

TPS-1

Single chip device interface for PROFINET



Data sheet
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1 Description

The TPS-1, a Single chip device interface for PROFINET, enables quick and inexpensive integration of PROFINET into your automation device. The TPS-1 supports both copper and fiber optic interfaces.

Serving as a communication controller, the TPS-1 provides the full functionality of a PROFINET interface. PROFINET communication and application are thus clearly separated, which facilitates PROFINET integration of new as well as existing devices. The TPS-1 is compliant with PROFINET conformance classes A, B, and C (IRT). Both simple I/O modules and complex servo drives can thus be implemented with PROFIdrive.

Features

- PROFINET compliance:
 - Latest PROFINET version
 - GSDML version: 2.32
- PROFINET IRT
- Conformance classes A, B, and C
- Fast Startup
- Media Redundancy Protocol (MRP)
- S2 redundancy without firmware adaptation

2 TPS-1 Development Toolkit – scope of supply

The software consists of the following components:

- TPS-1 PROFINET stack (binary code)
- TPS-1 driver for the host CPU (API in ANSI C source code)
- Samples for the host CPU (ANSI C source code)
 - Templates for configuration and initialization
 - Templates for using the API functions
 - GSDML example for a PROFINET device
- Documentation
 - TPS Hardware Manual
 - TPS User's Manual: Hardware
 - TPS-1 Device Design Guideline
 - TPS Reference Manual (CHM help)
 - TPS Update Manual
 - GSDML Getting Started
- Software tools
 - TPS configurator (hardware configuration)
 - TPS firmware updater
 - PROFINET Configurator Express
 - PROFINET Smart Control Express



Make sure you always use the latest documentation.
It can be downloaded at [phoenixcontact-software.com](https://www.phoenixcontact.com/software)



The newest version of the TPS-1 Development Toolkit can be downloaded at [phoenixcontact-software.com](https://www.phoenixcontact.com/software).

3 Technical data

Parallel host interface

Data bus width	Either 8-bit or 16-bit
Address space	64 kB dual-ported RAM
Read/write mode	Intel mode (separate read/write line) or Motorola mode (common read/write line)/(RDY low or high active, selectable polarity)

Serial host interface (SPI slave)

Frame format	<ul style="list-style-type: none"> - Motorola SPI frame format - TI synchronous format - National Microwire format
SPH	Phase relation of the SPI_CLK (Motorola-relevant)
SPO	Polarity of the SPI_CLK (Motorola-relevant)
SPI_Handshake	Wait mode, Busy mode
Timeout_CNT	Watchdog for detection of SPI data stream in case of an error

PROFINET CPU

Internal microprocessor	32-bit, 100 MHz, RAM integrated, external Flash memory for stack and configuration
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PROFINET interface

Transmission speed	100 Mbps, full duplex
PROFINET connection	Switch with two ports, each with auto negation and auto crossover for star and line topologies
Transmission medium	RJ45 or fiber optic interfaces (such as Avago Technologies SCRJ transceivers); fiber optic diagnostics via I ² C interfaces possible
Basic functions	<ul style="list-style-type: none"> - Fast Startup - Fiber optics diagnostics - Media Redundancy Protocol (MRP) - Statistical counters - Isochronous applications, PROFINET IRT - Minimum cycle time: 250 µs - Certified in accordance with PROFINET conformance classes A, B, and C - Maximum network load robustness, Net Load Class III

Electrical parameters

Supply voltages	3.3 V; 1.0 V
Power consumption	approx. 800 mW
Temperature range	-45 °C to +85 °C

Housing

Package	FPBGA 196-pins
Dimensions	15 x 15 mm
Ball pitch	1.0 mm

Accessories

PROFINET profiles	PROFI-safe F-Device, PROFIdrive device, PROFIdrive encoder
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