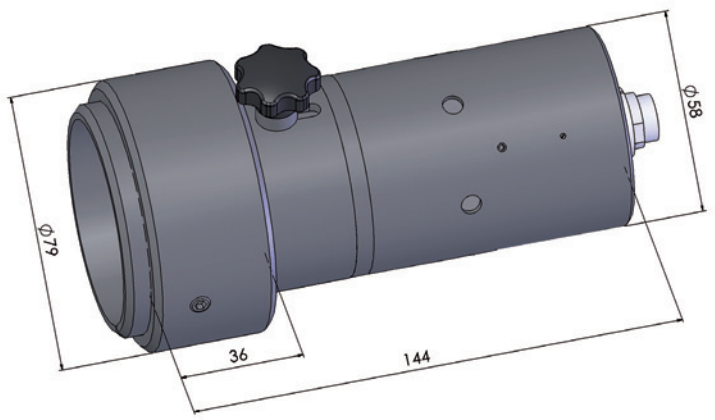
Märzhäuser Wetzlar GmbH & Co. KG
In der Murch 15 | D-35579 Wetzlar
Tel.: +49 6441 9116-0
Fax: +49 6441 9116-40
info@marzhauser.com
www.marzhauser.com

Motorized Focus Drive MFD for supplementary motorization of the Z-axis

Resolution:	typical 0,002 µm Depends on the speed reduction gear ratio of the microscope's fine focus, as well as the type of controller used!
Motor:	2-phase stepper motor
Max. revolutions:	60 rev. / s
Material:	aluminium
Surface:	anodic coating, black laquered
Weight:	ca. 790 g

Dimensions:



Order Information

MFD for Leica:
DM2000 - DM3000: order no.: 31-54-501-0000
DM4000 - DM6000: order no.: 31-54-500-0000
DMI3000 - DMI6000: order no.: 31-54-500-0000

MFD for Meiji Techno:
MT 8530: order no.: 96-54-500-0000
MT5000 / MT6000: order no.: 96-54-500-0000

MFD for Mitutoyo:
FS-110: order no.: 00-54-501-0000

MFD for Motic:
BA 300: order no.: 00-54-500-0000

MFD for Nikon:
Epiphot 200, Epiphot 300, Optiphot , Optiphot 2, L150
Eclipse: E400, E600, ME600L + D, TME200, TME300:
order no.: 45-54-500-0000
Eclipse E200: order no.: 45-54-501-0000
Eclipse TE2000: order no.: 45-54-502-0000
Eclipse TS100: order no.: 45-54-503-0000
Eclipse E600FN: order no.: 45-54-504-0000
Eclipse LV100D, LV150, 50i, 55i, 80i:
order no.: 45-54-505-0000
Eclipse L200, L300: order no.: 45-54-506-0000
Eclipse Ti: order no.: 45-54-507-0000

MFD for Olympus:
BX, BX41M, CKX41, GX, IX, MX50, MX61, SZX1:
order no.: 48-54-500-0000
AX70, IX61, BX51WI (back):
order no.: 48-54-502-0000
BH2: order no.: 48-54-501-0000
BX45: order no.: 48-54-503-0000
BX FM, BX51WI (vorn): order no.: 48-54-504-0000
SZX2: order no.: 48-54-505-0000

The MFD can be operated with any Märzhäuser stepper motor controller in conjuction with operating device Ergodrive or Joystick.

Issue: July 2011
Specifications are subject to change without notice.
Specification valid with Märzhäuser stage controller only!

