



### Main Features

- ▶ Up to MVB Class 4 support
- ▶ Standardized host interface for fast system integration
- ▶ Support for all physical layers: EMD, ESD and ESD+
- ▶ -40°C to +85°C operating temperature
- ▶ Designed for harsh rolling stock environments, EN 50155 compliant

## Overview

The D113 is a general multi-purpose MVB interface platform with enhanced processing power and is compliant with the TCN standard IEC 61375 up to class 4. The interface card has a PC/104 form factor.

The duagon MVB controller (DMC) is implemented on an FPGA and supports the up to 4096 process data ports. The full set of MVB features are available:

- Process Data
- Message Data (optional)
- Bus Administrator (optional)
- Physical media: EMD, ESD, ESD+ and OGF

The D113 is available with two different TCN software stacks:

- MDFULL: Passive MVB interface with a duagon MVB controller (DMC)
- SERVER2: Active MVB interface including the Message Data Real Time Protocol stack (MD RTP)

Each configuration is available with or without an integrated MVB Bus Administrator.

The D113 offers numerous hardware options including different connector types to adapt to any host system.

With duagon's multi-card host driver kit, which includes an easy-to-use UART emulation, optimized process data drivers and application examples, the D113 can be quickly and efficiently integrated on any host system.

The D113 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

## Technical Specification

### PHYSICAL DATA

MVB connectors	2 x SUB-D Connectors / 2 x Header / 2 x Carrier Mount
Host connector	PC/104, 64-pin, 40-pin optional
Maintenance port connector	Header, 10-pin
Visual indicators (LEDs)	Application specific
Power supply voltage range	5 V DC nom.
Power consumption	< 2 W

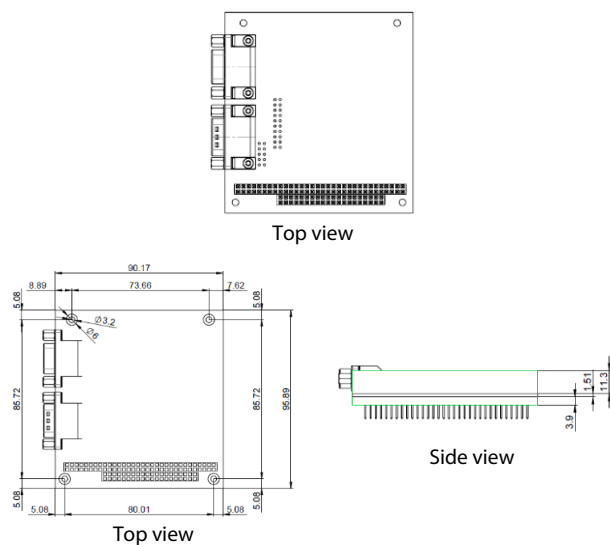
Overall dimensions	95.89 × 90.17 × 1.6 mm
Weight	88 g
Operating temperature	-40°C to +85°C, according to EN 50155; Class OT6
Storage temperature	-40 °C to +85 °C
Relative humidity	yearly average ≤75%, 95% for 30 consecutive days max. (EN 50155)
Useful life	20 years, according to EN 50155 Class L4

## 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
PC/104	PC/104 Specification "Compliant"
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: **D113** **L** **T** - **P4** **B** - **I1** - **X**

Example: **D113LT-P4B2-I1-X<sup>1</sup>**

**MVB Function**

MDFULL	L
SERVR2	Z

**MVB Bus Administrator**

without Bus Administrator	
with Bus Administrator	F

**MVB Media Class**

EMD	.T
ESD+	.D
ESD	.E

**Form Factor**

PC/104	P4
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**Connector Type**

SUB-D	B
Header	A
Carrier mount	C
Carrier mount PC/104	S

**MVB Receiver Threshold**

-50/-150 mV	I1
±350 mV	I3
Standard RS485	

**Miscellaneous Connector Options**  
(add all characters that apply)

Default

**PC/104 Connector Options**

With 64-pin AND 40-pin **2**

No stack-through pins **X**

**Header Connector Options**

with long cable locks **L**

without cable locks **O**

**SUB-D Housing Options**

SUB-D with long hangover **H**

**SUB-D Screw Lock Options**

with UNC4/40 screw locks **U**

without screw locks **N**

**MVB EMD Options**

Transformer directly attached to differential line

High differential resistance (>500kΩ DC) **X**

<sup>1</sup> default ordering options

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