



MVB-Ethernet-Serial Links Gateway



WTB-Ethernet-CAN-Serial Links Gateway

TCN Gateways

The Trainnet® TCN Gateways are advanced train computers used in the creation of efficient Train Communication Networks (TCN).

MODULAR CONCEPT

The Trainnet® TCN Gateways are modular, enabling you to precisely select the train bus and vehicle bus technologies you require. Modules can be freely combined for a very flexible and versatile solution. The modular design enables you to select only the features you need for a cost-efficient solution. It also means that repairs and upgrades are quick and easy.

A Trainnet® TCN Gateway usually consists of a Central Processing Unit (CPU), a power supply and at least one Bus Interface module. EKE has developed a comprehensive range of CPUs, power supplies and bus interface modules to accommodate most technical requirements and budgets. Please find below an example of a Gateway made of a selection of common modules.

BUS INTERFACES

Trainnet® TCN Gateways can combine some or all of the following train and vehicle bus technologies, as your needs require:

→ Wire Train Bus (WTB)

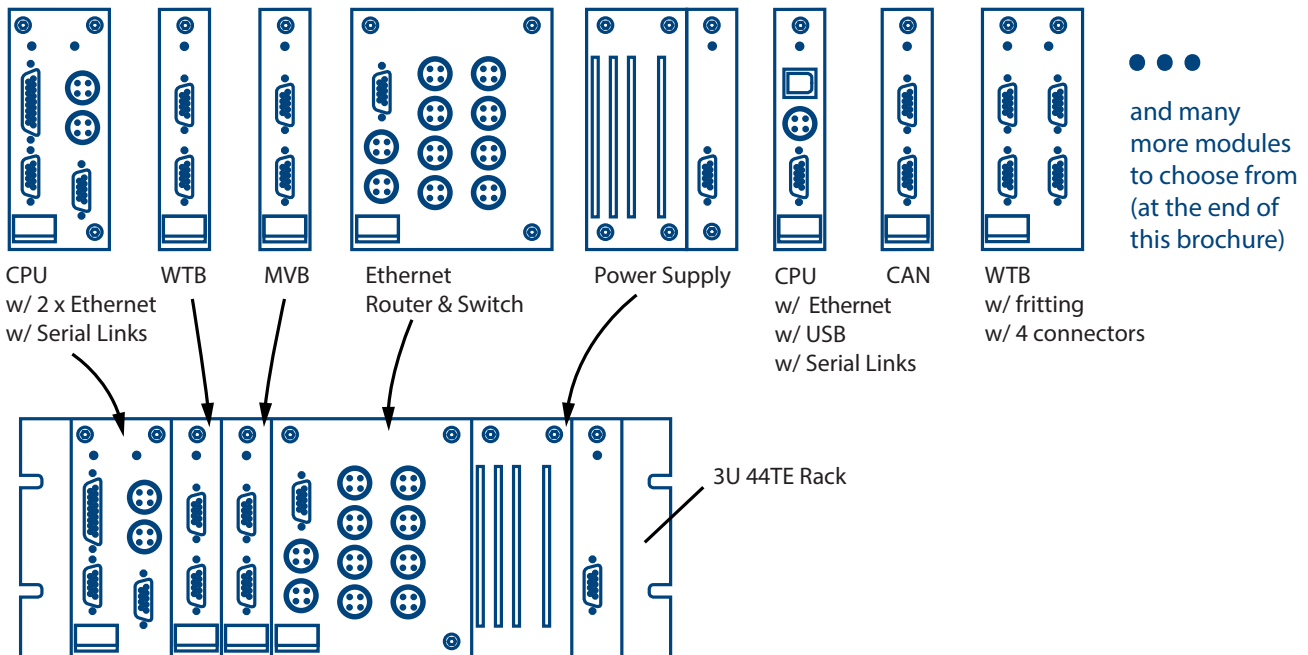
The WTB interface usually has two DE-9 connectors with redundant lines integrated in each connector. A version with 4 connectors and one with fritting are available as options.