Märzhäuser Wetzlar GmbH & Co. KG
In der Murch 15 | D-35579 Wetzlar

Tel.: +49 6441 9116-0
Fax: +49 6441 9116-40

info@marzhauser.com
www.marzhauser.com

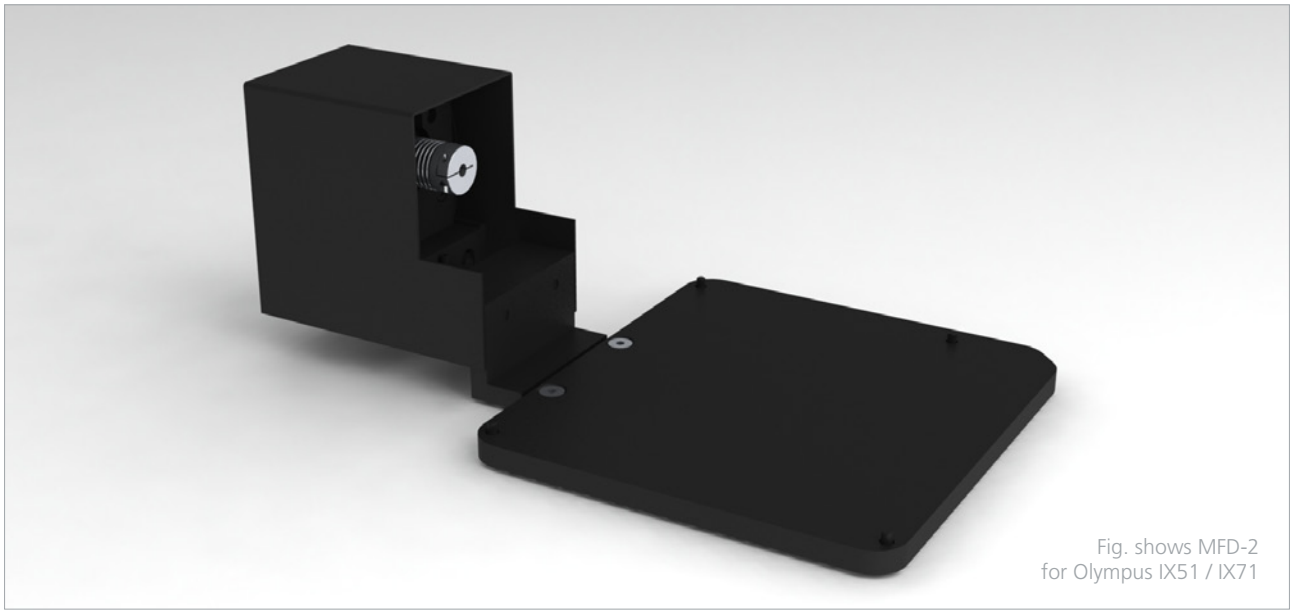


Fig. shows MFD-2
for Olympus IX51 / IX71

Motorized Focus Drive MFD-2

for supplementary motorization of the Z-axis of Olympus microscopes

Specifications

Resolution	typical 0,002 µm, depends on the speed reduction gear ratio of the microscope's fine focus
Motor	2-phase stepper motor
Max. revolutions	60 rev. / s
Material	aluminium
Surface	anodic coating, black laquered
Weight / WEEE weight	Olympus BX51TF-5 / BX51TRF-5 ca. 700 g / 40 g Olympus BX53F ca. 800 g / 40 g Olympus BX51M / BX51RF-5 ca. 700 g / 40 g Olympus MX61 ca. 700 g / 40 g Olympus CX41 ca. 700 g / 40 g Olympus BX43 ca. 800 g / 40 g Olympus IX51 / IX71 ca. 900 g / 50 g Olympus IX53 / IX73 ca. 700 g / 40 g
WEEE classification	product group 9
Dimensions	Design and dimensions vary in accordance with the microscope the MFD-2 is used on.

Order Information

MFD-2 for	Order No.
Olympus BX51TF-5 / BX51TRF-5	48-54-600-0000
Olympus BX53F	48-54-601-0000
Olympus BX51M / BX51RF-5	48-54-602-0000
Olympus MX61	48-54-603-0000
Olympus CX41	48-54-604-0000
Olympus BX43	48-54-605-0000
Olympus IX51 / IX71	48-54-606-0000
Olympus IX53 / IX73	48-54-607-0000

Product Features

- avoidance of slippage or step loss by rigid connection to the shaft of the fine focus drive
- stable attachment to the base plate of the microscope

Accessories

The MFD-2 can be operated with any Märzhäuser stepper motor controller in conjuction with operating device ERGODRIVE or Joystick.

