



Main Features

- ▶ Enables interoperability due to two galvanically isolated MVB nodes with EMD and ESD+
- ▶ Two identical halves support functional redundancy
- ▶ Allows for more than 32 nodes per MVB segment and increases cable length limits
- ▶ Allows for logical MVB system to span several vehicles within fixed train set
- ▶ 24V – 110V Power Supply Supported

Overview

The D210 connects two MVB segments to each other. Communication traffic from both sides is exchanged with the other side. The transferred telegrams are refreshed with respect to their magnitude, jitter, frame timing and general plausibility.

The contents of data transferred between the two MVB segments is not changed. Therefore, the D210 MVB repeater is completely transparent to all kinds of bus traffic, i.e. it is a pure Layer 1 device.

The two MVB segments may be of type ESD+ or EMD. In case, they are of different type (one ESD+, one EMD), then all relevant timing differences between the two segments are automatically corrected. Two identical halves support functional redundancy of the MVB repeater logic. Their functions are completely independent from each other.

There are two MVB interfaces, Segment X and Y. Their electrical properties are identical. The decision for the options "ESD+" or "EMD" is taken for each segment independent from the other one. The two MVB lines A and B are galvanically isolated to the logic/IO and to each other.

The D210 is directly powered from the vehicle battery, supporting voltages like e.g. 24V or 110V.

The D210 is designed for harsh rolling stock environment and complies with the EN 50155 standard by:

- -40 to +70°C operating temperature
- coating against humidity
- enhanced EMI and vibration robustness

Technical Specification

PHYSICAL DATA

MVB Connectors	2 x female, 2x male, SUB-D
Power Supply Connectors	2x WAGO XCOM X3
Visual indicators (LEDs)	MVB: status, Rx
Power supply voltage range	24 - 110 V DC nom.
Power consumption	2 W
Overall dimensions	127 × 100 × 45 mm
Weight	435 g

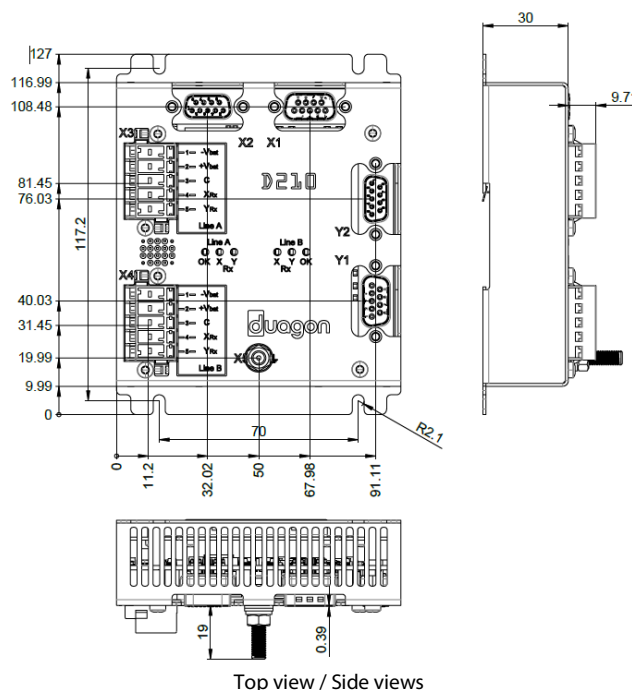
Operating temperature	-40 to +70°C, according to EN 50155; Class OT4
Storage temperature	-40 °C to +85 °C
Relative humidity	yearly average ≤75%, 95% for 30 consecutive days max. (EN 50155)
Useful life	20 years, according to EN 50155 Class L4

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	Train communication network (TCN), Multifunction Vehicle Bus (MVB)
RoHS	Restriction of the Use of Certain Hazardous Substances
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals

Dimensions

Dimensions only for reference



Top view / Side views

Ordering Information

Product: **D210 R - T T - HV - G - I3**

Example:

D210R-TT-HV-G-I3¹

Internal Structure

Redundant logic + power supply **R**
Single logic + power supply Line A* **SA**
Single logic + power supply Line B* **SB**

MVB Type on segment X²⁾

EMD **T**
ESD+ **D**

MVB Type on segment Y²⁾

EMD **T**
ESD+ **D**

Power Supply³⁾

Nominal battery voltage: 48V, 72V, 96V, 110V **HV**
Nominal battery voltage: 24V, 36V **LV**

Grounding Bolt

19mm M5 **G**
none

IEC 61375 Insensitivity⁴⁾

±350 mV **I3**
none
-50/-150 mV* **I1**

¹ default ordering options

² The MVB combination "...TD..." is the same as "...DT...", due to the symmetric internal structure. Please prefer "...TD..."

³ The two sides X and Y are always powered by the same supply voltage range

⁴ Insensitivity order option for EMD segment receiver (ESD+ segment always I1)

* Contact duagon for availability and lead times

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