TSP10
Compact step motor drive
with encoder feedback

TSP10-PBE – Technical datasheet

- **Compact design**
- **Supply voltage 24-74 V_{DC}, max. motor current 7 A_{rms}**
- **Operation as speed or positioning control**
- **Microstepping capability**
- **Standstill current reduction**
- **Noiseless at standstill, quiet when running**
- **Low heat loss**
- **Galvanically isolated inputs (10) and outputs (4)**
- **Separate supply voltage for electronics and motor**
- **Motion task with adjustable ramps, programmable via Profibus**
- **Bus connection galvanically isolated**
- **For commissioning via S7, please request a sample project (info@ahs-antriebstechnik.de)**

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Advanced Hybrid Stepper Systems

TSP10-PBE   Compact Profibus step motor drive with encoder feedback

The TSP10 step motor drives are compact micro stepping power modules for 2-phase step motors with different configurations for the best possible adaptation to the respective application.

All TSP10 units are designed for mounting in the control cabinet and are equipped with corresponding accessories. The compact housing dimensions allow use even in very confined installation spaces. Heat dissipation is possible at the side via an optional heat sink or at the rear via the support surface.

The power supply and the motor connector are located on the bottom of the unit.
One 25-pin sub-D for digital inputs and outputs, three 9-pin sub-D for RS232, profibus and encoder connection are located at the front of the unit. The profibus address is set via two rotary switches on the top of the unit.
A two-colour LED indicates the status of the unit by its colours and flashing signals.

All digital inputs and outputs are optically separated and can be used independently of the motor control like a digital I/O module. Since only a few basic settings are necessary, the stepper motor control can be integrated into any control system with little effort.

Technical data

Power supply voltage	Operating range 24 - 74V_{DC}
Motor current	max. 10 A_{peak}; 0.2 to 7 A_{rms}
	adjustable in mA
	for 2-phase step motors in 4/6/8-wire version
Power supply	In principle, only an unregulated DC voltage is required for the power supply.
Ambient temperature/motor current	<50°C without heat sink: max. 3.2A @ 25°C / 1.6A @ 45°C
	>50°C with heat sink (optional): max. 7A @ 25°C / 3.5A @ 45°C
Heat sink temperature	Max. 60°C, forced ventilation may be necessary
Humidity	10-90%, non condensing
Error monitoring	Short circuit (phase-phase, phase-neutral) and overtemperature
Standstill current reduction	free adjustable
Inputs	10 galvanically isolated inputs, free configurable
Input interface	Profibus DP, RS232*
Max. Input frequency	Up to 12 MBaud
Outputs	4 galvanically isolated outputs, SPS compatible freely configurable
	Status LED: green = ready for operation; red = fault; yellow = motor movement

Only for diagnostic purposes

Stand: 09/2023. Mehr Informationen unter: www.ahs-antriebstechnik.de
Technische Änderungen vorbehalten / Specifications are subject to change without notice

