

# ANALOGUE 1-, 2- AND 3-AXIS INDUSTRIAL JOYSTICK MJ-3K CP



The MJ-3K joystick series offers compact and robust industrial joysticks which can be supplied with conductive-plastic potentiometer sensor elements in analogue versions as well as with galvanized isolated direction contacts. The joysticks are available with 1, 2 or 3 axes for applications such as the safety radio remote control of machinery and systems or for mobile hydraulic applications.

## FEATURES

- Long service life
- Robust design
- Compact
- Conductive plastic technology

## APPLICATIONS

- Aerial work platforms
- Radio remote controls
- Forklift trucks
- Mobile hydraulics
- Steering of boats

## OPTIONS

- Handle length 55
- Handle length 65



## ELECTRICAL SPECIFICATIONS

<b>Resistance value</b>	5 kΩ *
<b>Resistance tolerance</b>	± 20 %
<b>Deflection angle, el.</b>	> ± 26° *
<b>Independent linearity</b>	± 2 %
<b>Zero position switch per axis</b>	< ± 3° open
<b>Load capacity/axis</b>	0.2 W at 40° C
<b>Operating voltage (VCC)</b>	Max. 30 VDC
<b>Contact current</b>	< 10 μA
<b>Max. contact current</b>	3 mA (typ.: 1 mA; in case of malfunction: max. 5 mA)
<b>Insulation resistance</b>	1 GΩ at 500 VDC
<b>Dielectric strength</b>	2,000 V

## MECHANICAL SPECIFICATIONS

<b>Service life</b>	5 million cycles
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Specifications are subject to change without notice.  
\* Other values on request.

<b>Deflection angle, mech.</b>	± 26°
<b>Operating force</b>	5 N typically
<b>Gate shape</b>	Square, soft cross guide
<b>Wiper zero position</b>	± 1°
<b>Impact strength</b>	200 N
<b>User control</b>	Handle with Gaiter

## AMBIENT CONDITIONS

<b>Storage temperature</b>	-40° C – +85° C
<b>Operating temperature</b>	-25° C – +70° C
<b>Protection class</b>	IP 65

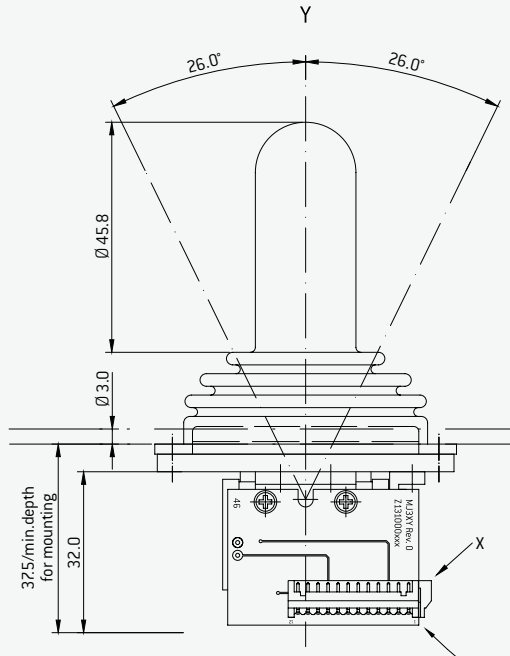
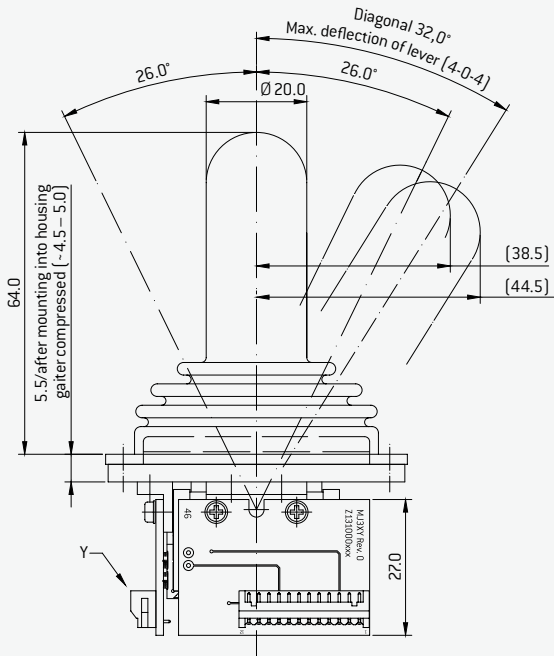
## MATERIALS

