



TSP10

Compact step motor drive

TSP10-BA – 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
- 50 motion tasks with adjustable ramps, programmable via RS232

TSP10-BA Compact step motor drive

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 from the side via an optional heat sink or from the rear via the support surface.

The basic unit can be controlled via clock and direction of rotation signals or with programmed motion blocks and the digital inputs.

The power supply voltage and the motor connector are located on the underside of the unit. A 25-pin sub-D for clock, direction of rotation, digital inputs and outputs as well as a 9-pin sub-D connector for the RS232 connection are located on the front of the unit. Quick parameterisation is done 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 basic unit also has an indexer functionality.

Technical data

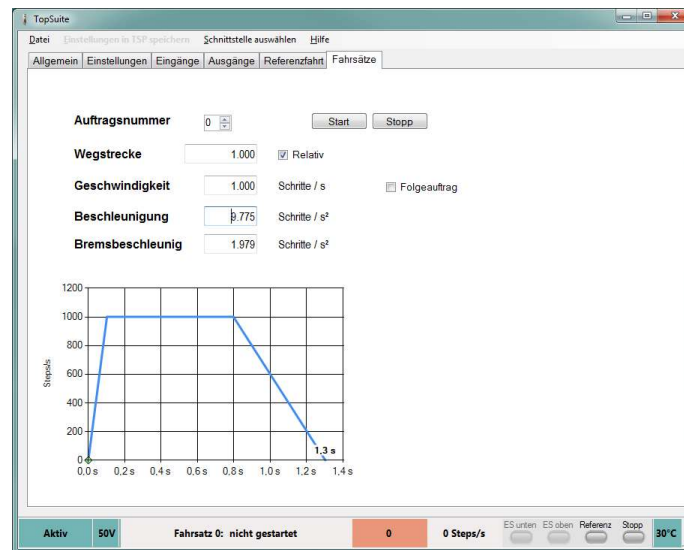
Power supply voltage	Operating range 24 - 74V _{DC}
Motor current	max. 10 A _{peak} ; 0.2 to 7 A _{rms}
	adjustable in mA (quick parameterisation: 16 levels)
	for 2-phase step motors in 4/6/8-wire version
Power supply	In principle, only an unregulated DC voltage is required for the power supply.
Ambient 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	Clock and direction of rotation*, RS232
Max. Input frequency	500kHz
Outputs	4 galvanically isolated outputs, SPS compatible freely configurable
	Status LED: green = ready for operation; red = fault; yellow = motor movement

* Input level = 5V or 24V, see type code

Motion tasks

The TSP10 step motor drive is the solution when it comes to programming devices with motion tasks and controlling them via input signals.

With the "TopSuite" user interface, the motion tasks are configured in simple steps.



For more complex motion sequences, each motion task can be assigned a follow-up task that is started immediately after the end of the task or after a waiting period.

The realisation of motion sequences with different speeds is also possible, as motion tasks can also be chained without stopping.

Since only a few basic settings are necessary, the stepper can be integrated into any control system with little effort.

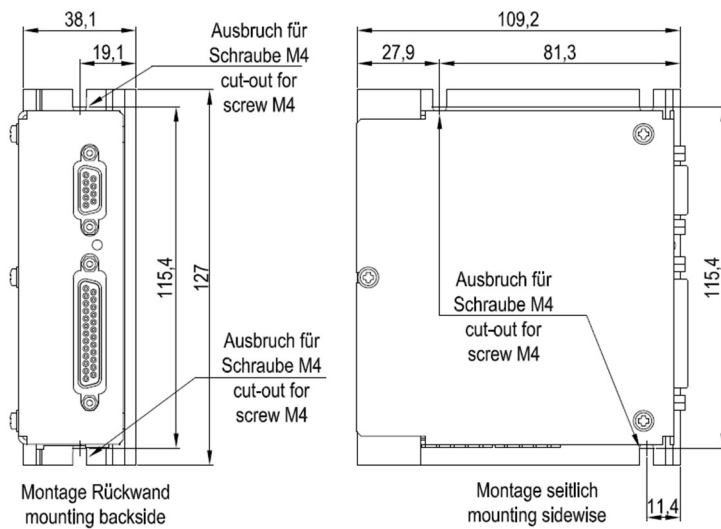
Currents and step size

Rotary switch S1 Motor current (preliminary data)		Rotary switch S2 Steps/Revolution and current reduction	
0	0.2**	0	10000**
1	0.4	1	200
2	0.7	2	400
3	1.0	3	500
4	1.5	4	800
5	2.0	5	1000
6	2.5	6	2000
7	3.0	7	5000
8	3.5	8	10000 without current reduction***
9	4.0	9	200 without current reduction
A	4.5	A	400 without current reduction
B	5.0	B	500 without current reduction
C	5.5	C	800 without current reduction
D	6.0	D	1000 without current reduction
E	6.5	E	2000 without current reduction
F	7.0	F	5000 without current reduction

** These preset values can be changed with the "TopSuite" parameterisation programme and saved in the TSP10. Factory setting: S1, S2 = position 0.

*** Step resolution as for switch position 0, but without current reduction.

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

All dimensions in mm

Ordering code

TSP10-BA0-00-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 _{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.