

Main Features

- ▶ Includes the complete physical layer for MVB
- ▶ Integrated terminator resistors and generators
- ▶ Easy-to-configure MVB Bus Administrator
- ▶ Full-featured message data stack
- ▶ Full range of 4096 process data ports
- ▶ Space-saving through miniaturized form factor
- ▶ -40 to +85°C operating temperature

Overview

The D017M is an MVB interface card for Mini PCI Express systems. The module provides one line-redundant galvanically isolated interface with lines A and B. EMD or ESD+ can be chosen as physical layers.

duagon's own MVB controller is implemented in an FPGA and supports all 4096 process data ports. An additional 32-bit soft processor handles the complete message data stack with an easy-to-use interface. The D017M fully complies with the TCN standard IEC 61375 up to MVB class 4. The optional bus administrator manages the complete MVB network and can be configured using the duagon D2000 network tool.

To fulfil the requirements of the different applications, the physical layer of the MVB (line transceivers, galvanic isolation, power generation for MVB termination) is either included in the PCIe mini card or is incorporated on a

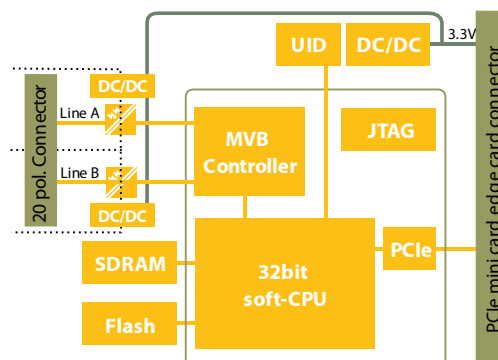
dedicated PHY board. This board further includes the two SUB-D connectors and is part of the D017M delivery.

The interface card is accompanied by a host driver packet, providing a unified application programming interface (API) to access the various protocols and functions. The host driver is based on a client-server model, where the host system acts as client and the D017M as server. The driver packet is available for different operating systems, such as Windows and Linux, and can easily be ported to any embedded OS.

The D017M is designed for harsh rolling stock environment and complies with the EN 50155 standard by:

- -40 to +85°C operating temperature
- coating against humidity
- enhanced EMI and vibration robustness

Functional Diagram



Technical Specification

PHYSICAL DATA

MVB connectors	SUB-D, 9-pin
Front end connector	20pin (N, Y, Y09C and Y30C types) or 10pin (I and X types)
Host connector	52-pin card edge type
Visual indicators (LEDs)	System: OK, ERROR, INIT
Power supply voltage range	3.3 V DC nom.
Power consumption	<1.5 W
Overall dimensions	50.95 × 30.00 × 7.4 mm
Weight	8 g
Operating temperature	-40 to +85°C, according to EN 50155; Class TX
Storage temperature	-40 °C to +85 °C
Relative humidity	yearly average ≤75%, 95% for 30 consecutive days max. (EN 50155)
Useful life	20 years, according to EN 50155 Class L4

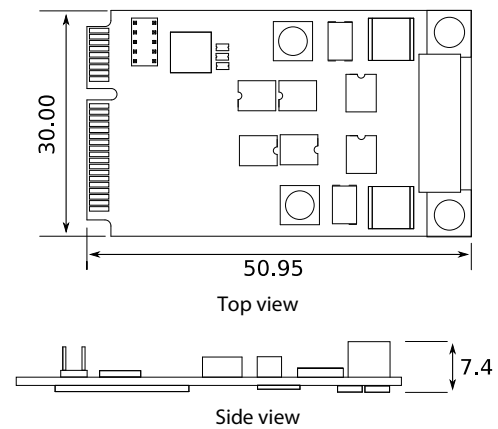
COMPLIANCE

EN 50155	Railway Applications (Electronic equipment used on rolling stock)
EN 50121-3-2	Electromagnetic compatibility rolling stock apparatus
EN 61373	Shock & Vibration

EN 45545-2	Fire protection, HL3
IEC 61375-3-1	Multifunction Vehicle Bus (MVB)
PCI Express Mini Card	PCI Express Mini Card Electromechanical Specification 2.1
RoHS	Restriction of the Use of Certain Hazardous Substances
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals

Dimensions

Dimensions only for reference



Ordering Information

Product: **D017M** - **P** - **T** - **I0** - **Y** - **M3** - Example: **D017M-P-T-I0-Y-M3¹**

MVB Function Process Data only P with Message Data P M Bus Administrator (BA) without BA with BA B	MVB Type EMD T ESD+ D	Insensitivity Standard RS485 I0 150 mV I1 350 mV I3	Front End Internal Transc. 20pin + cable set Y Internal Transc. 10pin + cable set I External Transc. 10pin + cable set* X Internal Transceiver 20pin N Int. Tr. 20pin + 9cm cable set Y09C Int. Tr. 20pin + 30cm cable set Y30C	SUB-D Screw Locks M3 M3 UNC UNC None N	Read only RX/TX RX only S
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¹ default ordering options

* Contact duagon for availability and lead times