

Servo Drive TSP700

100kHz 3-Level PWM, 700VDC for Highest Dynamics



The TSP700 is ideal for the most demanding, highly dynamic and precise motion tasks.

Spindle motors can be rotated at up to 360,000 rpm, yet at very low losses and good speed stability. At the same time, the motor can be precisely positioned.

The use of advanced FPGA and DSP technology allows also for customized solutions, which can be realized efficiently.

Advantages

Improved approximation of the output voltage to a sinus waveform for commutation using 3-level 100kHz PWM:

- » Considerably reduced losses
- » Lower slew rates dV/dt
- » Lower leakage currents into the bearings
- » Better true run, less vibrations of the motor
- » Motors with higher pole counts possible: → higher torque, lower cost

100kHz control:

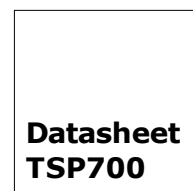
- » Highest stiffness, more damping
- » Quick reaction on disturbances
- » Precise command action
- » Good suppression of resonances

Applications

- » Spindle motors, positionable
- » Direct drive axes for highest precision and rigidity
- » CNC high and ultra precision
- » Gantry systems

Properties

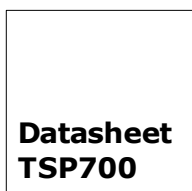
- » Input supply up to 3x480VAC
- » Output current to 10Arms/20A_{pk}
- » 9.5kW continuous output power
- » 100kHz switching frequency
- » 3-Level PWM
- » up to 6kHz rotating field frequency
- » Current control 100kHz
- » Position control 50kHz
- » Path planner 10kHz
- » Coupling of axes 10kHz
- » PID control with 5 filter blocks
- » Freely programmable 10kHz task
- » Direct inter drive coupling of axes
- » Path reprogramming within 100μs



Technical Specifications

	TSP700
Input supply	3x208VAC ... 3x480VAC, 50/60Hz, ±10% integrated line filter cat. C3
DC bus voltage	Max. 790VDC
Output current	Rated: 10Arms / Peak: 20A (Thermal time constant: 2s)
Output power	Rated: 9.5kW
Bleed power	Rated: 300W / Peak: 16kW
Bleed energy	Max: 20kJ/5s (internal resistor)
Bleed resistor, external	Min: 33Ω; thermal protection required
Switching frequency	Max.: 100kHz; max. rotating field frequency: 6kHz
Supervision	Temperatures: Motor, Drive (6x); i ² t: Motor and Drive
Position measurement: Digital	Pulse frequency 5MHz max., glitch- and FIR filtering; Standards: RS-422, EnDat 2.2; on request: BiSS
Position measurement: Analog	Sin/Cos 1Vpp: 65536 times interpolation, auto calibration, 500kHz max. frequency, FIR filtering; Standards: EnDat 2.1; on request: Hiperface, BiSS
Digital inputs	6 Inputs optically isolated, 24V 10μs
Digital outputs	2 Outputs optically isolated, 24V, 1A
Logic supply	24VDC ±15% @ 500mA max.
Communication	Tria-Link 200Mbps, Host(PC) and inter drive Communication
Host (PC) connection	PCI/PCI-Express bus card TLxxx or stand alone operation
Programming inside the drive	Freely programmable in a 10kHz real time task in Microsoft C#/C++/J#/VisualBasic, incl. coupling of axes; additional asynchronous task
Programming PC side	TAM SDK for Microsoft .NET Framework; Beckhoff TwinCAT (opt. with CNC); Linux
Dimensions	WxHxD: 92x310x291mm ³

Subject to change without notice.



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