→ ETB (Ethernet Train Backbone)

The Ethernet Train Backbone is implemented with the Trainnet® ERU module. The ERU module is an Ethernet Switch and Router providing 10 Ethernet ports, 4 of which are dedicated to the ETB (with redundant lines).

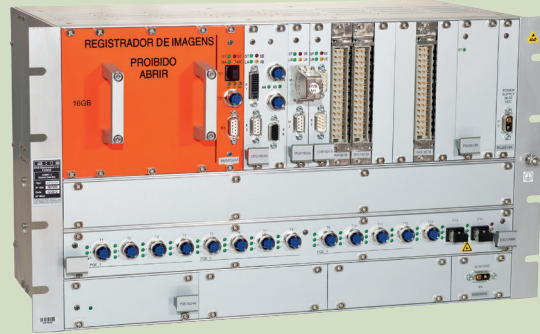
→ ECN (Ethernet Consist Network)

An ECN can be used as vehicle bus but also as train bus in the





Redundant
WTB-MVB Gateway



MVB - CAN - Ethernet Gateway with Power-over-Ethernet, plus integrated Event Recorder and I/O modules

EN 50155
EN 45545
IEC 61375 SERIES
IEC 61131

case of a fixed consist. Trainnet® Ethernet Switches (ERU, 3U ESU, 1U ESU) can be used to create ECNs. Power-over-Ethernet is available as an option with the 1U ESU modules to provide power to connected sub-systems via the Ethernet cables.

→ **Multifunction Vehicle Bus (MVB)**
The MVB physical medium can be ESD+ or EMD. ESD+ and EMD have two DE-9 connectors with redundant lines integrated into each connector.

→ **CAN Vehicle Bus (CVB)**
The Trainnet® CAN module has two DE-9 connectors and is used to create up to two CAN buses. The 2 CAN ports can be independently configured as CAN 2.0 A/B or CANopen®.

→ **Serial Links (S/L)**
Serial Links interfaces can be used to create Vehicle Buses even though they are commonly used for direct connection to sub-systems. The physical layers RS-485 and RS-422 are supported. Modbus and customized protocols can be used.

Please contact us to discuss which architecture and modules meet best your requirements.

Trainnet® TCN Gateways are designed with ease of use in mind. Most Trainnet® modules have interface connectors at the front and communicate with each other via the backplane (includes VME bus). Mechanical coding of DE-9 connectors is available as an option.

RACKS
The Trainnet® TCN Gateways are usually provided as fully integrated systems, fitting in either 44TE or 84TE wide rack. The rack height is typically 3U or 6U. Other rack sizes like 20TE are also available: please ask us.

MORE THAN A GATEWAY
Other modules such as Event Recorders and Discrete Input and Output modules can also be integrated into the same rack to build a compact and cost-efficient train computer or TCMS.

SUPPORT
EKE provides at least 30 years of support for all Trainnet® products.

TECHNICAL SPECIFICATIONS

- Dimensions (W x H x D)**
- 3U 44TE Rack**
280 mm x 133 mm x 215 mm
(installation width 240 mm)
- 3U 84TE Rack**
483mm x 133mm x 215 mm
(installation width 443 mm)
- 6U 84TE Rack**
483 mm x 266 mm x 215 mm
(installation width 443 mm)

- Weight**
Depends on rack and installed modules
- Input Voltage**
24, 36, 48, 52, 72 or 110 V DC
- Temperature Range (operational)**
-40 °C...+70 °C
- MTBF (40 °C ambient temperature)**
Depends on installed modules
- Interface Options:**
WTB, MVB, CAN, Ethernet, Serial Links
Read Module pages for more details.

Advantages



Versatility
Cover all your needs with a single system.



Modularity
Only pay for the features you need.



Open software
Keep control over your project at all times.



Long term support
Get support during the lifetime of your project.