<b>Base</b>	Aluminium
<b>Bearing</b>	Stainless steel/plastic
<b>Electrical connection</b>	12-pin Hirose plug, 6-pin Dubox plug
<b>Mounting</b>	Screws M3

## MJ-3K CP (CONDUCTIVE PLASTIC) ANALOGUE

Type	MJ-3K 55 CP X:0 Y:5K MC 1-0-1 Hirose 12-pin	Type	MJ-3K 65 CP XY:2.5k 1-0-1 Dubox 6-pin
Item number	E060200038	Item number	E060200466 [2-axis]
Type	MJ-3K 55 CP XY:5K MC 1-0-1 Hirose 12-pin	Type	MJ-3K 65 CP XY:5K MC 1-0-1 Hirose 12-pin
Item number	E060200037	Item number	E060200444 [2-axis]
Type	MJ-3K 55 CP X:0 Y:2.5K 1-0-1 Dubox 6-pin	Connection cable	Hirose 12-pin (ws) LiYv 0.14mm <sup>2</sup> 500mm
Item number	E060200487 [1-axis]	Item number	Z301000512
Type	MJ-3K 55 CP XY:2.5k 1-0-1 Dubox 6-pin	Connection cable	Dubox 6-pin LiYv 0.14mm <sup>2</sup> 500mm
Item number	E060200465 [2-axis]	Item number	Z301000500

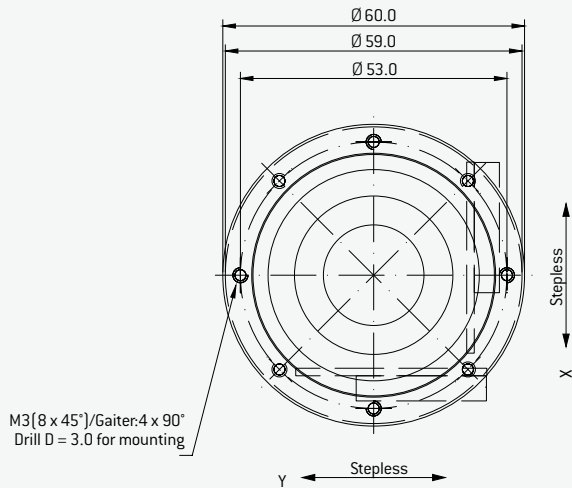
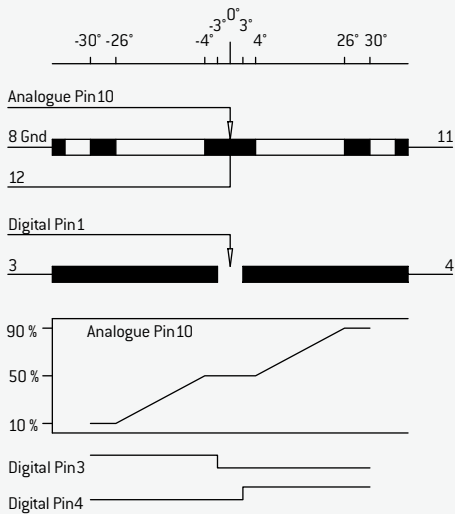
DRAWINGS FOR MJ-3K CP 65



Assembly into Housing from Inside/Screw Head outside of housing  
 If thickness of mounting panel is 3 mm:  
 Use Screw M3 x 10 mm/Center Hole D = 49.0

Male Connector HIROSE  
 No.: 543-0041-7-01  
 Pitch: 2.0/12-pole (black)

CONNECTOR PIN ASSIGNMENT/DIAGRAM



Connect. Resistance: 5 kOhm ± 20 %  
 Analogue band: 10 % - 90 % Utotal ± 3 %  
 Medium Voltage: 50 % Utotal ± 2,5 %  
 Linearity: ± 2 %  
 Contact Resistance Switch: < 1 kOhm  
 Life CP/PCB: > 5 Mio Cycles

# DIGITAL 1- AND 2-AXIS INDUSTRIAL JOYSTICK MJ-3K



Digital versions of the Metallux MJ-3K joysticks were designed for optimal control of crane systems. They are also available with mechanical detents for a distinct feedback and ease of control for the operator. Galvanically isolated direction contacts provide the necessary operational reliability and meet the requirements of the Machinery Directive. Their light weight and long service life encourage high productivity not only on construction and building sites but also on factory floors.

