

General Features

The D215E is a multi-purpose dual Ethernet Controller Interface with embedded processing power. The integrated Ethernet controllers, designed by duagon, feature hardware prioritisation and very low jitter. The intelligent component encapsulates all Ethernet-relevant functions on a standardized 3U module. It can be considered as a communication module that handles various Ethernet protocol communications. The D215E lowers the requirements on the host system, as there is no need for additional CPU power for the real-time Ethernet stack.

The D215E is fully compliant to IEEE 802.3 and supports features like Auto-Polarity, Auto-Negotiation and Auto-MDI-X.

An optional full-featured three port switch can be integrated to enable ring topologies directly on the D215E. The optional bypass relay keeps the ring topology also in case of a mal-

function of the D215E.

The D215E is prepared for the "Ethernet on traction vehicles" standard IEC 61375-3-4. It supports various Ethernet protocols like TRDP, CIP, IPTcom, Profinet, UDP or TCP/IP.

The interface card integrates the magnetics with a galvanic insulation of 1.5kVrms, the PHY, the complete protocol controller and a simple host interface.

With duagon's driver kit, the D215E, featuring an easy to use UART emulation, can be integrated very quickly on almost any host system through small register set (each 8bit long) - The D215E does not need a wide address range compared with a solution based on dual ported memory.

The D215E is designed for harsh rolling stock environments and is fully compliant to EN 50155.

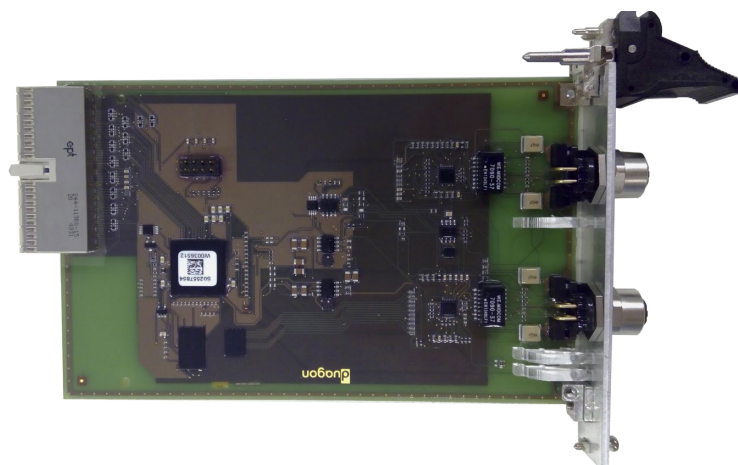
Key Benefits

- Hardware prioritisation within the duagon own Ethernet controller
- Proprietary high-performance UDP Stack (optimised for cyclic process data telegrams)
- Ring topologies with optional on-board bypass relays and integrated three port switch
- Encapsulation of real-time Ethernet protocol stacks
- Freeing CPU power on the Host System
- Fully compliant to IEEE 802.3, EN 50155, EN 50121, IEC 61373 and IEC 61375

Application Examples

- Generic Ethernet Interface for various real-time protocols
- Ring topologies without external switches

D215E Hardware Architecture



Life Cycle Cost

Total cost of ownership was focused when creating the installation, maintenance and service concept. The integrated switch option of the D215E reduces the number of needed

additional switches to build redundant topologies. Further, to avoid service expenses, the interface card has strictly been designed without the usage of electrolytic capacitors.

Technical Data

CPU base System	<ul style="list-style-type: none"> - 32bit soft-CPU running at 100MHz (FPGA) - 32 MB SDRAM - Flash file system
Ethernet Interface 1 + 2	<ul style="list-style-type: none"> - 1.500 Vrms galvanical insulation to internal logic - Fully compliant to IEEE 802.3 and IEC 61375
Ethernet Protocols	<ul style="list-style-type: none"> - Optimized TCP/IP, UDP Stack (IGMP, DHCP, ICMP, ARP support) - EtherNet/IP - CIP Adapter - TRDP - IPTCom - PROFINET I/O Device up to CCB - Webservice - FTP
Ring Topology	<ul style="list-style-type: none"> - Integrated three port switch (optional) - Integrated bypass relays
Host Interface	<ul style="list-style-type: none"> - cPCI
Supply Voltage	<ul style="list-style-type: none"> - Single power supply - 5V

Diagnostic/Service	<ul style="list-style-type: none"> - Integrated Web-server - Device status information/identification readable through host interface - Temperature sensor on board for temperature supervision
Power Consumption	<ul style="list-style-type: none"> - $P_{max} < 3$ W
Operating Conditions	<ul style="list-style-type: none"> - Ambient temperature: <ul style="list-style-type: none"> - 40 to +85 °C (EN 50 155) - Relative humidity: <ul style="list-style-type: none"> 75%, max 95% for 30 days per year (conformal coating) EN 60 068 - 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"> - 160 × 100 × 4HP=20.32 mm - <150 g
Connector types	<ul style="list-style-type: none"> - cPCI Backplane connector - M12 D-Coding
Environment	<ul style="list-style-type: none"> - Fully compliant to RoHS and REACH - 100% 48h cyclic climatic testing

d-010232-020846

Order Code and HW Options

Product Type: **D215E** - [] - [] - [] - [] - []

EXAMPLE: D215E-TR-O-N-FB

Ethernet Interface 1	Ethernet Interface 2 ¹	Web Services	Front Bezel	Specialties
TCP/IP, UDP I	TCP/IP, UDP I	None N	Front Bezel FB	Gateway without Host Int G
EtherNet/IP - CIP C	EtherNet/IP - CIP C	duagon dWM	None N	None empty
TRDP TR	TRDP TR	Alstom AWM		
IPTCom B	IPTCom B	Siemens SWM		
PROFINET R	PROFINET R		
CIP Scanner Light CSL	CIP Scanner Light CSL			
RDA-RT RDA	RDA-RT RDA			
	Daisy Chain/Ring O			
	D. Chain/Ring with relays OR			
	None N			

¹ Ask duagon® for the exact possibilities of the combinations with the internal switch

Related Documents

Data Sheet D215E  d-010221-nnnnnn.pdf
available at www.duagon.com

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