For further accessories please visit:
www.marzhauser.com

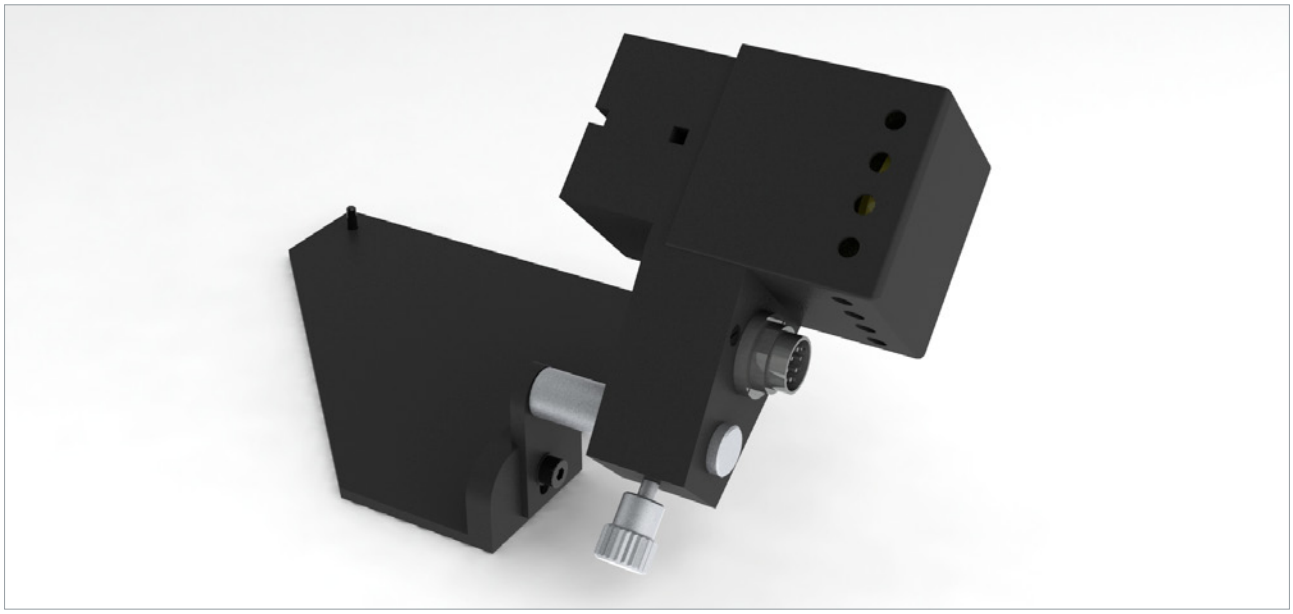
Specification valid with Märzhäuser stage controller only!

Issue: August 2012

Märzhäuser Wetzlar GmbH & Co. KG
In der Murch 15 | D-35579 Wetzlar

Tel.: +49 6441 9116-0
Fax: +49 6441 9116-40

info@marzhauser.com
www.marzhauser.com



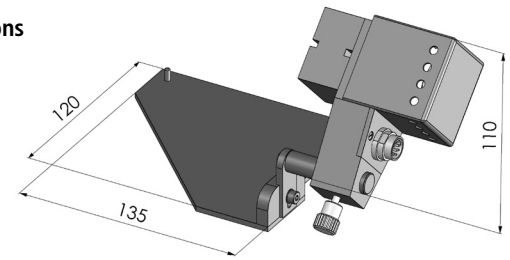
Motorized Focus Drive MA 42

for supplementary motorization of the Z-axis of Olympus IX51 / IX71 / IX81

Specifications

Resolution	typical 0.002 µm, depends on the speed reduction gear ratio of the microscope's fine focus
Motor	2-phase stepper motor
Max. revolutions	60 rev./s
Material	aluminium
Surface	anodic coating, black laquered
Weight / WEEE weight	approx. 900 g / 50 g
WEEE classification	product group 9
Dimensions	Design and dimensions vary in accordance with the microscope the MA 42 is used on.

