

General Features

The i303 is an Ethernet interface card for the ionia™ system. The module includes two galvanically isolated Ethernet interfaces to connect individually to two ethernet networks.

This module enables any connection to one or two ethernet networks. Furthermore, this module helps building up redundant ethernet connections.

With the i303 a gateway to the consist network (being either on the central unit or on any other module) can easily be realised. Moreover, any other devices can be connected to the system and thus can be controlled out of one single application.

As a real time ready module, it supports all real time train protocols like IPTcom, CIP and PROFINET. It will as well cover the future TRDP protocol. Both ethernet controllers (fully compli-

ant with IEEE802.3) are implemented in an FPGA with proven duagon IP. The real time protocol stacks are directly running on the module using a 32bit soft-core CPU.

The configuration registers and all communication data are accessible by the central unit through a fast and secure point-to-point connection (duagon serial star slave).

A built-in supervisory mechanism called «Condition Monitoring» can detect, record and report any off-limit usage, such as overvoltage, overcurrent, supply interruption, overtemperature, etc. as well as selected user-defined values.

Configuring the i303 is done easily and time saving by using one of the five methods defined by IEC 61131.

The i303 is designed for harsh rolling stock environments and is fully compliant to EN 50155 and IEC 61375.

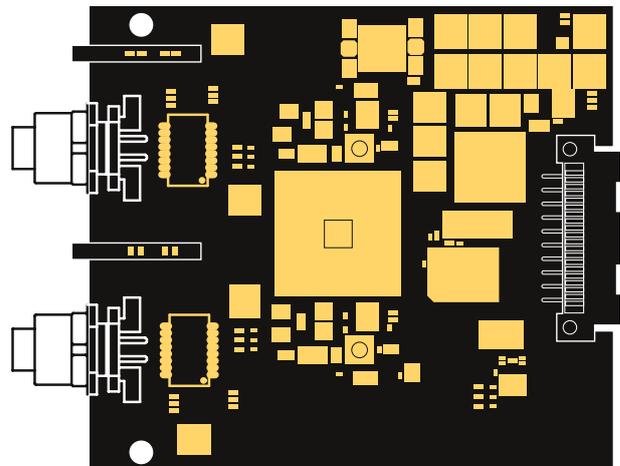
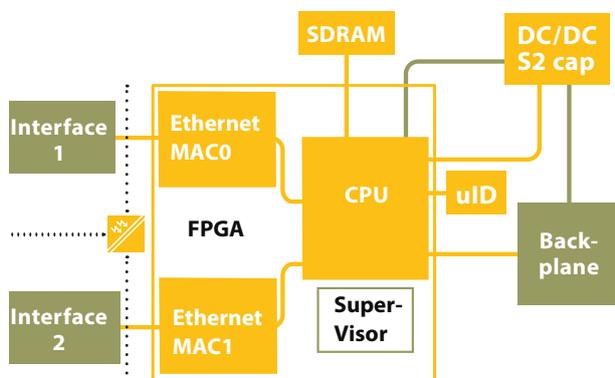
Key Benefits

- Supports all real time protocols like IPTcom, TRDP, CIP and PROFINET RT
- Both Ethernet controller support 100Mbit/s
- Easy access to the ethernet communication by a graphical editor
- Fully integrable into the central units application
- No obsolescence risk due to the use of duagon® own soft-IP in an FPGA

Application Examples

- Gateway to any main consist network (in combination with central unit)
- Gateway to any other field bus (in combination with other communication modules)
- Gateways between two Ethernet networks
- Connection to single devices with a Ethernet interface without the need of a ethernet network

i303 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.

The i303 has been strictly designed without electrolytic capacitors to avoid service costs for changing capacitors.

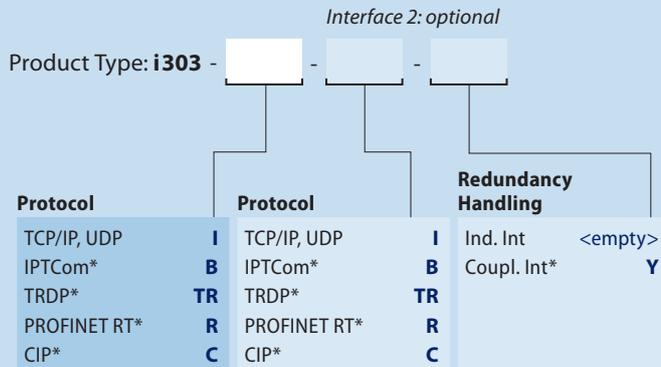
Technical Data

Ethernet	<ul style="list-style-type: none"> – Two galvanically isolated ethernet channels with reliable M12 connector – Fully compliant with IEEE 802.3 and IEC61375 – 100 Mbit/s
Protocols	<ul style="list-style-type: none"> – IPTcom – TRDP – CIP – PROFINET RT – TCP/IP, UDP
Programming	<ul style="list-style-type: none"> – Programmable by the central unit using IEC 61131 LD, FBD, ST, IL and SFC – Firmware update handled by the central unit
Security / Watchdog	<ul style="list-style-type: none"> – External supervisor for temperature monitoring → «Condition Monitoring» – Communication Link with watchdog supervision
Backplane Communication	<ul style="list-style-type: none"> – 100 Mbit duagon serial star slave – Secure communication protocol
Diagnostic/ Service	<ul style="list-style-type: none"> – LEDs for visual status information (power on, running, communicating, failure, I/O, ...) – Diagnostic information readable through the central unit's service interfaces <i>(see i101/i102/i103 for further information about these possibilities)</i>

Power Consumption	<ul style="list-style-type: none"> – $P_{max} < 3 W$; $P_{save} < 1 W$ – Power supply via backplane – Interruption class S2 with ceramic capacitors
Operating Conditions	<ul style="list-style-type: none"> – Ambient temperature: <ul style="list-style-type: none"> – 40 to +85 °C (EN 50155, Class TX) – Relative humidity: <ul style="list-style-type: none"> 75%, max 95% for 30 days per year (conformal coating) EN 60068 – Shock and vibration: <ul style="list-style-type: none"> According to IEC 61373 category 1, class B – EMI: <ul style="list-style-type: none"> According to EN 50121 and EN 50155
Dimensions/ Weight	<ul style="list-style-type: none"> – 4HP × 92 × 86 mm, fitting the ionia™ housing – <110 g
Environment	<ul style="list-style-type: none"> – Fully compliant to RoHS and REACH

d-006557-015326

Order Code and HW Options



EXAMPLE:
i303-TR-C (dual interface)
i303-C (single interface)

Contact duagon for further information about this possibilities

Related Documents

Data Sheet i303 |  d-006876-nnnnnn.pdf
available at www.duagon.com

Configure ionia™ online:



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