

## Scanning Stage SCAN<sup>plus</sup> 75 × 50 with Integrated Measuring System

### Specifications

|                    |  |
|--------------------|--|
| Travel range       | max. 76 × 52 mm                            |
| Travel speed       | max. 50 mm/s (with 2 mm ball screw pitch)  |
| Repeatability      | < 1 µm (bi-directional) <sup>1</sup>       |
| Accuracy           | ±1 µm <sup>1</sup>                         |
| Resolution         | 0.05 µm (smallest step size)               |
| Orthogonality      | < 10 arcsec                                |
| Motor              | 2-phase stepper motor                      |
| Limit switches     | optical light beams                        |
| Stage opening      | 160 × 116 mm                               |
| Material / surface | aluminium / anodic coating, black laquered |
| Weight             | approx. 2.6 kg (without stage insert)      |

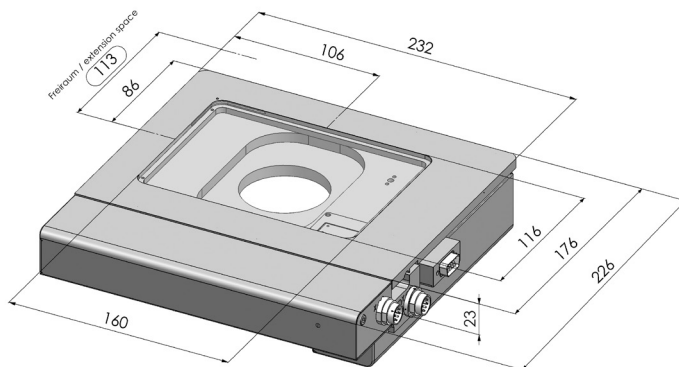
### Order Information

Order No.: 00-24-594-0000  
 (2 mm ball screw pitch)

### Product Features

- ▶ highest accuracy through integrated linear measuring systems
- ▶ flat, ergonomic design with rounded corners
- ▶ plain surface for easy cleaning
- ▶ exchangeable stage inserts for different kinds of applications
- ▶ motor/encoder cable connections front right
- ▶ integrated electronic stage identification device ETS for automatic identification of the scanning stage and parametrization of the controller
- ▶ **5 years guarantee**, if the scanning stage is operated in the system with the Märzhäuser TANGO controller

### Dimensions



### Accessories

Glass plate (included in delivery)  
 Order No.: 00-24-427-0810

Stage insert for 1 slide 76 × 26 mm (3" × 1")  
 Order No.: 00-24-427-8030

For further accessories please visit:  
[www.marzhauser.com](http://www.marzhauser.com)



## Scanning Stage SCAN<sup>plus</sup> 100 × 100 for Upright Microscopes

### Specifications

|                    |  |
|--------------------|--|
| Travel range       | max. 100 × 100 mm  |
| Travel speed       | max. 120 mm/s (with 2 mm ball screw pitch)<br>max. 240 mm/s (with 4 mm ball screw pitch) |
| Repeatability      | ≤ 0.2 μm <sup>1</sup>  |
| Accuracy           | ±1 μm <sup>2</sup>   |
| Resolution         | 0.05 μm (smallest step size)   |
| Orthogonality      | < 10 arcsec  |
| Motor type         | 2-phase stepper motor  |
| Limit switches     | continuously adjustable optical light barriers   |
| Material / surface | aluminium / anodic coating, black laquered   |
| Weight             | approx. 4.6 kg   |

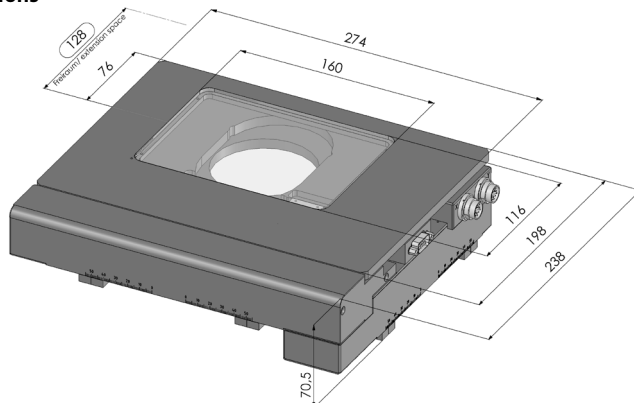
### Order Information

Order No.: 00-24-574-0000 (2 mm)  
 Order No.: 00-24-575-0000 (4 mm)

### Product Features

- ▶ integrated linear measuring systems for highest accuracy
- ▶ flat, ergonomic design with rounded corners
- ▶ plain surface for easy cleaning
- ▶ exchangeable stage inserts for different kinds of applications
- ▶ continuously adjustable optical light barriers for individual travel range limitation
- ▶ integrated electronic stage identification device ETS for automatic identification of the scanning stage and parametrization of the controller
- ▶ **5 years guarantee**, if the scanning stage is operated in the system with the Märzhäuser TANGO controller

### Dimensions



### Accessories

Glass plate (included in delivery)  
 Order No.: 00-24-427-0810

For further accessories please visit:  
[www.marzhauser.com](http://www.marzhauser.com)



Stage insert for 4 slides optionally available

## Scanning Stage SCAN<sup>plus</sup> 130 × 85 with Integrated Measuring System

### Specifications

|                    |   |
|--------------------|---|
| Travel range       | max. 130 × 85 mm                            |
| Travel speed       | max. 240 mm/s (with 4 mm ball screw pitch)  |
| Repeatability      | < 1 µm (bi-directional) <sup>1</sup>        |
| Accuracy           | ±1 µm <sup>1</sup>                          |
| Resolution         | 0.05 µm (smallest step size)                |
| Orthogonality      | < 10 arcsec                                 |
| Motor              | 2-phase stepper motor                       |
| Limit switches     | continuously adjustable optical light beams |
| Material / surface | aluminium / anodic coating, black lacquered |
| Weight             | ca. 4.5 kg (without stage insert)           |

### Order Information

Order No.: 00-24-651-0000  
 (4 mm ball screw pitch)

### Product Features

- ▶ **highest accuracy** through integrated linear measuring system
- ▶ flat, ergonomic design enables **easy loading** of the scanning stage
- ▶ plain surface for **easy cleaning**
- ▶ **exchangeable stage inserts for different kinds of applications**, also for well plates or 4 slides
- ▶ continuously adjustable optical light beams for **individual travel range limitation**
- ▶ integrated electronic identification plate ETS for **automatic identification of the scanning stage**
- ▶ **5 years guarantee**, if the scanning stage is operated in the system with the Märzhäuser TANGO controller