## FEATURES

- Long service life
- Robust design
- Compact
- Conductive plastic technology

## APPLICATIONS

- Aerial work platforms
- Radio remote control
- Forklift trucks
- Hydraulics



## ELECTRICAL SPECIFICATIONS

<b>Switching current</b>	5 mA at 5 V *
<b>Versions</b>	Digital 1- to 4-stage (1-0-1 to 4-0-4), optional: 5-0-5, 4-bit gray code / GC4B
<b>Deflection angle, el.</b>	4 x 6.5°, optional: 5 x 5.2°
<b>Zero position switch per axis</b>	< ± 3° open
<b>Load capacity/axis</b>	0.2 W at 40° C
<b>Operating voltage (VCC)</b>	Max. 30 VDC
<b>Insulation resistance</b>	1 GΩ bei 500 VDC
<b>Dielectric strength</b>	2,000 V

## MECHANICAL SPECIFICATIONS

<b>Service life</b>	> 3 million cycles
<b>Deflection angle, mech.</b>	± 26°

Specifications are subject to change without notice.  
\* Other values on request.

<b>Operating force</b>	5 N typically
<b>Gate shape</b>	Square, soft cross guide
<b>Wiper zero position</b>	± 1°
<b>Impact strength</b>	200 N
<b>User control</b>	Handle with Gaiter

## AMBIENT CONDITIONS

<b>Storage temperature</b>	-40° C – +85° C
<b>Operating temperature</b>	-25° C – +70° C
<b>Protection class</b>	IP 65

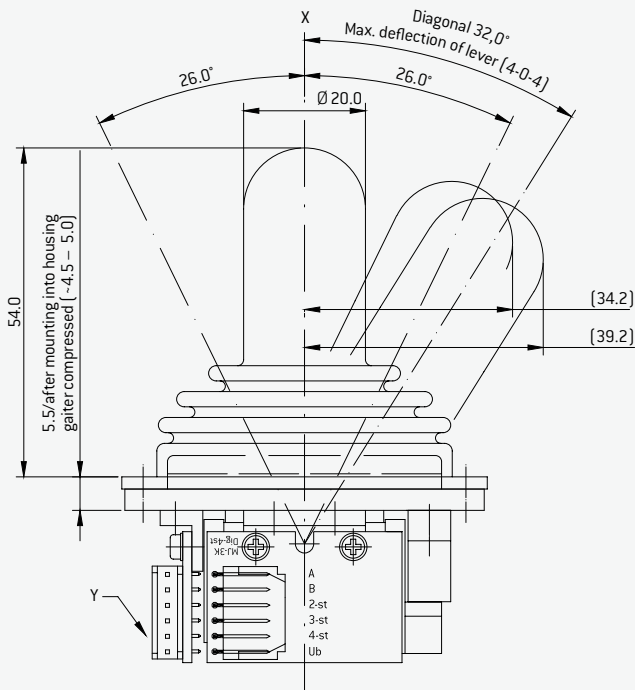
## MATERIALS

<b>Base</b>	Aluminium
<b>Bearing</b>	Stainless steel/plastic
<b>Electrical connection</b>	12-pin Hirose plug, 6-pin Dubox plug
<b>Mounting</b>	Screws M3

