Central Processing Unit
with Serial Links (CPS, CPF)

EN 50155
EN 45545
IEC 61131

MODULE FUNCTIONS

The Trainnet® CPS can be used as a processor to manage train computers and sub-systems connected to them.

The Trainnet® CPS 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 Module is a processing unit providing 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 interface can be used to connect to any Ethernet Communication Network, typically connecting the CPS 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.

The CODESYS® PLC embedded in the CPU acts as the CPU's operating Software. Train management applications can be developed with the state-of-the-art CODESYS® PLC Software in order to create the desired control and diagnostic functions of the train. CODESYS execution is fast supporting low cycle times. It supports the IEC 61131-3 languages to best suit the use-case.

The platform runs on the Linux Operating System and supports further Software development in C language, either as a 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 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.

OPTIONS

Event logging memory:
the Trainnet® CPF are similar to Trainnet® CPS with an extended event logging flash memory capacities (16 GB or 4 GB vs 512 MB). Trainnet® CPF can act as low cost event recorders when limited memory and protection are required. The Trainnet® CPF modules have all the features of the Trainnet® CPS.

TECHNICAL SPECIFICATIONS

Dimensions (W x H x D)
4 TE x 3 U x 160 mm

Weight
255 g

Input Power
5 V DC ± 5 % (1.5 A max., 1 A typ.)

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

MTBF (40 ºC ambient temperature)
1 340 000 h

Ethernet Interface
1 x 10/100 Mbit M12 connector

Serial Interfaces
3 isolated RS 485 on front
1 RS 485 on back for I/Obus connectivity

Boot Flash Memory
8 MB

File System Flash Memory
512 MB

Event Logging Flash Memory
512 MB (CPS2258B)
4 GB (CPF3027B)
16 GB (CPF357B)

Processor RAM
64 MB

VME Bus (IEC 821) Interface
A24/D16 Master or Slave