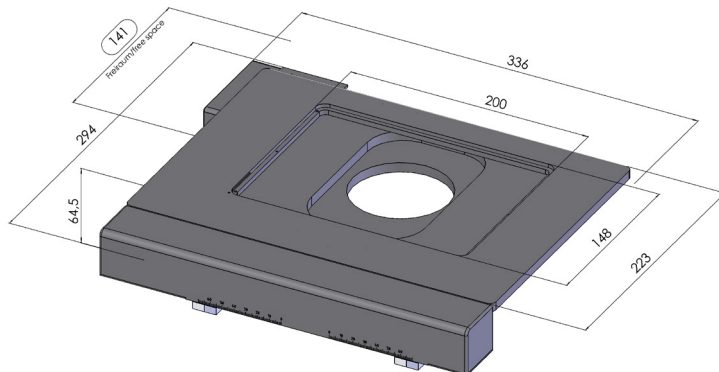
### Accessories

Glass plate (included in delivery)  
 Order No.: 48-24-520-0810

Stage insert for 4 slides 76 × 26 mm (3" × 1")  
 Order No.: 48-24-520-3000

For further accessories please visit:  
[www.marzhauser.com](http://www.marzhauser.com)

### Dimensions



Width depending on the selected stage connection



## Scanning Stage SCAN<sup>plus</sup> 150 × 150 for Upright Microscopes

### Specifications

|                    |  |
|--------------------|--|
| Travel range       | max. 150 × 150 mm                              |
| Travel speed       | max. 240 mm/s (with 4 mm ball screw pitch)     |
| Repeatability      | ≤ 0.2 μm <sup>1</sup>                          |
| Accuracy           | ±1 μm <sup>2</sup>                             |
| Resolution         | 0.05 μm (smallest step size)                   |
| Orthogonality      | < 10 arcsec                                    |
| Motor type         | 2-phase stepper motor                          |
| Limit switches     | continuously adjustable optical light barriers |
| Material / surface | aluminium / anodic coating, black laquered     |
| Weight             | approx. 6.2 kg                                 |

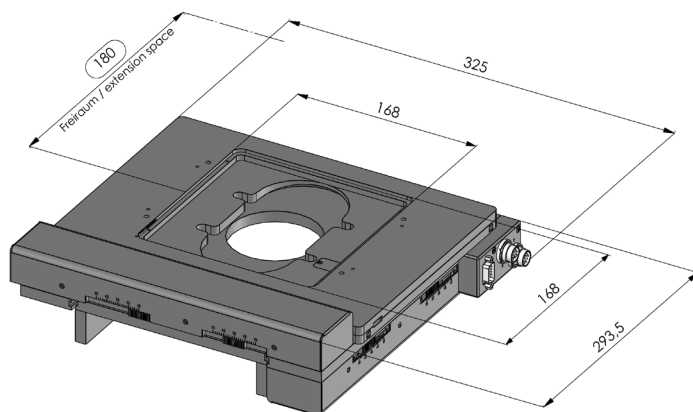
### Order Information

Order No.: 00-24-637-0000 (4 mm)

### Product Features

- ▶ integrated linear measuring systems for highest accuracy
- ▶ plain surface for easy cleaning
- ▶ exchangeable stage inserts for different kinds of applications
- ▶ continuously adjustable optical light barriers for individual travel range limitation
- ▶ integrated electronic stage identification device ETS for automatic identification of the scanning stage and parametrization of the controller
- ▶ **5 years guarantee**, if the scanning stage is operated in the system with the Märzhäuser TANGO controller

### Dimensions



### Accessories

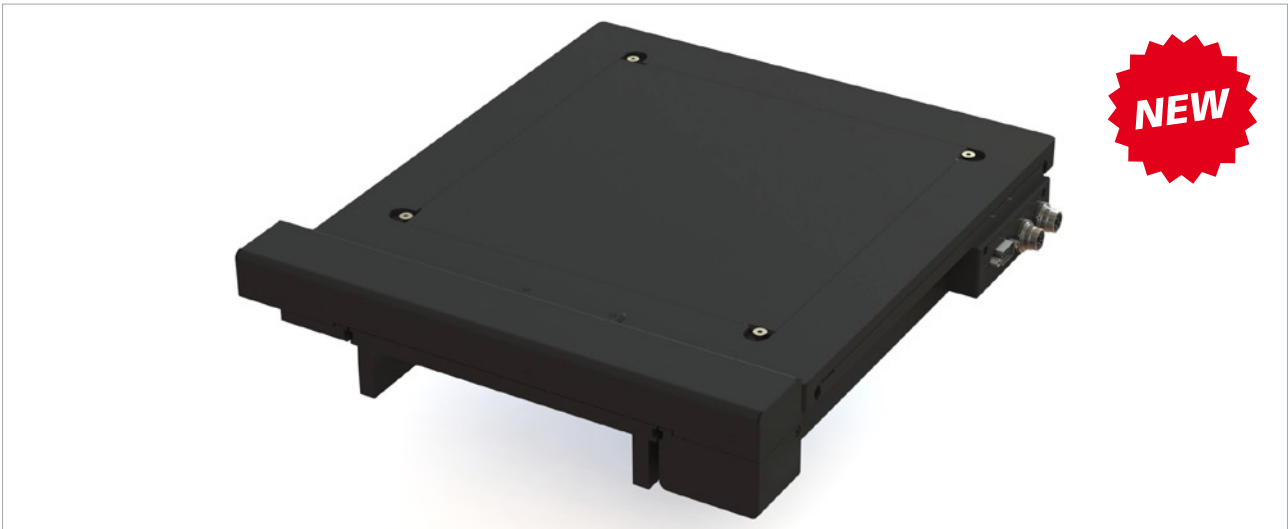
Glass plate (included in delivery)  
 Order No.: 00-24-601-0810

Metal plate  
 Order No.: 00-24-601-0011

Wafer holder, rotatable, for 5" – 6" wafer  
 Order No.: 00-29-640-8000

Vacuum wafer holder, rotatable,  
 for 5" – 6" wafer  
 Order No.: 00-29-650-8000

For further accessories please visit:  
[www.marzhauser.com](http://www.marzhauser.com)



## Scanning Stage SCAN<sup>plus</sup> 200 x 200 for Upright Microscopes

### Specifications

|                    |   |
|--------------------|---|
| Travel range       | max. 200 x 200 mm   |
| Max. travel speed  | max. 240 mm/s (with 4 mm ball screw pitch)                  |
| Repeatability      | < 1 µm (bi-directional, measured according to VDI/DGQ 3441) |
| Accuracy           | +/- 1 µm (measured according to VDI/DGQ 3441)               |
| Resolution         | 0.05 µm (smallest step size)                                |
| Orthogonality      | < 10 arcsec   |
| Motor              | 2-phase stepper motor                                       |
| Limit switches     | Hall sensors  |
| Material / surface | aluminium / anodic coating, black lacquered                 |
| Weight             | approx. 8.9 kg  |

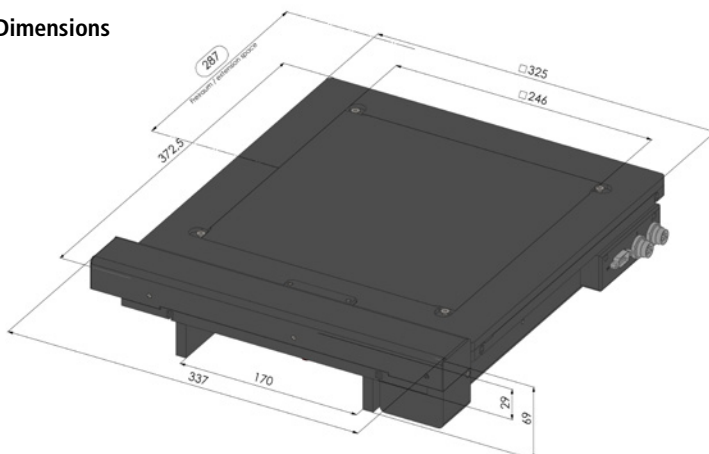
### Order Information

Order No.: 00-24-832-0000  
(4 mm ball screw pitch)