Dimensions



Order Information

MFD-2 for	Order No.
Olympus IX51 / IX71 / IX81	48-54-401-0000

Product Features

- avoidance of slippage or step loss by rigid connection to the shaft of the fine focus drive
- stable attachment to the base plate of the microscope

Accessories

The MA 42 can be operated with any Märzhäuser TANGO controller in conjuction with operating device ERGODRIVE or Joystick.

For further accessories please visit:
www.marzhauser.com

Märzhäuser Wetzlar GmbH & Co. KG
In der Murch 15 | 35579 Wetzlar | Germany
Tel.: +49 6441 9116-0 | Fax: +49 6441 9116-40
info@marzhauser.com | www.marzhauser.com

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-µ 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, 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[1]	00-76-150-1801
TANGO 2 Desktop[2]	00-76-150-1802
TANGO 3 Desktop[3]	00-76-150-1803
TANGO 4 Desktop[4]	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[5]	00-76-300-0821
4-Axes Joystick[5]	00-76-400-0820
ERGODRIVE 2[2]	00-27-322-1600
ERGODRIVE 3[3]	00-27-322-1500
Trackball	00-76-550-8800
Motor cable Z-axis[6]	00-76-102-9803
Motor cables XY-axes[6]	00-76-202-0808
Motor cables XYZ-axes[6]	00-76-302-0809
Motor cable 4th axis[6]	00-76-402-0810

[1] 1 axis
[2] 2 axes
[3] 3 axes
[4] 4 axes
[5] with multi-function wheel
[6] cable length: 2 m

Issue: November 2016

Märzhäuser Wetzlar GmbH & Co. KG
In der Murch 15 | 35579 Wetzlar | Germany
Tel.: +49 6441 9116-0 | Fax: +49 6441 9116-40
info@marzhauser.com | www.marzhauser.com

Motor Output Stage

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 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 standard: int. 48 V power supply optional: int. 24 V power supply, ext. 24 V or 48 V power supply

Positioning

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/s², linear or sin² (each axis individually)
Travel range	distance: max. ±2.6 m 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

Interfaces and Functions

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) interpolation of analog encoder signal up to factor 51,400 (14 Bit) 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

Ambient Conditions

Operating temperature	+5 °C...+45 °C
Cooling	convection, no fan required
Measurements (L × W × H)	238 × 103.5 × 160 mm (without cables/plugs)
Weight	approx. 2.5 kg (without cables/plugs)

Issue: November 2016

Märzhäuser Wetzlar GmbH & Co. KG
In der Murch 15 | 35579 Wetzlar | Germany
Tel.: +49 6441 9116-0 | Fax: +49 6441 9116-40
info@marzhauser.com | www.marzhauser.com

ERGODRIVE 2

ERGODRIVE 3

ERGODRIVE Operating Device for Motorized Microscope- and Measuring Stages

Specifications

Number of axes	ERGODRIVE 2: 2 axes (XY) ERGODRIVE 3: 3 axes (XYZ)
Resolution XY	100.000 steps/revolution
Resolution Z (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 ERGODRIVE 3: approx. 1.6 kg

Dimensions

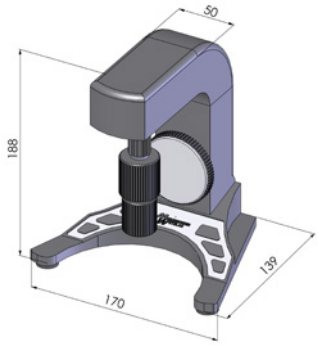


Fig.: ERGODRIVE 3

Oder 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-µ area at the same time
- ergonomical adjustment for friction and height (coaxial drive telescopable)
- SnapShot function
- velocity switching for XY, respectively Z
- "Plug and play your microscope": automatic identification by connection

