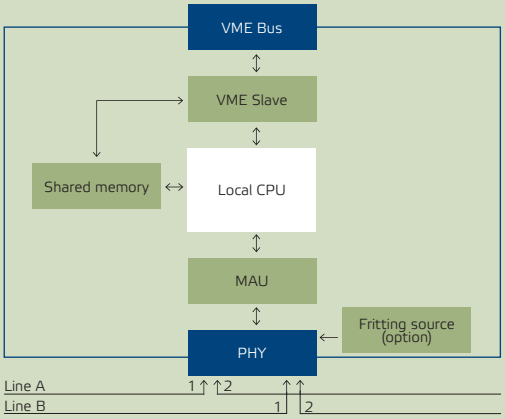

Wire Train Bus Interface Module (WTB, WTF)

EN 50155
EN 45545
IEC 61375-2-1

MODULE FUNCTIONS

Trainnet® Wire Train Bus (WTB) modules are used to create train-wide communication networks. The WTB module implements the WTB link layer functions of the IEC 61375-2-1 Train Communications Network standard. The TCN's real-time protocols, the UIC leaflet 556 specifications and the routing between the WTB and other buses are implemented by the gateway CPU Module.

KEY FEATURES

The WTB MAU supports physical cable redundancy as specified in the IEC 61375-2-1 standard. It uses TCN standard's Sub D-9 type connectors located on the front panel of the module. Communication to the gateway is done through a shared memory over the IEC 821 VME back plane bus. The WTB link layer functions are implemented by the WTB module's local processor.

The Trainnet® WTB module has a static shared RAM memory accessible from both the local CPU and the VME Bus interface. The TCN standard's source and sink port handling for WTB process data is supported. A separate memory area is reserved for message data and maintenance messages as well as for Remote Procedure Call type access to the Link Layer primitives. The WTB module is able to provide applications with timing synchronization when a Macro Period finishes.

The WTB module is realised through the highly efficient combination of a dedicated microprocessor and FPGA logic. In addition to strict compliance with the IEC 61375-1 standard, the WTB module has the capability of carrying out enhanced diagnostics functions, like monitoring the bit error ratios between individual train coaches in order to identify communication issues.

In order to handle incompatible cabling or extremely harsh operating conditions, the WTB module is able to act as a bus repeater by completely regenerating the data streams towards both extremities. Intelligent repeater management is included in the WTB module's system Software. It supports the selection of an optimal number of concurrently enabled repeaters on the train bus, thus allowing the network timing to retain undegraded specifications.

OPTIONS

Fritting voltage: The WTB bus interface sustains fritting voltage. Fritting voltage source is available as an option: see Trainnet® WTF 2259B and WTF 2376B modules.

Redundant connectors: In the basic module, the bus redundancy is integrated into a single bus connector. Separated connectors for the redundant bus are available as an option: see Trainnet® WTB 1912B and WTF 2376B modules.

TECHNICAL SPECIFICATIONS

Dimensions (W x H x D)
4 TE x 3 U x 160 mm (WTB1822B, first picture)
8 TE x 3 U x 160 mm (WTB1912B, second picture)
8 TE x 3 U x 160 mm (WTF1765B, third picture)
4 TE x 3 U x 160 mm (WTF2259B, fourth picture)
8 TE x 3 U x 160 mm (WTF2376B, fifth picture)

Weight
166 g (WTB1822B)
214 g (WTB1912B)
226 g (WTF1765B)
177 g (WTF2259B)
225 g (WTF2376B)

Input Power
5 V DC ± 5 % (1 A max., 0.5 A typ.)

Temperature Range (operational)
-40 ºC...+70 ºC

MTBF (40 ºC ambient temperature)
1 370 000 h (WTB1822B)
1 330 000 h (WTB1912B)
1 010 000 h (WTF1765B)
1 030 000 h (WTF2259B)
1 010 000 h (WTF2376B)

Train Bus
IEC 61375-1: WTB

Data Rate
1 Mbit/s (Half speed 500 kbit/s on request)

MAU
Transformer isolation
Combined or individual bus connectors

VME Bus (IEC 821) Interface
A24 Slave with D08(EO)/D16
256 kB DP RAM for process and message data

© EKE-Electronics Ltd.