### Product Features

- ▶ flat, ergonomic design with rounded corners
- ▶ integrated linear measuring systems for highest accuracy
- ▶ for reflected and transmitted light applications
- ▶ L-shaped support stages optional available
- ▶ integrated electronic stage identification device ETS for automatic identification of the scanning stage and parametrization of the controller
- ▶ **5 years guarantee**, if the scanning stage is operated in the system with the Märzhäuser TANGO controller

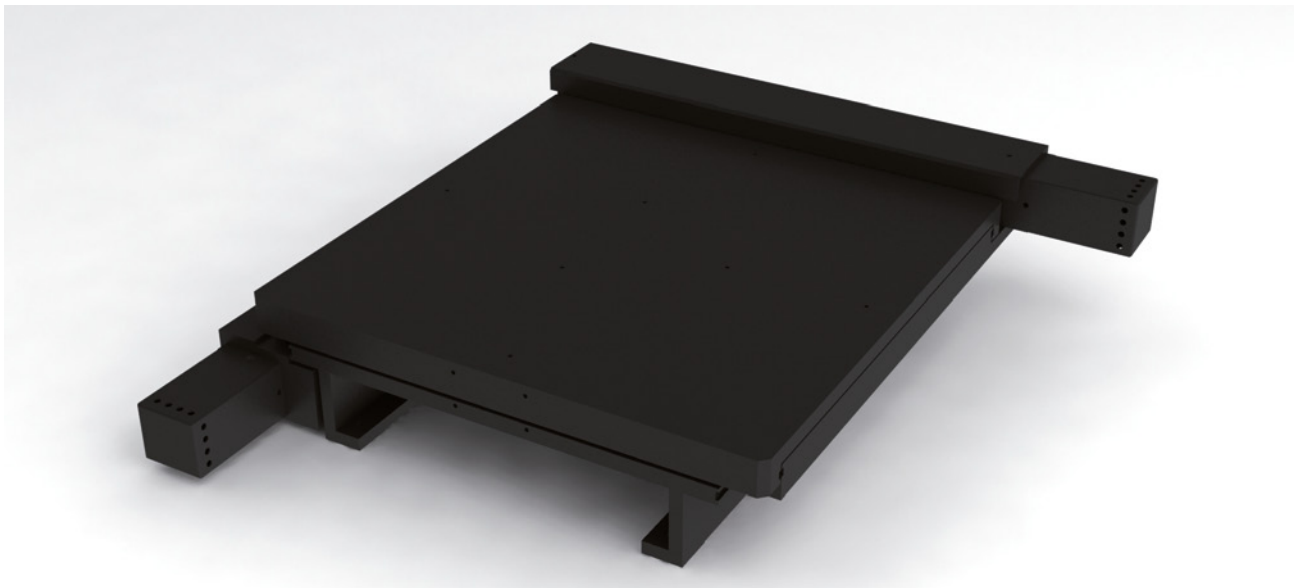
### Dimensions



### Accessories

Metall plate (included in delivery)  
Order No.: 00-24-801-0011

For further accessories please visit:  
[www.marzhauser.com](http://www.marzhauser.com)



## ▶ Scanning Stage SCAN<sup>plus</sup> 300 x 300 with Integrated Measuring System

|                           |  |
|---------------------------|--|
| <b>Travel range:</b>      | 300 x 300 mm (12" x 12")   |
| <b>Repeatability:</b>     | < 1 µm<br>(bi-directional, measured according to VDI / DGQ 3441) |
| <b>Accuracy:</b>          | 1 µm (measured according to VDI / DGQ 3441)                      |
| <b>Resolution:</b>        | 0,05 µm (smallest step size)                                     |
| <b>Orthogonality:</b>     | < 10 arc sec   |
| <b>Motor:</b>             | 2-phase stepper motor  |
| <b>Max. travel speed:</b> | 240 mm/s, with 4 mm ball screw pitch                             |
| <b>Limit switches:</b>    | optical light beam   |
| <b>Material:</b>          | aluminium  |
| <b>Surface:</b>           | anodic coating, black laquered                                   |
| <b>Weight:</b>            | 19,500 g   |

