



# TSP10

## Compact step motor drive

### TSP10-PB0 – Technical datasheet

- Compact design
- Supply voltage 24-74 V<sub>DC</sub>, max. motor current 7 A<sub>rms</sub>
- 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](mailto:info@ahs-antriebstechnik.de))

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**AHS**  
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Advanced Hybrid Stepper Systems

## TSP10-PB0 Compact step motor drive with Profibus

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.

A 25-pin sub-D for digital inputs and outputs, a 9-pin sub-D connector for the RS232 connection and a 9-pin sub-D connector for Profibus are located on 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. The module also has an indexer functionality. Since only a few basic settings are necessary, the stepper motor controller can be integrated into any control system with little effort.

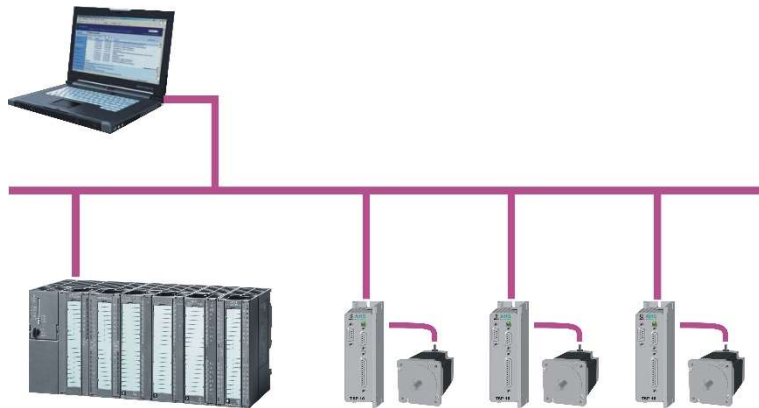
### Technical data

<b>Power supply voltage</b>	Operating range 24 - 74V <sub>DC</sub>
<b>Motor current</b>	max. 10 A <sub>peak</sub> ; 0.2 to 7 A <sub>rms</sub>
	adjustable in mA
	for 2-phase step motors in 4/6/8-wire version
<b>Power supply</b>	In principle, only an unregulated DC voltage is required for the power supply.
<b>Ambient temperature/motor current</b>	<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
<b>Heat sink temperature</b>	Max. 60°C, forced ventilation may be necessary
<b>Humidity</b>	10-90%, non condensing
<b>Error monitoring</b>	Short circuit (phase-phase, phase-neutral) and overtemperature
<b>Standstill current reduction</b>	free adjustable
<b>Inputs</b>	10 galvanically isolated inputs, free configurable
<b>Input interface</b>	Profibus DP, RS232*
<b>Max. Input frequency</b>	Up to 12 MBaud
<b>Ausgänge</b>	4 galvanically isolated outputs, SPS compatible freely configurable
	Status LED: green = ready for operation; red = fault; yellow = motor movement

\*Only for diagnostic purposes

## Motion tasks

The TSP10-PB0 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.

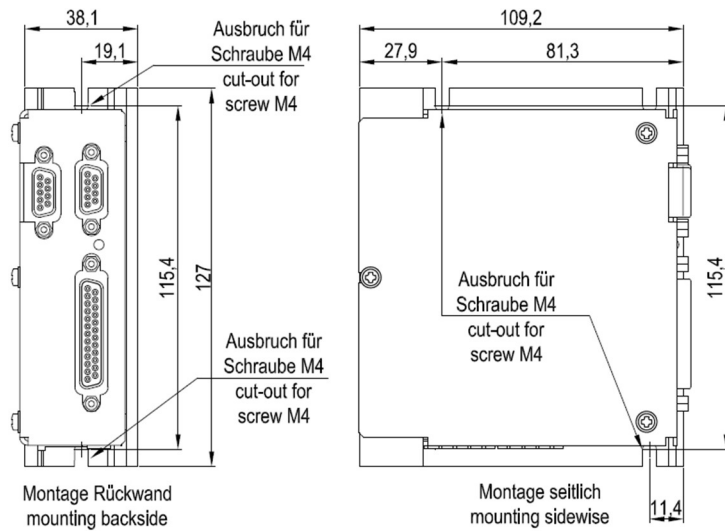
Since only a few settings are necessary, the Profibus DP stepper can be integrated with little effort into any control system that uses the Profibus DP as a sensor/actuator bus. The fast and simultaneous transmission of input and output bytes for all Profibus DP participants offers a wide range of possibilities 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									
reduzierter Stillstandsstrom [%]	50									
Motorstrom [mA eff]	100									
Mikroschrittfaktor n*200 / Umdr.	20									
Referenzfahrt	Istposition									
User Prm Daten:										
001	002	003	004	005	006	007	008	009	010	
00	00	00	00	0D	32	00	64	14	23	

**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

All dimensions in mm

**Ordering code**

TSP10-PB0-00-AA = Standard version

**TSP10 Type code**

T	S	P	1	0	-	B	A	0	-	0	0	-	A	A
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Drive Series	
Max. Output Power = 10 A <sub>peak</sub>	
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.