TSP10
Compact stepper motor drive

TSP10-BA

- **Compact size**
- **Supply voltage 24-74V_{DC} , max. motor current 7 A_{rms}**
- **Absolute positioning or velocity mode**
- **Microstepping ability**
- **Idle current reduction**
- **Noiseless at standstill, smooth operation**
- **Low heat losses**
- **Opto-isolated inputs (10) and outputs (4)**
- **Separate supply voltage for electronic and motor**
- **50 motion tasks with adjustable ramps, programmable via RS232**

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TSP10-BA Compact stepper motor drive

The TSP10-BA drive is a compact microstep power module for 2-phase stepper motors with various configurations for the best possible customization to the individual application.

The units are designed for panel mounting and equipped with the mating plugs; the compact size allows installation, where only restricted mounting space is available.
The heat dissipation is laterally possible over an optional heat-sink or over the bearing surface at the back.

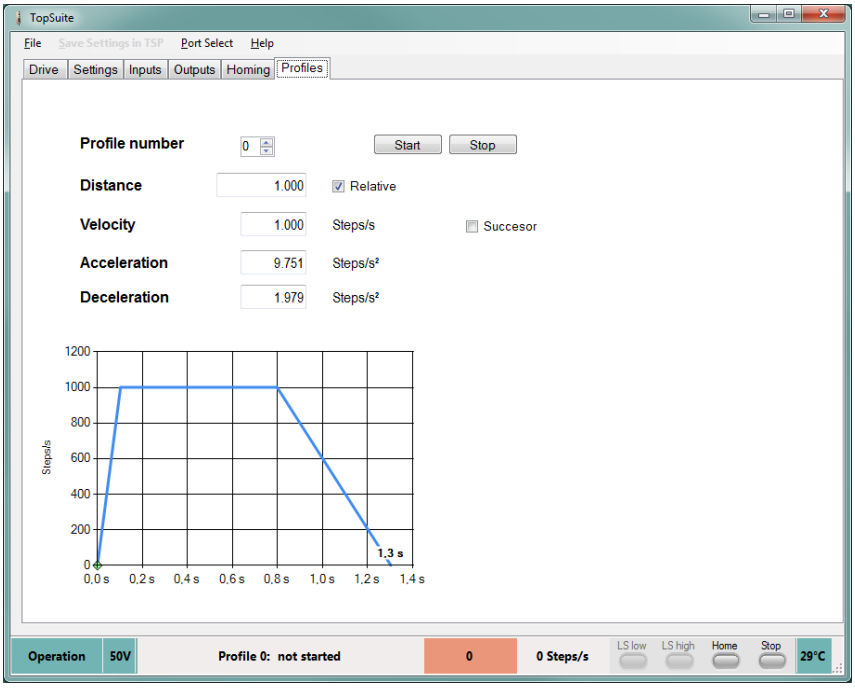
The basis drive can be controlled via step and direction or via programmable motion tasks and the digital inputs.
The supply voltage plug and the motor plug are placed at the bottom side of the drive.
The 25-pin Sub-D socket for step, direction and the digital I/Os as well as a 9-pin Sub-D socket for the RS232-connections are located at the front of the drive.
The Quick Set-Up is made by two rotary switches at the top side of the drive.
A two colour LED indicates the status of the drive by colors and flashing signals.
All digital inputs and outputs are opto-isolated.
In addition the basic drive has Indexer functionality.

Technical data

Supply voltage	power supply voltage 24 - 74 V_{DC}
Motor current	max. 10 A_{peak} ; 0.2 to 7 A_{rms}
	Adjustable in mA (Quick set-up: 16 Steps)
	for 2-phase stepper motors with 4, 6 or 8 leads
Power supply	for the motor power supply only an unregulated DC voltage is required.
Ambient temperature	<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 cooling may be necessary
Humidity	10-90%, non-condensing
Fault protection	Line-to-Line and line-to-neutral shorts and over temperature
Idle current reduction	free adjustable
Inputs	10 inputs*, free configurable
Input interface	Step and direction*, RS232
Max. input frequency	500kHz
Outputs	4 outputs, SPS compatible free configurable
	Status LED : green = ready for use; red = failure; yellow = motor movement

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

Motion tasks



The TSP10 Basis Drive is the solution for programming devices with motion tasks and controlling these devices via input signals.
The motion tasks are configured in simple steps with the "TopSuite" set-up program.
For more complex motion sequences a subsequent task, that will start immediately after the end of the task or after a delay time can be assigned to each motion task.

Movement sequences with different speeds can also be implemented, as motion tasks can also be chained without standstill.
The TSP10 Basis Stepper Drive can be easily integrated in any controller system, as only a few basic settings are necessary.

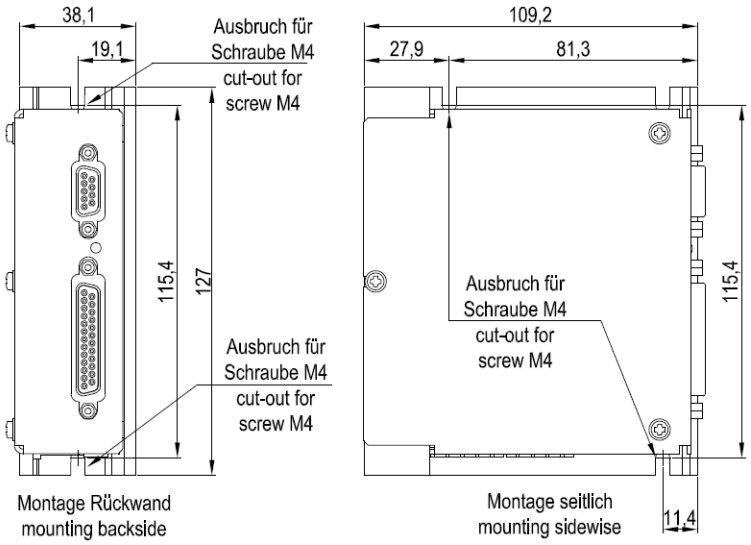
Currents and step sizes

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	3	500
4	1.5	4	800
5	2	5	1000
6	2.5	6	2000
7	3	7	5000
8	3.5	8	10000 without current reduction***
9	4	9	200 without current reduction
A	4.5	A	400 without current reduction
B	5	B	500 without current reduction
C	5.5	C	800 without current reduction
D	6	D	1000 without current reduction
E	6.5	E	2000 without current reduction
F	7	F	5000 without current reduction

*** Using the set-up program 'TopSuite', the preset values can be modified and saved in TSP10. Factory set-up: S1, S2 = Position 0.*
**** same step resolution as 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

Drive Series

Max. Output Power = 10 A_{peak}

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

Standard (no feedback)	0
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	09

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