### Order Information

Order No.: 00-24-126-0000, 4 mm ball screw pitch

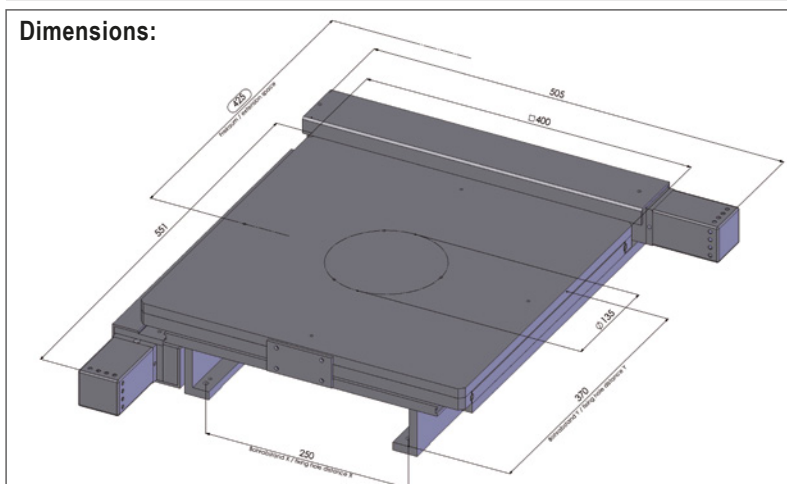
### Product Features

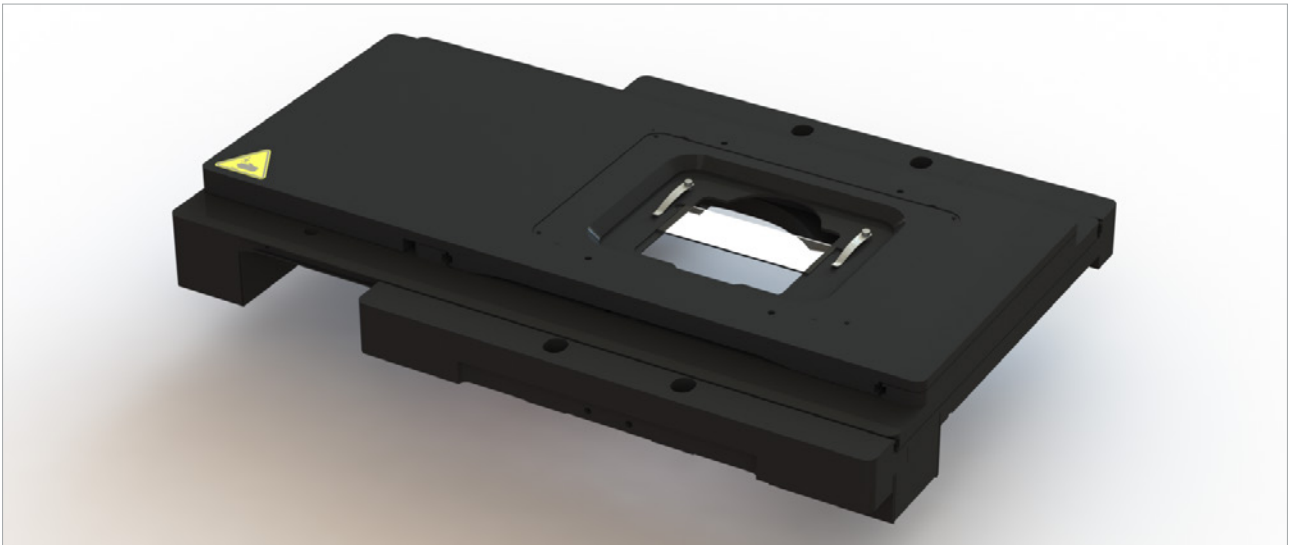
- ▶ with integrated measuring system
- ▶ for reflected light applications
- ▶ L-shaped stage supports or microscope-specific adaptations available
- ▶ **5 years guarantee**, if the scanning stage is operated in the system with the Märzhäuser TANGO controller!
- ▶ The integrated electronic stage identification device ETS enables automatic identification of the scanning stage, as well as the parametrization of the controller.

### Accessories

For accessories please refer to:  
[www.marzhauser.com](http://www.marzhauser.com)

### Dimensions:





## Scanning Stage SCAN<sup>plus</sup> IM 120 x 80 for Olympus IX53 / IX73 / IX83

### Specifications

|                    |   |
|--------------------|---|
| Travel range       | max. 120 x 80 mm  |
| Max. travel speed  | max. 120 mm/s (with 2 mm ball screw pitch)                  |
| Repeatability      | < 1 µm (bi-directional, measured according to VDI/DGQ 3441) |
| Accuracy           | +/- 1 µm (measured according to VDI/DGQ 3441)               |
| Resolution         | 0.05 µm (smallest step size)                                |
| Orthogonality      | < 10 arcsec   |
| Motor              | 2-phase stepper motor                                       |
| Limit switches     | wear-free Hall sensors                                      |
| Material / surface | aluminium / anodic coating, black lacquered                 |
| Weight             | approx. 4,600 g   |

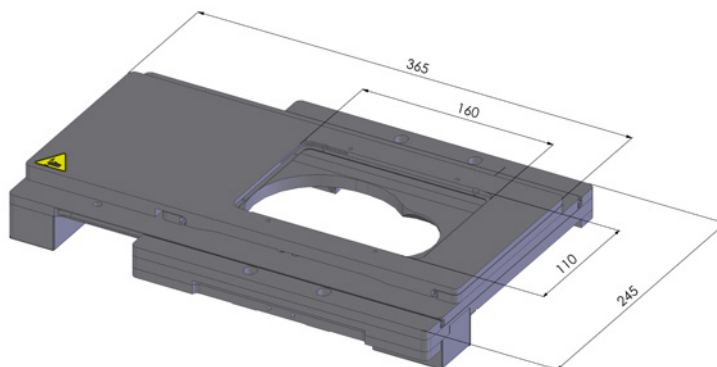
### Order Information

Order No.: 00-24-579-0000  
(2 mm ball screw pitch)

### Product Features

- ▶ integrated linear measuring systems for highest accuracy
- ▶ flat, ergonomic design with rounded corners
- ▶ plain surface for easy cleaning
- ▶ stationary connecting cables between scanning stage and controller
- ▶ integrated electronic stage identification device ETS for automatic identification of the scanning stage and parametrization of the controller
- ▶ **5 years guarantee**, if the scanning stage is operated in the system with the Märzhäuser TANGO controller

### Dimensions



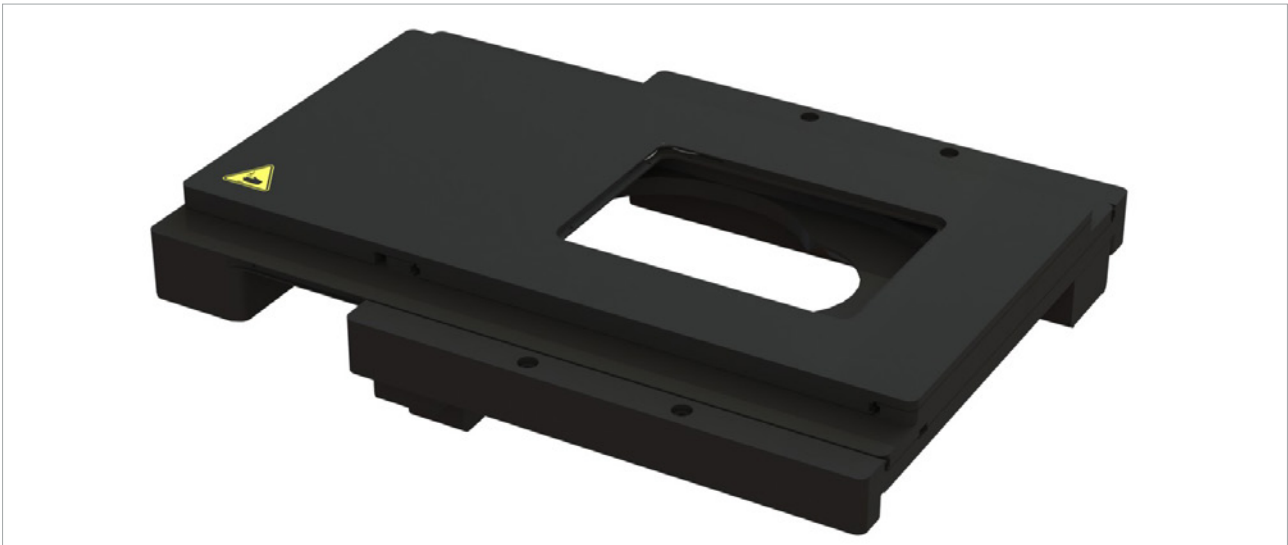
### Accessories

Stage insert for 1 slide  
3" x 1" (included in delivery)  
Order No.: 00-29-411-8010

Piezo Z-stage  
Order No.: 00-55-540-0800

Various stage inserts  
with dimensions 160 x 110 x 8 mm

For further accessories please visit:  
[www.marzhäuser.com](http://www.marzhäuser.com)