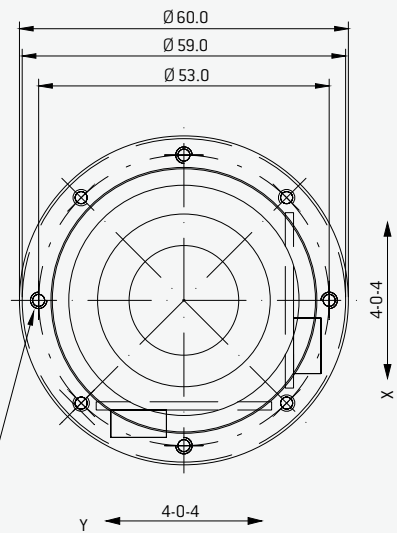
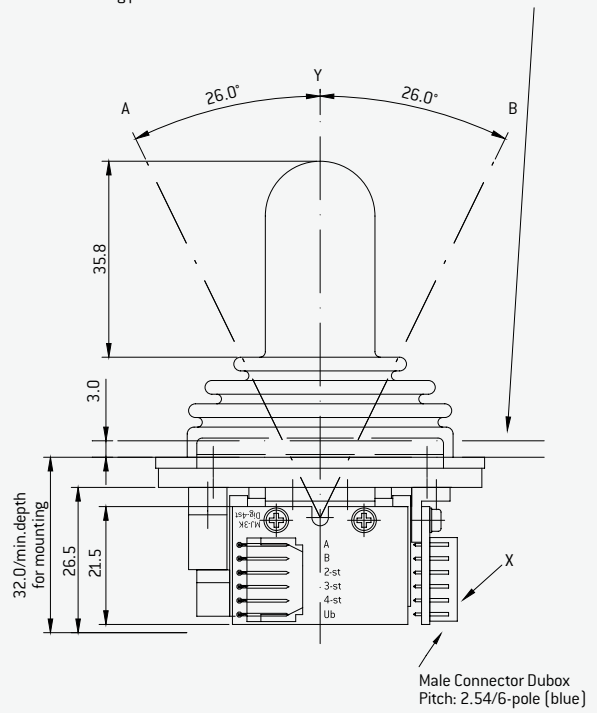
## MJ-3K CP (CONDUCTIVE PLASTIC) DIGITAL

Type	MJ-3K 55 CP x:0 y:4-0-4 Dubox 6-pin	Type	MJ-3K 65 CP x:0 y:4-0-4 Dubox 6-pin
Item number	E060200514 (1-axis)	Item number	E060200508 (1-axis)
Type	MJ-3K 55 CP xy:4-0-4 Dubox 6-pin	Type	MJ-3K 65 CP xy:4-0-4 Dubox 6-pin
Item number	E060200428 (2-axis)	Item number	E060200468 (2-axis)
Type	MJ-3K 55 CP x:0 y:4-0-4 Hirose	Connection cable	MJ-3K 65 CP xy:4-0-4 DS Dubox 6-pin
Item number	E0602xxxxx (1-axis)	Item number	E060200430 (2-axis)
Type	MJ-3K 55 CP xy:4-0-4 Hirose	Connection cable	Hirose 12-pin (ws) LiYv 0.14mm <sup>2</sup> 500mm
Item number	E060200411 (2-axis)	Item number	Z301000512
Type	MJ-3K 55 CP xy:4-0-4 DS Dubox 6-pin	Connection cable	Dubox 6-pin LiYv 0.14mm <sup>2</sup> 500mm
Item number	E060200025	Item number	Z301000500

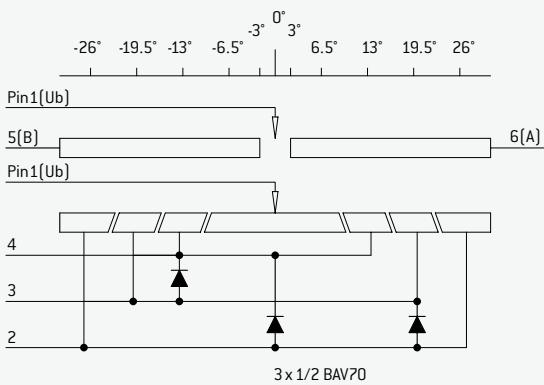
**DRAWINGS FOR MJ-3K 55 DIGITAL**



Assembly into Housing from Inside/Screw Head outside of housing  
If thickness of mounting panel is 3 mm: Use Screw M3 x 10 mm/Center Hole D = 49.0



**CONNECTOR PIN ASSIGNMENT/DIAGRAM 4-0-4**



M3(8 x 45°)/Gaiter: 4 x 90°  
Drill D = 3.0 for mounting

	-26°	-19.5°	-13°	-6.5°	0°	6.5°	13°	19.5°	-26°
PIN 5	x	x	x	x					
PIN 6						x	x	x	x
PIN 4	x	x	x				x	x	x
PIN 3	x	x						x	x
PIN 2	x								x

x = electrical Connection/Combination

Contact Resistance Switch: < 1 kOhm  
Life CP/PCB: > 3 Mio Cycles  
Anti-interference condensator (100 pF) for switch contacts 4-0-4

