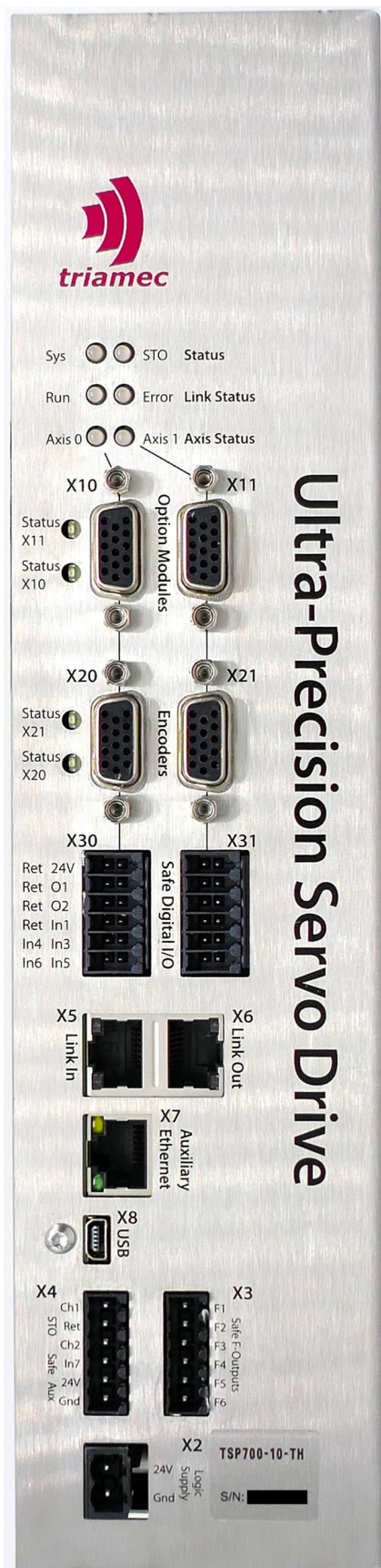


Hardware Manual

TSP700-10, TSP700-20, TSP700-40, Revisions 0 to 2



The TSP700 series is unique with its 3-Level PWM technology, ensuring high efficiency and ultra-precision in the most demanding motion tasks.

The integrated AC power supply simplifies the connection to AC power.

Spindle motors can be rotated at up to 360'000 rpm, yet at very low losses and best speed stability.

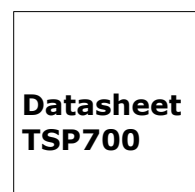
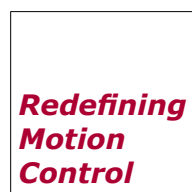
Option modules allow for dual-loop control, sin/cos Encoder with 2MHz/18bit, analog I/O, FFT, Laser-PWM etc.

Properties

- 100kHz control loop (current & position)
- 3-level PWM power stage
- Freely [programmable in C#](#) for control loop extensions and general control purposes
- Up to 2MHz 18 bit sin/cos-Encoder
- Up to 10kHz set point rate
- 10, 20 or 40 Arms nominal current
- Safety "Safe Torque Off"
- EtherCAT ready

Applications

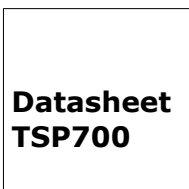
- Machine tool (Optics, Molds, etc.)
- Positioning tables (<1nm stand still)
- Direct drives for highest precision and stiffness
- Ultra-precision machining (optics etc.)
- Position controlled high-speed spindles



Specifications

		TSP 700-10	TSP 700-20	TSP 700-40
Motor configuration		1 Motor, 2 and 3 phase synchronous or asynchronous AC, DC		
Supply, AC rated, DC		3x38-480V _{AC} ±10% (L-L) – 50/60Hz, 50-509V _{DC}		
Current nominal / peak		10A _{RMS} / 20A _{pk}	20A _{RMS} / 40A _{pk}	40A _{RMS} / 80A _{pk}
Peak current duration		2s		
Output power, cont.		9550W	19100W	38200W
Safety		Safe Torque Off: SIL3/PLe		
Protection		Drive and motor temperature (KTY83/84, PT100, PT1000, PTC-1K); i2t, over voltage, over current		
Position measurement (per axis)	General	5.2V supply with a maximum of 500mA for both encoders together.		
	Analog	sin/cos 1Vpp: 65536 times interpolation, auto calibration, FIR filtering, max. frequency 500kHz (with option module EH: 2MHz 18bit / 10MHz quadrature)		
	Incremental	RS422: max. pulse frequency 500 kHz (RS422 Fast: 10MHz), TTL: max pulse frequency 2.5MHz		
	Digital	Standards: EnDat 2.1 & 2.2; BiSS B, BiSS C, SSI, Tamagawa, Nikon (Encoder with additional sin/cos signals recommended)		
	Sensorless	Sensorless commutation/control, suitable for fast spindles		
Digital inputs		2x 6 Inputs isolated, 24V, 2x 300µs, 4x 1200µs 2x 4 fast TTL inputs on the D-Sub encoder connector		
Digital outputs		2x 2 Outputs isolated, 24V, 1A		
Option Modules		2x, Extension for encoder, analog I/O, FFT, laser PWM, etc.		
Logic Supply		24V _{DC} ±10%, 2.3A max	24V _{DC} ±10%, 2.5A max	24V _{DC} ±10%, 3.7A max
Fieldbus		EtherCAT 100Mbps / Tria-Link 200Mbps allowing direct transmission of values from one servo drive to others on the same bus.		
Service Interfaces		USB / Ethernet		
Programming inside the servo-drive		10kHz hard real time task, freely programmable in C# incl. coupling of axes; additional asynchronous task		
Programming PC side		TAM API for .NET Framework; Beckhoff TwinCAT; Python		
Dimensions WxHxD		69x315x295mm ³		153x315x308mm ³

Subject to change without notice.



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