

General Features

The D015E is a multi-purpose Ethernet interface on a 40 x 85 mm size footprint (PC/30). It encapsulates all Ethernet relevant functions and can therefore be considered as an Ethernet communication chip for integration on board of a customer PCB.

The Ethernet interface is available with different communication stacks. The software architecture is based on a Client-Server model. This approach minimizes the CPU requirements of the host system, because the major part of the communication software is running on the duagon interface. This Ethernet interface complies with IEEE 802.3 and its internal logic is prepared for the future "Ethernet on traction vehicles" standard IEC 61375-3-4.

The D015E is designed for the harsh traction environment and conforms to the EN 50121, EN 50155 and IEC 61373 standards, e.g. by:

- -40 to +85°C operating temperature
- Coating against humidity
- Enhanced EMI and vibration robustness

Besides the D015E the D015 series covers interface boards for the following vehicle bus systems:

- D015E: Ethernet Interface (this document)
- D015M: MVB Interface
- D015C: CAN Interface

All interface products of the D015 series have the same PC/30 footprint. That way, modules of this product family can easily be exchanged without adaptation of the customer's host PCB.

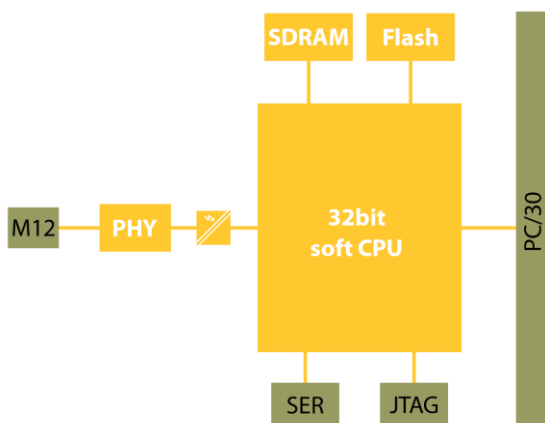
Key Benefits

- Hardware prioritisation within the duagon's own Ethernet controller
- Proprietary high-performance UDP Stack (optimised for cyclic process data telegrams)
- Encapsulation of real-time Ethernet protocol stacks
- Configurable to operate in 8-bit parallel or serial (UART) mode
- Freeing CPU power on the host system
- ANSI C source files allows an easy porting to any host / operating system combination
- The mechanical and electrical properties of the PC/30 host interface is identical for all members of the D015 series
- The D015M conforms to IEEE 802.3, EN 50155, EN 50121, IEC 61373 and IEC 61375 and is designed for the harsh traction environment

Application Examples

- Generic Ethernet interface for various real-time protocols
- Possibility to integrate several D015 on a host system, for example to connect a host system to Ethernet, MVB or CAN

D015E Hardware Architecture



D205 / D206 Evaluation Kit

This evaluation kit allows the development of the host software using either the serial (D205) or the parallel (D206) interface. The delivered adapter card enables the mounting of any D015.

A reference schematic and software examples help to speed up the integration time.

Technical Data

CPU base System	<ul style="list-style-type: none"> – 32-bit soft-CPU – up to 32 Mbyte Flash Memory – up to 100 kByte SDRAM Memory
Ethernet Interface	<ul style="list-style-type: none"> – Physical layers according IEEE 802.3 – RJ45 according IEEE 802.3 – M12 (D-Coded) according IEC 61076 – Interface is galvanically insulated to the digital logic
Ethernet Protocols	<ul style="list-style-type: none"> – TCP/IP, UDP Sockets – IPTCom – EtherNet/IP – CIP – TRDP* – PROFINET*
Host Interface	<ul style="list-style-type: none"> – duagon 8-bit UART emulation (2nd generation) – Access through a parallel, a serial or a SPI host interface selectable via MODE pins

Diagnostic/Service	<ul style="list-style-type: none"> – Device status information/identification available through host interface – Firmware update via Ethernet – JTAG and serial line available
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Supply Voltage	<ul style="list-style-type: none"> – Single power supply – +3.3V
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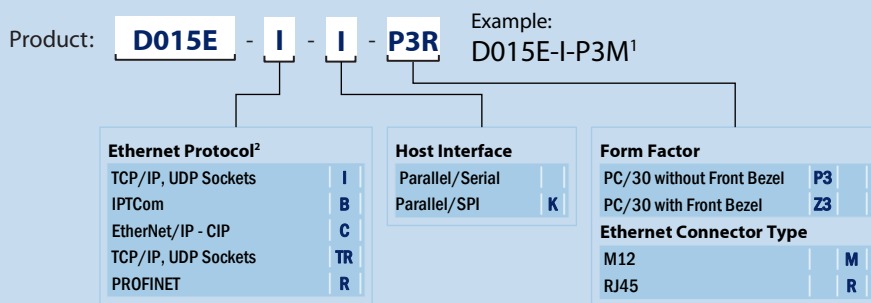
Operating Conditions	<ul style="list-style-type: none"> – Ambient temperature: –40 to +85°C (EN 50155, class TX) – Relative humidity: 75%, max 95% for 30 days per year (conformal coating) according to EN 60068 – Shock and vibration: According to IEC 61373 category 1, class B – EMI: According to EN 50121 and EN 50155
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Dimensions/Weight	<ul style="list-style-type: none"> – 40 x 85 x 24.2mm (absolute maximum height) – approx. 40g (without front bezel)
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Environment	<ul style="list-style-type: none"> – Fully compliant with RoHS and REACH
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d-025465-039224

Product Ordering Table



¹ default order options

² Ethernet "Sockets" is included on all interfaces

Related Documents

- Data Sheet D015E** D015E_DS.pdf
- Short Data Sheet D015M** D015M_SDS.pdf
- Short Data Sheet D015C** D015C_SDS.pdf
- Integration Guide** pc30_integ_ug.pdf
- Product Ordering Guide** order_ug.pdf

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