# 1-, 2- AND 3-AXIS INDUSTRIAL JOYSTICKS MJ-3K MTP



A sealed sensor is the distinguishing feature of the MetaPot technology. This technology is also used in the 1-, 2- and 3-axis versions of the Metallux MJ-3K joystick series. Analogue output signals and galvanically isolated direction contacts provide reliable manoeuvring of boats and construction equipment. Salty sea air does not influence the function of the joysticks. The third axis is realised by a compact, sealed conductive-plastic potentiometer.

## FEATURES

- Long service life
- Robust design
- Compact
- MetaPot membrane sensor technology
- EMC-safe

## APPLICATIONS

- Aerial work platforms
- Wireless remote controls
- Forklift trucks
- Hydraulics
- Marine



## ELECTRICAL SPECIFICATIONS

<b>Resistance value</b>	2.5 kΩ *
<b>Resistance tolerance</b>	± 20 %
<b>Deflection angle, el.</b>	> ± 26° *
<b>Independent linearity</b>	± 3 %
<b>Load capacity/axis</b>	0.2 W at 40° C
<b>Operating voltage (VCC)</b>	Max. 30 VDC
<b>Contact current</b>	< 10 μA
<b>Max. contact current</b>	3 mA (typ.: 1 mA; in case of malfunction: max. 5 mA)
<b>Insulation resistance</b>	1 GΩ at 500 VDC
<b>Dielectric strength</b>	2,000 V
<b>Output signal</b>	7.5 % / 92.5 % of VCC (± 2.5 %) *

## MECHANICAL SPECIFICATIONS

<b>Service life</b>	5 million cycles
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Specifications are subject to change without notice.  
\* Other values on request.

<b>Deflection angle (mech.)</b>	< ± 26°
<b>Operating force</b>	5 N typically *
<b>Gate shape</b>	Square*, soft cross guide
<b>Wiper zero position</b>	± 1°
<b>Impact strength</b>	200 N
<b>User control</b>	Handle with Gaiter

## AMBIENT CONDITIONS

<b>Storage temperature</b>	-25° C – +70° C
<b>Operating temperature</b>	-25° C – +70° C
<b>Protection class</b>	IP 65

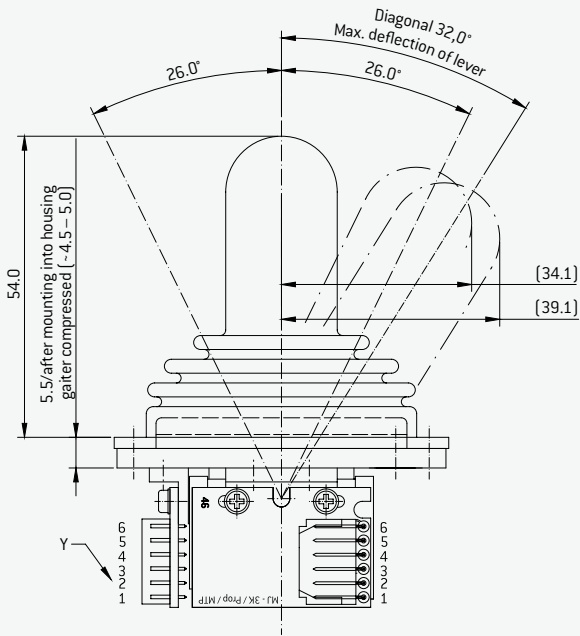
## MATERIALS

<b>Base</b>	Aluminium
<b>Bearing</b>	Stainless steel/plastic
<b>Electrical connection</b>	6-pin Dubox plug
<b>Mounting</b>	Screws M3