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Motion tasks

The TSP10-PBE Profibus module is the solution when it comes to controlling individual step motor drives distributed in the field via Profibus DP.
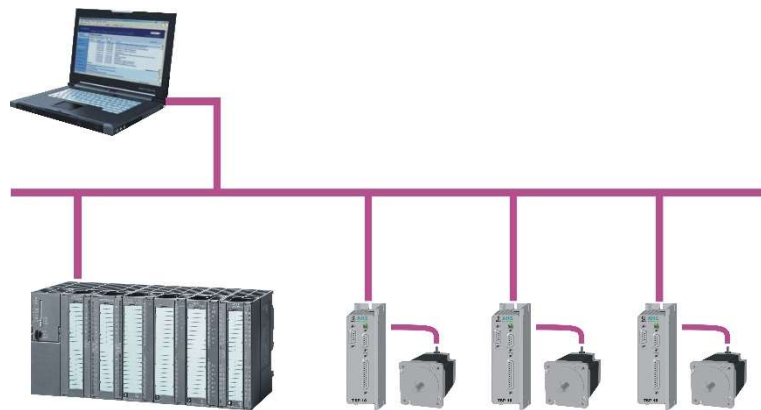
The Profibus DP Stepper is a compact single-axis positioning controller with integrated stepper motor output stage. It detects two limit switches, a stop switch and a reference switch. The speed mode and the positioning mode can be easily configured via the Profibus.
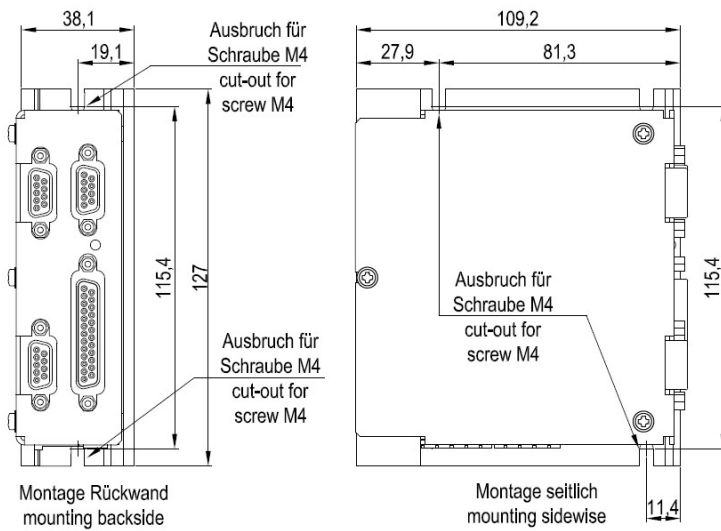
Since only a few settings are necessary, the Profibus DP stepper can be integrated with little effort into any control system that uses the Profibus DP as a sensor/actuator bus. The fast and simultaneous transmission of input and output bytes for all Profibus DP participants offers a wide range of possibilities for implementing multi-axis drives via the bus.

Parameter data

Setting the parameter data via Profibus hardware configuration:

Allgemein | Parameterzuordnung

Modul Daten:

Parameter	Value	
Endschalter	Endschalter sind angeschlossen	
Smoothing	ohne Smoothing	
Stillstandsstromreduzierung	nach 100 ms	
Motordrehrichtung	Standarddrehrichtung	
Stopp-Schalter	High-Signal zum Anhalten	
reduzierter Stillstandsstrom [%]	50	
Motorstrom [mA eff]	100	
Mikroschrittfaktor n*200 / Umdr.	20	
Referenzfahrt	Istposition	
DA1	Bereit	
DA2	Aktiviert	
DA3	Ziel erreicht	
DA4	Fehler	
Aktiviert	Aktiviert	

User Prm Daten:

001	002	003	004	005	006	007	008	009	010	011	012	013	014	015
00	00	00	00	8D	32	00	64	14	23	01	02	03	04	02

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Connection / Dimensions

Connectors	
Supply voltage	4-pole plug-in terminal strip
Motor	5-pole plug-in terminal strip
Serial interface	9-pin Sub-D-socket
I/Os	25-pin Sub-D-socket
Profibus pin according to standard	9-pin Sub-D-socket
Encoder	9-pin Sub-D-socket

Montage Rückwand
mounting backside

Montage seitlich
mounting sidewise

All dimensions in mm

Ordering code

TSP10-PBE-00-AA = Standard version

TSP10 Type code

| T | S | P | 1 | 0 | - | B | A | 0 | - | 0 | 0 | - | A | A |

Drive Series

Max. Output Power = 10 A_peak

Basic Device (Step & Direction, RS232) .... BA
Profibus .... PB
Profinet .... PN
Analog (+/- 10 Volt) .... AN
ModBus .... MB
CAN-Bus .... CB

Standard (no feedback) .... O
Encoder RS422/TTL .... E
Encoder HTL .... H
Encoder Biss-C C

Digital Inputs = 24V;	Step & Direction = 5V	00
Digital Inputs = 5V;	Step & Direction = 5V	05
Digital Inputs = 24V;	Step & Direction = 24V	24

Standard .... AA
Customization XX
Follow up identifier DSM9/6410.... 09

Note: Not all combinations of the type code are possible.

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