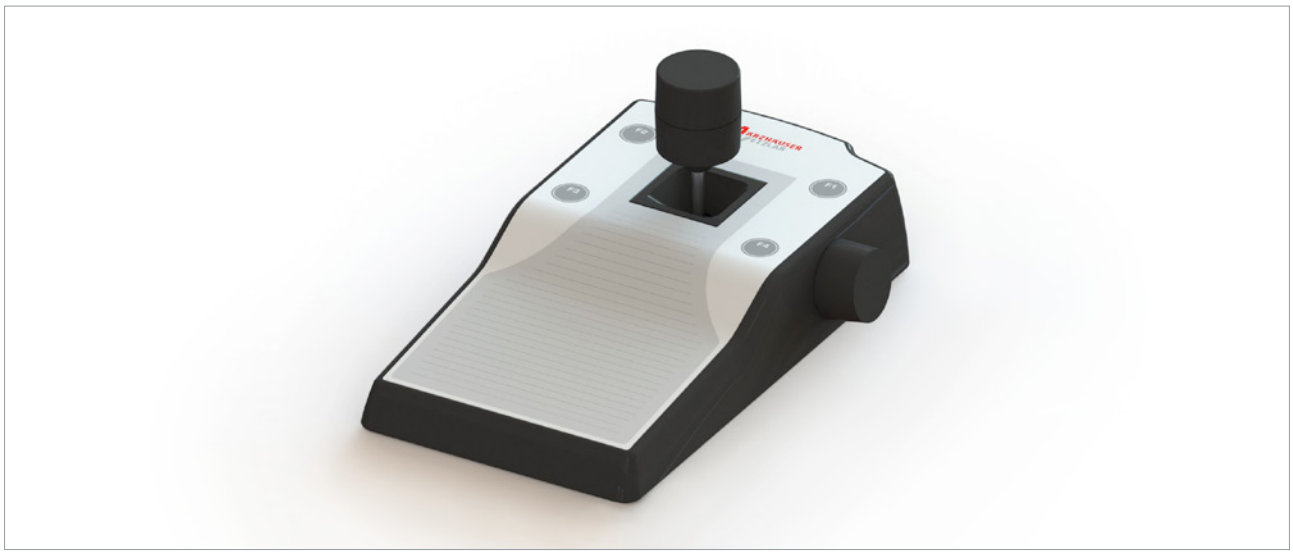
Accessories

Operating device ERGODRIVE is compatible with all TANGO controllers.

Specification valid with TANGO controllers only!

Issue: April 2016

Märzhäuser Wetzlar GmbH & Co. KG
In der Murch 15 | 35579 Wetzlar | Germany
Tel.: +49 6441 9116-0 | Fax: +49 6441 9116-40
info@marzhauser.com | www.marzhauser.com

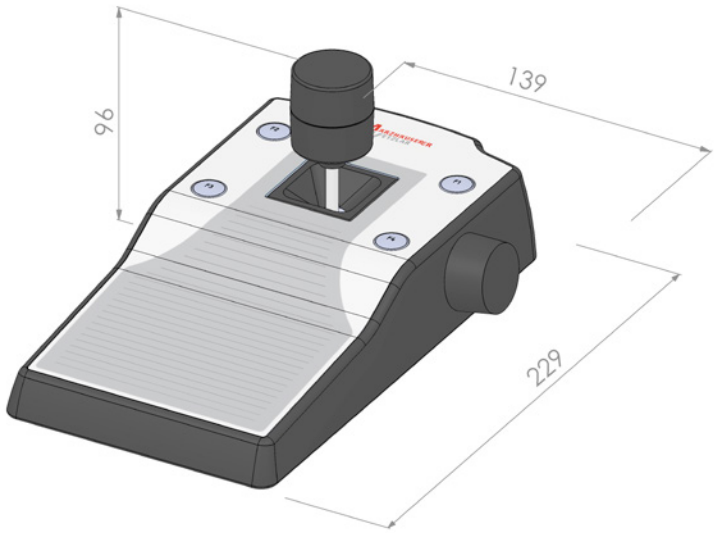


4-Axis Joystick with Multi-Function Wheel for TANGO Controllers

Specifications

Number of axes	4 (XYZA)
Interface	15-pin HD D-Sub plug connection to TANGO HDI
Material/suface	control panel: membrane keyboard housing: ABS-plastic with haptic coating housing bottom: stainless steel
Dimensions	229 x 139 x 9 mm (L x W x H)
Weight	approx. 1.0 kg

Dimensions



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

Information only valid in connection with TANGO controllers!

Specifications are subject to change without notice!
Issue: April 2014