## Scanning Stage SCAN<sup>plus</sup> IM 130 × 85 for Nikon Eclipse Ti

### Specifications

|                    |   |
|--------------------|---|
| Travel range       | max. 130 × 85 mm                            |
| Travel speed       | max. 120 mm/s (with 2 mm ball screw pitch)  |
| Repeatability      | < 1 µm <sup>1</sup> (bi-directional)        |
| Accuracy           | ±1 µm <sup>1</sup>                          |
| Resolution         | 0.05 µm (smallest step size)                |
| Orthogonality      | < 10 arcsec                                 |
| Motor type         | 2-phase stepper motor                       |
| Limit switches     | wear-free Hall sensors                      |
| Material / surface | aluminium / anodic coating, black lacquered |
| Weight             | approx. 6.8 kg                              |

### Order Information

Order No.: 00-24-626-0000  
 (2 mm ball screw pitch)

### Product Features

- ▶ integrated linear measuring systems for highest accuracy
- ▶ flat, ergonomic design with rounded corners
- ▶ plain surface for easy cleaning
- ▶ stationary connecting cables between scanning stage and controller
- ▶ integrated electronic stage identification device ETS for automatic identification of the scanning stage and parametrization of the controller
- ▶ **5 years guarantee**, if the scanning stage is operated in the system with the Märzhäuser TANGO controller

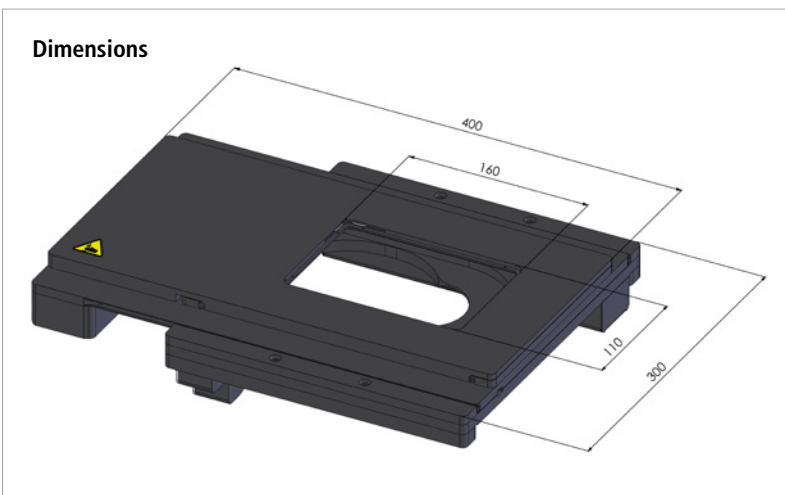
### Accessories

Stage insert for 1 slide 3" × 1"  
 (included in delivery)  
 Order No.: 00-29-411-8010

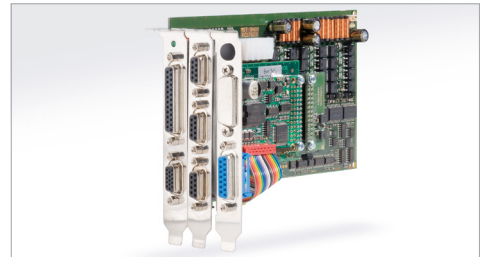
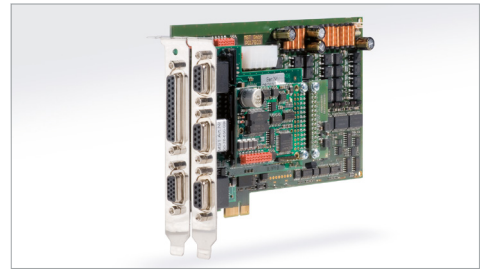
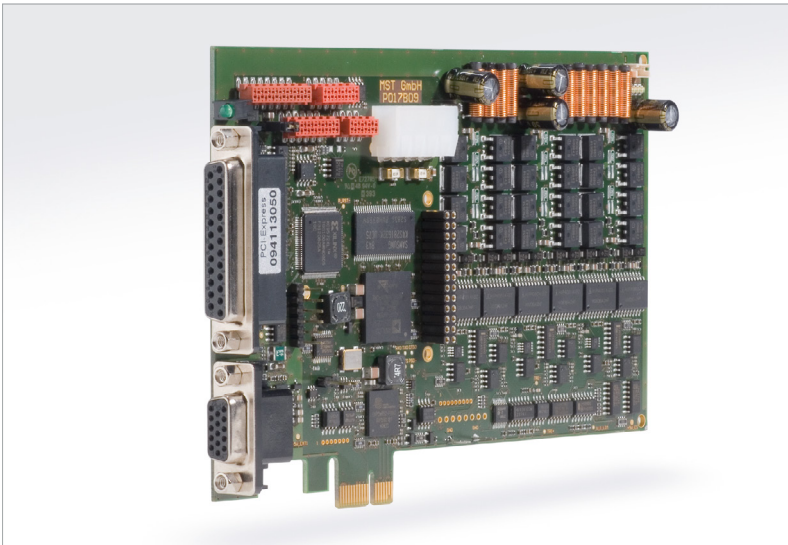
Piezo Z-stage  
 Order No.: 00-55-550-0800

For various stage inserts with dimensions 160 × 110 × 8 mm and further accessories please visit: [www.marzhauser.com](http://www.marzhauser.com)

### Dimensions







## TANGO PCI-E

The High Resolution Stepper Motor Controller as a PCI-E Slot Card.

### Product Features

TANGO PCI-E is the slot card version of the TANGO product family and can be integrated via PCI-Express bus in your PC system. It enables control of up to 4 axes. In cascaded operation up to 16 axes can be controlled.

The positioning is done through programming or via manual operating device. Digital and analog inputs/outputs provide numerous additional functions.

**Future-proof PC integration**  
 operation via PCI-Express bus

**Positioning within sub- $\mu\text{m}$  range**  
 position resolution of 819,200 micro-steps/revolution

**Maximum torque, even at high speed**  
 48 V motor voltage, up to 4,200 revolutions/min, phase currents of up to 2.5 A

**Energy-efficient ecological design**  
 lower power dissipation, resulting in decreased caloric development and lower power consumption, no fan required

**Sensitive manual operation**  
 via Joystick or ERGODRIVE

**„Microsoft Authenticode Certificated Driver“**  
 compatible to all Windows operating systems including Windows 10 (32/64 bit)

**Intuitive operating surface and DLL support**  
 enables easy integration and command input

**Easy switch within the TANGO product family**  
 software compatible with TANGO PCI-S and TANGO Desktop

### Order Information

|                            |                |
|----------------------------|----------------|
| TANGO 1 PCI-E <sup>1</sup> | 00-76-150-0811 |
| TANGO 2 PCI-E <sup>2</sup> | 00-76-150-0812 |
| TANGO 3 PCI-E <sup>3</sup> | 00-76-150-0813 |
| TANGO 4 PCI-E <sup>4</sup> | 00-76-150-0814 |

