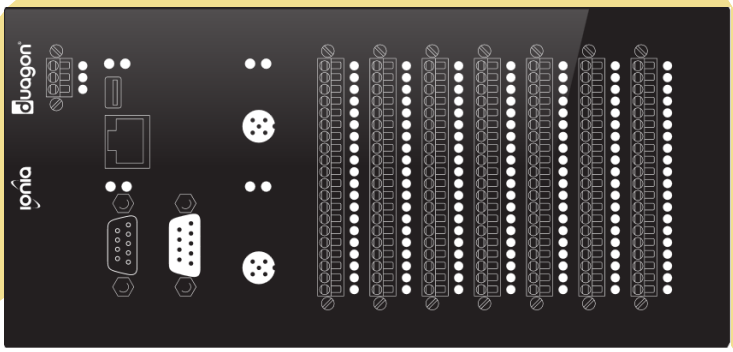
Backplane
100 Mbit point-to-point connection between the central unit and every module
p duagon® serial star controller.

Field bus
WTB - MVB - Ethernet - CAN - RS485/422 - RS232
Freely configurable number of field bus interfaces.

Wide range digital inputs / outputs
One and the same module for 24 V up to 110 V signals

The ionia housing
Made of stainless steel. The small size and the low weight enhances the robustness against shock and vibration.





Programming
State of the art IEC 61131 executor, capable of running up to 16 tasks at different cycle times. Supporting Ladder diagram (LD), Function block diagram (FBD), Structured text (ST), Instruction list (IL), Sequential function chart (SFC) and C programming. Backward compatibility through PLC open standard. Matlab/ Simulink, Labview,... programming is also possible

Condition monitoring
1 GB, 2 GB, 16 GB, 32 GB flash file system for monitoring and recording of selected user-defined variables or events like overvoltage, power loss, overtemperature, overcurrent, device status, etc.

Remote IO extension
Extending the whole platform with remote I / O channels is done easily with duagon DXIO0808-M/E/C and DAXIO3410-M/E/C devices.

Operating conditions
–40 °C to +70 °C;

Supply voltage
24, 36, 48, 72, 96, 110 Vdc supporting the voltage variation according to EN50155.

Power modules: i012 (20W), i014 (40W)

DC / DC Converter: Input voltage 24, 36, 48, 72, 96, 110 Vdc,
output voltage 48 Vdc and 3.3 Vdc, protection against reverse polarity,
overcurrent, overvoltage and overtemperature

CPU / Controller modules with consist network interface: i101, i103

- ARM Cortex-A8 up to 800 MHz,
  256 MB DDR2 SDRAM
- 1 GB flash file system (2 GB)
- RTC and off-chip watchdog
- RJ45 Ethernet and mini USB used as
  service interface

i101 MVB (EMD or ESD+) up to Class 4 according to IEC 61375

i103 CAN CAN 2.0, CANopen Master/Slave , J1939a

Communication modules:

i303 Ethernet 10/100 Mbit base T/TX dual channel interface IPTCom/TRDP, CIP, TCP/IP, UDP, PROFINET, IEEE 802.3 integrated protocol controller

i306 WTB interface for Line A & B, with integrated WTB controller, Fritting option according to IEC 61375, UIC mapping server in combination with central unit

i307 Ethernet switch 6 Port, 10/100 Mbit base T/TX, QoS with 4 traffic classes, VLAN, Flow control, store and forward processing

Input/Output modules:

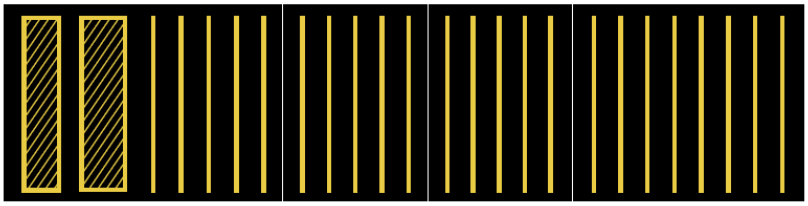
i201 16 digital inputs, current sink inputs (HCI with 10 mA), selected channels available as frequency input (0.1 Hz up to 200 kHz)

i202 8 digital inputs, current sink inputs (HCI with 10 mA), selected channels as frequency input (0.1 Hz up to 200 kHz) available
8 digital high side switched outputs, driving capability of up to 1 A per channel, 16 bit PWM (16 Hz up to 10 kHz) available

i211 12 analogue inputs in four isolated groups (3 inputs, 1 reference ground per group), selectable as -12Vdc to 12 Vdc, -50mA to 50 mA or resistive measurements (incl. PT100/PT1000)

Housing

i902	i903	i904	i905	i906
1 power module + 1 controller module + up to 4 additional modules	+ up to 5 additional modules	+ up to 5 additional modules	+ up to 8 additional modules	Full-custom specified size
147 mm[b]	224 mm[b]	300 mm[b]	421 mm[c]	



Configure your ionia™ online:

a) Contact duagon® for lead times and availability: Phone +41 44 743 73 00
b) Mounting options for 3U, DIN rail and screws
c) Mounting options for 19", 3U and screws