The TM/TC Interface module provides the communication interface to the spacecraft Data Management Subsystem (DMS). The module interfaces to the unit power modules via a local Command & Monitoring (CM) bus distributed by a backplane module and can set remote commandable functions and read the telemetry of system power modules.

Redundant access can be obtained by applying two identical modules in a power system unit.

The TM/TC Interface module is able to perform the following tasks:

1. Communicate with DMS, via the ESA Spacecraft Data Handling Interface Standard TTC-B-01, issue1.
2. Set or reset of selected functions, when dedicated commands are received from the DMS via the TM/TC communication interface.
3. Read and temporarily store telemetry data from power modules in a predefined format, when requested by the DMS.
4. Send the acquired TM data via the communication interface when requested by the DMS.

The module forms an autonomy function having its own internal auxiliary supply that generates its supply voltages from the present power bus voltage.

Module logic functions are implemented in an Actel radiation tolerant FPGA with Triple Modular Redundancy (TMR) technique applied for all flip-flops in SEU critical functions.

References:
- 4 modules onboard Mars Express and Rosetta, flying since June 2003 and March 2004.
- 2 modules onboard Venus Express, flying since November 2005.
Specifications

Dimensions (L x W x H) 193 x 150 x 24 mm³
Mass 350 gram
Bus voltage 28 volt
Power consumption 1.1 Watt
Communication Interface
TM A/D conversion inaccuracy < 1 %
TM A/D resolution 12 bit
Failure rate < 812 FITS

Telemetry / Telecommand Interface Module Functional Schematic