### Accessories

|                              |                |
|------------------------------|----------------|
| 1-Axis Joystick              | 00-76-100-0823 |
| 2-Axes Joystick              | 00-76-200-0820 |
| 3-Axes Joystick              | 00-76-300-0820 |
| 3-Axes Joystick <sup>5</sup> | 00-76-300-0821 |
| 4-Axes Joystick <sup>5</sup> | 00-76-400-0820 |

|                          |                |
|--------------------------|----------------|
| ERGODRIVE 2 <sup>2</sup> | 00-27-322-1600 |
| ERGODRIVE 3 <sup>3</sup> | 00-27-322-1500 |

|   |                |
|---|----------------|
| Motor cable Z-axis <sup>6</sup>               | 00-76-102-9803 |
| Motor cables XY-axes <sup>6</sup>             | 00-76-202-0808 |
| Motor cables XYZ-axes <sup>6</sup>            | 00-76-302-0809 |
| Motor cable 4 <sup>th</sup> axis <sup>6</sup> | 00-76-402-0810 |

<sup>1</sup> 1 axis

<sup>2</sup> 2 axes

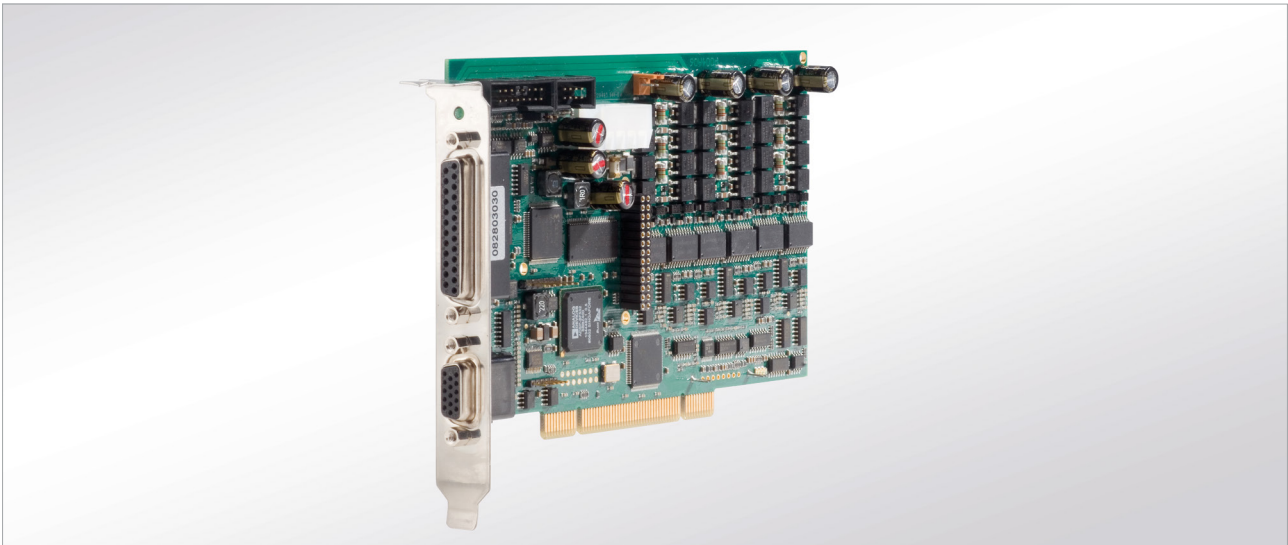
<sup>3</sup> 3 axes

<sup>4</sup> 4 axes

<sup>5</sup> with multi-function wheel

<sup>6</sup> cable length: 2 m

| <b>Motor Output Stage</b>                  |  |
|--|--|
| Amount of axes                             | 1 to 4   |
| Supported motor types                      | stepper motor 2 or 4 phases, individual adaption to step angle of the motor  |
| Step resolution                            | 4,096 micro-steps/macro-step, 819,200 micro-steps/revolution (with 200-step motor)   |
| Max. phase current                         | axis 1 to 3: 1.25 A or 2.5 A<br>axis 4: 1.0 A  |
| Motor current setting                      | motor current adjustment control from 0.03 A to max. phase current, adjustable via software, motor phase correction, short-circuit-proof outputs   |
| Motor current reduction during standstill  | 0...100 % of motor current setting   |
| Supply                                     | 100...240 V AC<br>optional: external 24 V or 48 V power supply   |
| <b>Positioning</b>                         |  |
| Positioning modes                          | positioning of distance and vectors, track function, positioning by setting speed and direction, simultaneous positioning of vectors and single axes, manual positioning, override position, endless rotation                          |
| Speed range                                | 0.000001...70 rps (each axis individually)   |
| Acceleration                               | 0.0001...20 m/s <sup>2</sup> , linear or sin <sup>2</sup> (each axis individually)   |
| Travel range                               | distance: max. ±2.6 m<br>rotation: endless   |
| Programming                                | ASCII command language (> 160 commands)  |
| Processing speed                           | up to 250 vectors/s (depending on PC model and software)   |
| Processor system                           | DSP, 396 MHz, 16 MByte SDRAM, 8 MBit Flash Memory, 256 KBit EPROM  |
| <b>Interfaces and Functions</b>            |  |
| Measuring systems                          | connection of measuring systems for length and angles for high-precision positioning in closed-loop operation (axes XYZ), supports all customary optical systems as well as Märzhäuser MR measuring system                             |
| Encoder interface (optional)               | 1Vpp, MR/analog 5Vpp, TTL (RS-422)<br>interpolation of analog encoder signal up to factor 51,400 (14 Bit)<br>TTL quadrature with an input frequency of up to 30 MHz  |
| Operating devices                          | Joystick, ERGODRIVE (automatic identification)   |
| Further inputs/outputs (AUX I/O, optional) | analog input 0–5 V, analog outputs 0–10 V, TTL I/O, TTL limit-switch inputs  |
| Input/output functions                     | saves coordinates, emergency stop, safety shutdown of output stage, position-synchronous trigger outputs, output of analog voltage, limit-switch evaluation, closed-loop positioning   |
| Miscellaneous                              | on-board measuring of temperature, position correction with and without measuring system, reading of / writing on electronic type label (ETS), fitted in positioning mechanics, for customer-related data or for setting of parameters |
| <b>Ambient Conditions</b>                  |  |
| Operating temperature                      | +5 °C...+70 °C   |
| Cooling                                    | normal convection, no fan required   |
| Measurements (L × W)                       | 167.64 × 106.68 mm (without slot bracket/plugs)  |
| Weight                                     | approx. 0.2 kg (without slot bracket/plugs)  |



## TANGO PCI-S

The High Resolution Stepper Motor Controller as a PCI-S Slot Card.

### Product Features

TANGO PCI-S is the slot card version of the TANGO product family and can be integrated via PCI bus in your PC system. It enables control of up to 4 axes. In cascaded operation up to 16 axes can be controlled.

The positioning is done through programming or via manual operating device. Digital and analog inputs/outputs provide numerous additional functions.

#### Easy PC integration

operation via PCI bus, fast data transfer and simple installation with virtual com port driver.

