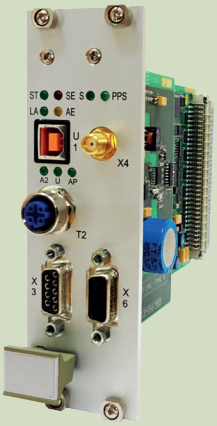

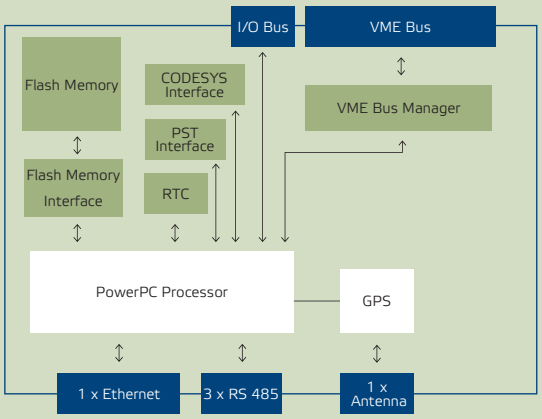


# CPU with Serial Links and GPS (CPS-GPS, CPF-GPS)

EN 50155
EN 45545
IEC 61131

## MODULE FUNCTIONS

The Trainnet® CPS-GPS can be used as a processor to manage train computers and sub-systems connected to them. It integrates a GNSS receiver to provide location and time information for synchronisation with the processed data.

The Trainnet® CPS-GPS can be used to develop, store and run applications for the control and diagnostics of on-board systems, making it suitable to develop Train Control and Management Systems (TCMS) or Vehicle Control Units (VCU). It can also implement Gateway functionnalities by providing the necessary interfaces and routing capabilities.

## KEY FEATURES

The Trainnet® CPS-GPS Module provides serial communication interfaces. Three (four as an option) programmable isolated asynchronous or bit-synchronous SCC channels are available (RS 485) for connection to compatible devices in the train.

A 10/100 Mbit/s Full Duplex Ethernet interfaces can be used to connect to any Ethernet Communication Network, typically connecting the CPS-GPS with switches or other electronic racks. The Ethernet interface can alternatively be directly connected to any Ethernet enabled devices (e.g. network cameras). The number of Ethernet interfaces can be increased with one of the Trainnet® Ethernet Switches.

A USB Host Interface is provided to connect memory sticks or other devices for maintenance purposes. B-type connector is used to protect unattended usage (special tools required).

The CODESYS® PLC kernel embedded in the CPU acts as the CPU's operating Software. Train management applications can be developed with the CODESYS® PLC Software in order to create the desired control and diagnostic functions of the train. The open platform runs on the Linux Operating Software and supports further Software development in C language, either as an CODESYS® extension or on top of the module's Linux kernel. The PowerPC processor provides enough processing power for demanding applications with 400 MHz core speed and 64 megabytes of 64-bit wide 100 MHz SDRAM.

A PST interface (usually serial link or Ethernet) enables the use of the Trainnet® Portable System tester (PST) as well as other tools for event log operations, maintenance, debugging, downloading and application development purposes.

The Trainnet® CPS-GPS real-time clock is powered by a back-up capacitor and will run for a minimum of 30 days from the time power is no longer applied.

The GNSS function is available for simultaneous GPS and GLONASS or, optionally, GPS and BeiDou. CPS-GPS supports active and passive antennas.

## OPTIONS

**Event logging memory:** the Trainnet® CPF-GPS is simply a Trainnet® CPS-GPS with an extended event logging flash memory (4 GB vs 512 MB). Trainnet® CPF-GPS can act as a low cost event recorder when limited memory and protection are required. The Trainnet® CPF-GPS has all the features of the Trainnet® CPS-GPS.

## TECHNICAL SPECIFICATIONS

**Dimensions (W x H x D)**
8 TE x 3 U x 160 mm
**Weight**
265 g
**Input Power**
5 V DC ± 5 % (1.5 A max., 1 A typ.)
**Temperature Range (operational)**
-40 °C...+70 °C
**MTBF (40 °C ambient temperature)**
850 000 h
**Ethernet Interface**
1 x 10/100 Mbit M12 connector
**USB Interface**
One 2.0 High Speed host, Type B connector
**Serial Interfaces**
3 isolated RS 485 on front
1 RS 485 on back for I/Obus connectivity
**GNSS Antenna Interface**
SMA
**Supported GNSS**
GPS+GLONASS, GPS+BeiDou
**Boot Flash Memory**
8 MB
**File System Flash Memory**
512 MB
**Event Logging Flash Memory**
512 MB or 4 GB
**Processor RAM**
64 MB
**VME Bus (IEC 821) Interface**
A24/D16 Master or Slave