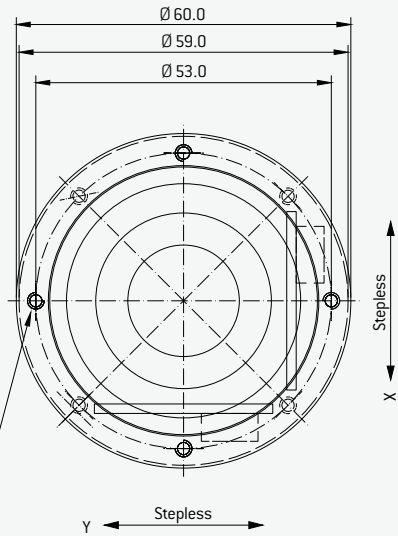
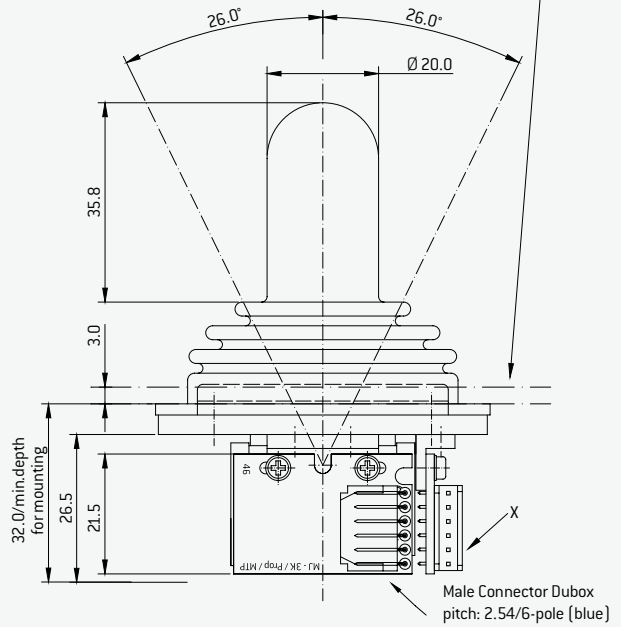
## MJ-3K MTP ANALOGUE

Type Item number	MJ-3K 55 MTP x: 0 y: 2K5 1-0-1 Dubox 6-pin E060200xxx (1-axis)	Type Item number	MJ-3K MTP xyz: 2.5k 1-0-1 Dubox 6-pin E060200401 (3-axis)
Type Item number	MJ-3K 55 MTP xy: 2K5 1-0-1 Dubox 6-pin E060200012 (2-axis)	Type Item number	MJ-3K 55 MTP xy: 2.5k 1-0-1 DS Dubox 6-pin E060200014 (2-axis)
Type Item number	MJ-3K 65 MTP x:0 y: 2.5k 1-0-1 Dubox 6-pin E060200xxx (1-axis)	Type Item number	MJ-3K 65 MTP xy: 2.5k 1-0-1 DS Dubox 6-pin E060200027 (2-axis)
Type Item number	MJ-3K 65 MTP xy: 2K5 1-0-1 Dubox 6-pin E060200491 (2-axis)	Connection cable Item number	Dubox 6-pin LiYv 0.14mm <sup>2</sup> 500mm Z301000500

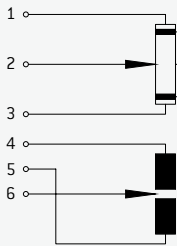
**DRAWINGS FOR MJ-3K MTP 55**



Assembly into Housing from Inside/Screw Head outside of housing  
If thickness of mounting panel is 3 mm: Use Screw M3 x 10 mm/Center Hole D = 49,0

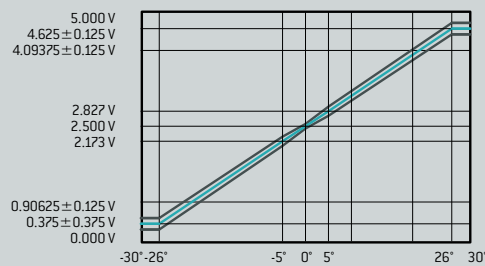


**CONNECTOR PIN ASSIGNMENT/DIAGRAM**



Connect. Resistance: 2.5 kOhm ± 20 %  
Analogue band: 7.5 % – 92.5 %, Utotal ± 3 %  
Medium Voltage: 50 % Utotal ± 2.5 %  
Linearity: ± 3 %  
Contact Resistance Switch: < 1 kOhm  
Life CP/PCB: > 5 Mio Cycles

**OUTPUT CHARACTERISTIC POTENTIOMETER**



**OUTPUT CHARACTERISTIC DIRECTIONAL CONTACTS**