#### Positioning within sub- $\mu\text{m}$ range

position resolution of 819,200 micro-steps/revolution

#### Maximum torque, even at high speed

48 V motor voltage, up to 4,200 revolutions/min, phase currents of up to 2.5 A

#### Energy-efficient ecological design

lower power dissipation, resulting in decreased caloric development and lower power consumption, no fan required

#### Sensitive manual operation

via Joystick or ERGODRIVE

#### „Microsoft Authenticode Certificated Driver“

compatible to all Windows operating systems including Windows 10 (32/64 bit)

#### Intuitive operating surface and DLL support

enables easy integration and command input

### Order Information

|                            |                |
|----------------------------|----------------|
| TANGO 1 PCI-S <sup>1</sup> | 00-76-150-2801 |
| TANGO 2 PCI-S <sup>2</sup> | 00-76-150-2802 |
| TANGO 3 PCI-S <sup>3</sup> | 00-76-150-2803 |
| TANGO 4 PCI-S <sup>4</sup> | 00-76-150-2804 |

### Accessories

|                              |                |
|------------------------------|----------------|
| 1-Axis Joystick              | 00-76-100-0823 |
| 2-Axes Joystick              | 00-76-200-0820 |
| 3-Axes Joystick              | 00-76-300-0820 |
| 3-Axes Joystick <sup>5</sup> | 00-76-300-0821 |
| 4-Axes Joystick <sup>5</sup> | 00-76-400-0820 |

|                          |                |
|--------------------------|----------------|
| ERGODRIVE 2 <sup>2</sup> | 00-27-322-1600 |
| ERGODRIVE 3 <sup>3</sup> | 00-27-322-1500 |

|   |                |
|---|----------------|
| Motor cable Z-axis <sup>6</sup>               | 00-76-102-9803 |
| Motor cables XY-axes <sup>6</sup>             | 00-76-202-0808 |
| Motor cables XYZ-axes <sup>6</sup>            | 00-76-302-0809 |
| Motor cable 4 <sup>th</sup> axis <sup>6</sup> | 00-76-402-0810 |

<sup>1</sup> 1 axis

<sup>2</sup> 2 axes

<sup>3</sup> 3 axes

<sup>4</sup> 4 axes

<sup>5</sup> with multi-function wheel

<sup>6</sup> cable length: 2 m

| <b>Motor Output Stage</b>                  |  |
|--|--|
| Amount of axes                             | 1 to 4   |
| Supported motor types                      | stepper motor 2 or 4 phases, individual adaption to step angle of the motor  |
| Step resolution                            | 4,096 micro-steps/macro-step, 819,200 micro-steps/revolution (with 200-step motor)   |
| Max. phase current                         | axis 1 to 3: 1.25 A or 2.5 A<br>axis 4: 1.0 A  |
| Motor current setting                      | motor current adjustment control from 0.03 A to max. phase current, adjustable via software, motor phase correction, short-circuit-proof outputs   |
| Motor current reduction during standstill  | 0...100 % of motor current setting   |
| Supply                                     | 100...240 V AC<br>optional: external 24 V or 48 V power supply   |
| <b>Positioning</b>                         |  |
| Positioning modes                          | positioning of distance and vectors, track function, positioning by setting speed and direction, simultaneous positioning of vectors and single axes, manual positioning, override position                |
| Speed range                                | 0.000001...70 rps (each axis individually)   |
| Acceleration                               | 0.0001...20 m/s <sup>2</sup> , linear or sin <sup>2</sup> (each axis individually)   |
| Travel range                               | distance: max. ±2.6 m  |
| Programming                                | ASCII command language (> 160 commands)  |
| Processing speed                           | up to 250 vectors/s (depending on PC model and software)   |
| Processor system                           | DSP, 396 MHz, 16 MByte SDRAM, 4 MBit Flash Memory, 256 KBit EPROM  |
| <b>Interfaces and Functions</b>            |  |
| Measuring systems                          | connection of measuring systems for length and angles for high-precision positioning in closed-loop operation (axes XYZ), supports all customary optical systems as well as Märzhäuser MR measuring system |
| Encoder interface (optional)               | 1Vpp, MR/analog 5Vpp, TTL (RS-422)<br>interpolation of analog encoder signal up to factor 51,400 (14 Bit)<br>TTL quadrature with an input frequency of up to 30 MHz  |
| Operating devices                          | Joystick, ERGODRIVE (automatic identification)   |
| Further inputs/outputs (AUX I/O, optional) | analog input 0–5 V, analog outputs 0–10 V, TTL I/O, TTL limit-switch inputs  |
| Input/output functions                     | saves coordinates, emergency stop, safety shutdown of output stage, position-synchronous trigger outputs, output of analog voltage, limit-switch evaluation, closed-loop positioning                       |
| Miscellaneous                              | position correction with and without measuring system, reading of / writing on electronic type label (ETS), fitted in positioning mechanics, for customer-related data or for setting of parameters        |
| <b>Ambient Conditions</b>                  |  |
| Operating temperature                      | +5 °C...+70 °C   |
| Cooling                                    | normal convection, no fan required   |
| Measurements (L × W)                       | 167.64 × 106.68 mm (without slot bracket/plugs)  |
| Weight                                     | approx. 0.2 kg (without slot bracket/plugs)  |



## TANGO Desktop

The High Resolution Stepper Motor Controller Inside of a Desktop Housing.

### Product Features

TANGO Desktop is the ready-to-be-plugged-in desktop version of the TANGO product family. The modular design allows for a tailored configuration of the controller. In the maximum configuration, up to four stepper motors can be connected.

The positioning is done through programming or via manual operating device. Digital and analogue inputs/outputs provide numerous additional functions.

#### Positioning within sub- $\mu$ range

position resolution of 819,200 micro-steps/revolution

#### Maximum torque, even at high speed

48 V motor voltage, up to 4,200 revolutions/min,  
 phase currents of up to 2.5 A

#### Energy-efficient ecological design

lower power dissipation, resulting in decreased calorific development and lower power consumption, no fan required

#### Sensitive manual operation

via Joystick, ERGODRIVE or Trackball

#### „Microsoft Authenticode Certificated Driver“

compatible to all Windows operating systems including Windows 10 (32/64 bit)

#### Intuitive operating surface and DLL support

enables easy integration and command input

#### Easy switch within the TANGO product family

software compatible with TANGO PCI-E and TANGO PCI-S

### Order Information

|                              |                |
|------------------------------|----------------|
| TANGO 1 Desktop <sup>1</sup> | 00-76-150-1801 |
| TANGO 2 Desktop <sup>2</sup> | 00-76-150-1802 |
| TANGO 3 Desktop <sup>3</sup> | 00-76-150-1803 |
| TANGO 4 Desktop <sup>4</sup> | 00-76-150-1804 |

### Accessories

|                              |                |
|------------------------------|----------------|
| 1-Axis Joystick              | 00-76-100-0823 |
| 2-Axes Joystick              | 00-76-200-0820 |
| 3-Axes Joystick              | 00-76-300-0820 |
| 3-Axes Joystick <sup>5</sup> | 00-76-300-0821 |
| 4-Axes Joystick <sup>5</sup> | 00-76-400-0820 |

|                        |                |
|------------------------|----------------|
| ERGODRIVE <sup>2</sup> | 00-27-322-1600 |
| ERGODRIVE <sup>3</sup> | 00-27-322-1500 |

|           |                |
|-----------|----------------|
| Trackball | 00-76-550-8800 |
|-----------|----------------|

|   |                |
|---|----------------|
| Motor cable Z-axis <sup>6</sup>               | 00-76-102-9803 |
| Motor cables XY-axes <sup>6</sup>             | 00-76-202-0808 |
| Motor cables XYZ-axes <sup>6</sup>            | 00-76-302-0809 |
| Motor cable 4 <sup>th</sup> axis <sup>6</sup> | 00-76-402-0810 |

