



▶ TANGO PCI-S

for driving 2/4-phase stepper motors

- ▶ Controls up to 4 motor axes
- ▶ Resolution: 819.200 μ steps / revolution
- ▶ Up to 70 motor revolutions / sec
- ▶ Manual operation by joystick, trackball or electr. coaxial drive
- ▶ Optional interfaces for closed-loop operation: MR, 1 Vss, RS422 or TTL (on request)
- ▶ Communication via PCI interface

The PCI slot card Tango PCI-S is a device for driving 2/4-phase stepper motors.

It can be operated either in the operation mode "automatic operation" by using the PCI bus of a PC or in the mode "manual operation" by means of a joystick, trackball or with a electr. coaxial drive.

Order Information

Part No.: 00-76-125-2801, controller for Z axis
 Part No.: 00-76-125-2802, controller for 2 axes
 Part No.: 00-76-125-2803, controller for 3 axes
 Part No.: 00-76-125-2804, controller for 4 axes

Accessories

Z-axis joystick, part no.: 00-76-100-0813
 2-axes joystick, part no.: 00-76-125-0802
 3-axes joystick, part no.: 00-76-125-0803
 Ergodrive 2, part no.: 00-27-322-1600
 Ergodrive 3, part no.: 00-27-322-1500
 Trackball, part no.: 00-76-550-8800
 Encoder interface 1VSS + RS422 for 3 axes
 Part No.: 00-76-650-0801
 Encoder interface MR + RS422 for 3 axes
 Part No.: 00-76-650-0802

2 limit switch inputs are available per axis, meant for limitation of travel range and for calibrating.

Optionally, further digital and analog I/O are available. An encoder module is available for connecting various types of incremental encoders.

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Specification

Performance Motor Controller

Number of Axes:	up to 4
Type of Motor:	Stepper motor 2/4 phases, e.g. 100, 200 or 400 full steps / revolution
Microstep Resolution	819200 steps / revolution (motor with 200 steps/revolution)
Power Stage:	Automatic adaptation to a wide range of stepper motors
Max. Phase Current:	1.25A / 2.5A, depends on order
Motor Current:	selectable per software 10% to 100% of max. phase current
Current Reduction after Movement:	10% to 100% of selected motor current
Current Reduction Delay:	selectable from 0...65000 ms
Motor Voltage:	48V, eff. AC max.; 48V DC max. depends on power supply
Mode of Movement:	simultaneous vector drive of 1 - 4 axes or/and single axis movement is possible at the same time
Max. Amount of Vectors/s (PC):	250 vectors per second (depends on used PC and software)
Speed Range:	0.000001...70 revolutions/s
Acceleration / Deceleration:	0.0001...20 m/s ² programmable with one parameter per axis
Position Range:	Max. +/-20 m
Command Set:	LSTEP or Venus-1 (others on demand)

Processing System

Processor:	ADSP BF532: 32bit, 400 MIPS DSP
Processor Clock Speed:	396 MHz
Processor MMACS:	up to 792 MMACS
Flash Memory:	4 MBit for programme storage
EEPROM:	256 KBit for configuration data
SDRAM:	16 Mbyte for extended system processing
Fast DSP RAM:	84 kByte for fast data / instruction processing

I/O: Human Device Interface

Human Device Interface (HDI): For connecting joystick, hand wheel or trackball, all with automatic device identification (Plug & Play)

Optional Modules

Encoder Interface:	up to 3 encoders: 1Vpp, MR, TTL, RS422, depends on order. Analogue resolution is 14 bit. RS422 up to 30 MHz.
AUX - I/O:	Snapshot, Trigger, Stop, Shutter, Analog out, Analog in, PSE (Power Stage Enable)

Power Requirements

Motor Voltage:	11,4 bis 50 V DC (Current depends on type of motor, motor current, DC voltage, number of motors, rotations per second, etc. An estimation is: $I_{max} = ca. 1/3 \times \text{sum of all motor currents}$. Individual measurements are needed)
+12V (+/- 5%):	400 mA (via PCI Plug) If the PSE function is used, the current can reach 4.5 A for 80 µs.
+5V (+/- 5%):	550 mA (via PCI Plug)
+3,3V (+/-5%):	800 mA (via PCI Plug)
PCI I/O Voltage:	3,3 V or 5 V

Environment

Form factor:	L x B: 167,64 x 106,68 mm (without connectors and bracket)
Operating temperature:	+5... +70°C ambient
Cooling:	Normal convection. Refer to Safety Instructions.
Humidity:	RH = 85% max., non condensing
Weight without cable:	approx. 200 g

Please note:

All Märzhäuser scanning stages come with a joystick for their designated use. If the stage is operated automatically, we recommend using the optionally available emergency shut-off.

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