



Main Features

- ▶ Two line-redundant, galvanically isolated WTB interfaces
- ▶ Configurable strong master, weak master and slave node
- ▶ Fritting without additional DC/DC converters
- ▶ Reliable & flexible consist network choice (within the WTB gateway series)
- ▶ -40 to +70°C operating temperature

Overview

The D522 is a WTB-ETH gateway that includes one WTB module. The WTB module provides two-line redundant WTB interfaces, which allow the physical connection to the Wire Train Bus. The line A and B interfaces are galvanically isolated and use standard SUB-D type connectors. To overcome contact oxidation, the WTB gateway offers a built-in fritting mechanism. The integrated WTB controller, implemented on FPGA with duagon IP, provides the WTB link layer functions of the IEC 61375-2-1 standard.

The TCN real-time protocols, the UIC Mapping Server according to UIC Leaflet 556 and the routing between the WTB and the ECN bus are implemented by the CPU module. The CPU module sports a high-performance ARM® Cortex™-A8 processor. Furthermore, the CPU module integrates the TRDP stack, for ECN fieldbus communication. The TRDP Stack handles all the traffic on the consist network. For diagnostic purposes, the CPU module provides an Ethernet interface. An USB host

connector allows data exchange with the controller interface in a controlled manner.

Additionally, the D522 comes with an I/O module that offers 8 digital inputs and 8 combined, configurable digital input/output channels. The output channels provide an optional output read back functionality to implement safety relevant applications. All inputs may be configured as high current inputs (HCI). This feature can be enabled by the application software.

The WTB gateway is connected directly to the train battery and support all voltage types from 24 to 110 Vdc. The D522 is designed for harsh rolling stock environments and is fully compliant with EN 50155 by:

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

Technical Specification

PHYSICAL DATA

Power connector	3-pin connector
Fast Ethernet connectors	M12, female, D-coded
USB connector	M12, female, A-coded
WTB connector	9-pin SUB-D connector
I/O connector	20-pin connector

Visual indicators (LEDs)	Power; System; Polarity reversal; USB; Ethernet; WTB; I/O
Power supply voltage range	24 – 110 Vdc
Power consumption	P _{idle} <12 W
Overall dimensions	147.4 × 100 × 123.47 mm (DIN)
Weight	< 2.0 kg (may vary depending on mounting option)

Ingress protection	Class IP20
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

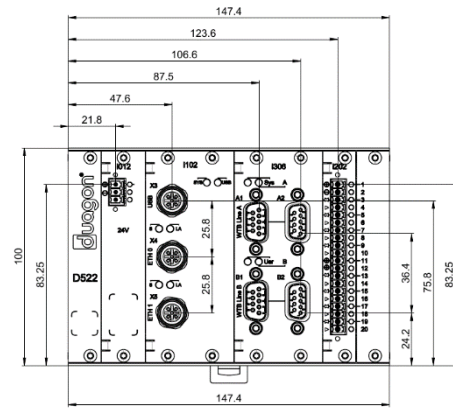
EN 50155	Railway Applications (Electronic equipment used on rolling stock)
EN 50121-3-2	Electromagnetic compatibility rolling stock apparatus
EN 61373	Shock & Vibration
EN 45545-2	Fire protection, HL3
IEC 61375-3-4	Ethernet Consist Network (ECN)
IEC 61375-2-1	Wire Train Bus (WTB)
RoHS	Restriction of the Use of Certain Hazardous Substances
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals

IEEE STANDARDS

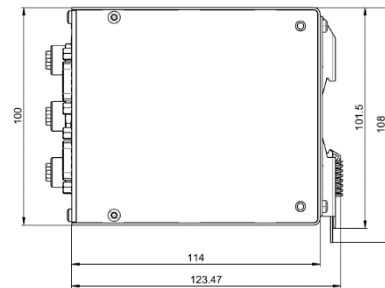
IEEE 802.3	Ethernet
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Dimensions

Dimensions only for reference



Front View (DIN)

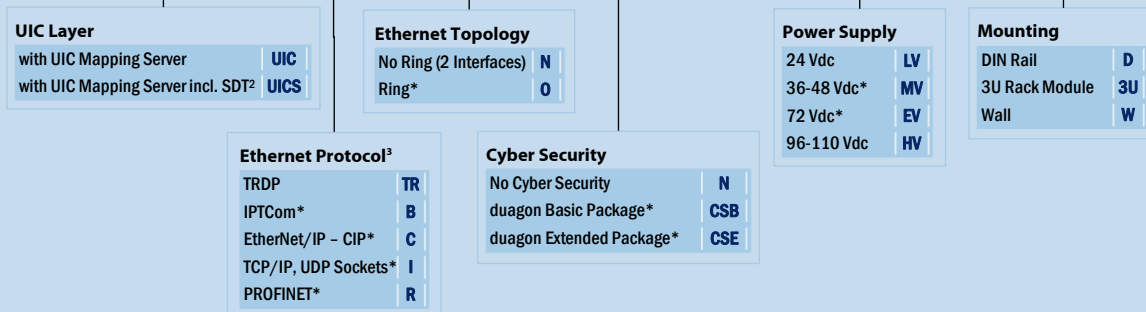


Side View (DIN)

Ordering Information

Product: **D522 - UIC - T - N - N - L - D**

Example: D522-UIC-TR-N-N-LV-D¹



¹ default ordering options

² Safe Data Transmission (SDT) according to UIC Leaflet 556

³ Ethernet "Socket" is included independent of selected Ethernet protocols

* Contact duagon for availability and lead times

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