<sup>1</sup> 1 axis

<sup>2</sup> 2 axes

<sup>3</sup> 3 axes

<sup>4</sup> 4 axes

<sup>5</sup> with multi-function wheel

<sup>6</sup> cable length: 2 m

| <b>Motor Output Stage</b>                  |  |
|--|--|
| Amount of axes                             | 1 to 4   |
| Supported motor types                      | stepper motor 2 or 4 phases, individual adaption to step angle of the motor  |
| Step resolution                            | 4,096 micro-steps/macro-step, 819,200 micro-steps/revolution (with 200-step motor)   |
| Max. phase current                         | axis 1 to 3: 1.25 A or 2.5 A<br>axis 4: 1.0 A  |
| Motor current setting                      | motor current adjustment control from 0.03 A to max. phase current, adjustable via software, motor phase correction, short-circuit-proof outputs   |
| Motor current reduction during standstill  | 0...100 % of motor current setting   |
| Supply                                     | 100...240 V AC<br>standard: int. 48 V power supply<br>optional: int. 24 V power supply, ext. 24 V or 48 V power supply   |
| <b>Positioning</b>                         |  |
| Positioning modes                          | positioning of distance and vectors, track function, positioning by setting speed and direction, simultaneous positioning of vectors and single axes, manual positioning, override position, endless rotation                          |
| Speed range                                | 0.000001...70 rps (each axis individually)   |
| Acceleration                               | 0.0001...20 m/s <sup>2</sup> , linear or sin <sup>2</sup> (each axis individually)   |
| Travel range                               | distance: max. ±2.6 m<br>rotation: endless   |
| Programming                                | ASCII command language (> 160 commands)  |
| Processing speed                           | up to 250 vectors/s (depending on PC model and software)   |
| Processor system                           | DSP, 396 MHz, 16 MByte SDRAM, 8 MBit Flash Memory, 256 KBit EPROM  |
| <b>Interfaces and Functions</b>            |  |
| Communication                              | RS-232 (up to 115,200 baud) and USB 2.0, CAN-Bus prepared  |
| Measuring systems                          | connection of measuring systems for length and angles for high-precision positioning in closed-loop operation (axes XYZ), supports all customary optical systems as well as Märzhäuser MR measuring system                             |
| Encoder interface (optional)               | 1Vpp, MR/analog 5Vpp, TTL (RS-422)<br>interpolation of analog encoder signal up to factor 51,400 (14 Bit)<br>TTL quadrature with an input frequency of up to 30 MHz  |
| Operating devices                          | Joystick, ERGODRIVE, Trackball (automatic identification)  |
| Further inputs/outputs (AUX I/O, optional) | analog input 0–5 V, analog outputs 0–10 V, TTL I/O, TTL limit-switch inputs  |
| Input/output functions                     | saves coordinates, emergency stop, safety shutdown of output stage, position-synchronous trigger outputs, output of analog voltage, limit-switch evaluation, closed-loop positioning   |
| Miscellaneous                              | on-board measuring of temperature, position correction with and without measuring system, reading of / writing on electronic type label (ETS), fitted in positioning mechanics, for customer-related data or for setting of parameters |
| <b>Ambient Conditions</b>                  |  |
| Operating temperature                      | +5 °C...+45 °C   |
| Cooling                                    | convection, no fan required  |
| Measurements (L x W x H)                   | 238 x 103.5 x 160 mm (without cables/plugs)  |
| Weight                                     | approx. 2.5 kg (without cables/plugs)  |



## ERGODRIVE Operating Device for Motorized Microscope- and Measuring Stages

### Specifications

|                                    |  |
|------------------------------------|--|
| Number of axes                     | ERGODRIVE 2: 2 axes (XY)<br>ERGODRIVE 3: 3 axes (XYZ)      |
| Resolution XY                      | 100.000 steps/revolution                                   |
| Resolution Z<br>(ERGODRIVE 3 only) | 480 steps/revolution                                       |
| Supply voltage                     | +5 V   |
| Current consumption                | 70 mA  |
| Interface                          | HD D-sub 15-pin plug                                       |
| Material                           | aluminium  |
| Surface                            | anodic coating, black lacquered                            |
| Weight                             | ERGODRIVE 2: approx. 1.5 kg<br>ERGODRIVE 3: approx. 1.6 kg |

### Order Information

ERGODRIVE 2, 2-axes operating device  
 Order No.: 00-27-322-1600

ERGODRIVE 3, 3-axes operating device  
 Order No.: 00-27-322-1500

### Product Features

- ▶ 2- resp. 3-axes operating device for all motorized microscope- and measuring stages in connection with TANGO controller
- ▶ high-resolution, proportional positioning
- ▶ fast stage movement across the entire travel range with sensitive positioning in sub- $\mu$  area at the same time
- ▶ ergonomical adjustment for friction and height (coaxial drive telescopic)
- ▶ SnapShot function
- ▶ velocity switching for XY, respectively Z
- ▶ "Plug and play your microscope": automatic identification by connection

### Accessories

Operating device ERGODRIVE is compatible with all TANGO controllers.

### Dimensions

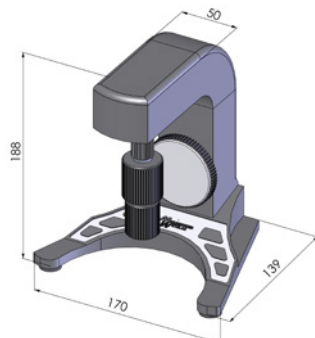


Fig.: ERGODRIVE 3



## 4-Axis Joystick with Multi-Function Wheel for TANGO Controllers

### Specifications

|                  |   |
|------------------|---|
| Number of axes   | 4 (XYZA)  |
| Interface        | 15-pin HD D-Sub plug connection to TANGO HDI  |
| Material/surface | control panel: membrane keyboard<br>housing: ABS-plastic with haptic coating<br>housing bottom: stainless steel |
| Dimensions       | 229 x 139 x 96 mm (L x W x H)   |
| Weight           | approx. 1.0 kg  |

### Order Information

4-axis joystick  
 with Multi-Function Wheel  
 Order No.: 00-76-400-0820

### Product Features

- ▶ sensitive, manual positioning
- ▶ side-mounted multi-function wheel allows ergonomic operation
- ▶ various configuration options
- ▶ assignment of the multi-function wheel to any axis
- ▶ free and precise programming of travel speed
- ▶ control of the LED illumination LED 100 with multi-function wheel possible
- ▶ 4 freely programmable function keys (e. g. for position capture, velocity select etc.)
- ▶ membrane keyboard with high durability
- ▶ soft touch and insensitive haptic coating on the side surfaces
- ▶ easy cleaning

### Dimensions

