

# ANALOGUE 1- AND 2-AXIS INDUSTRIAL JOYSTICKS MJ-2K CP OM



MJ-2K series joysticks with IP66 protection and a special lamellar gaiter seal provide a compact and robust human-machine interface. Analogue sensor elements using robust conductive plastic contact technology ensure high-precision control. 1- and 2-axis versions with galvanically isolated directional contacts provide reliable motion control for construction equipment, in mobile hydraulics, for heavy machinery and in marine technology.

## FEATURES

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

## APPLICATIONS

- Aerial work platforms
- Radio remote controls
- Forklift trucks
- Hydraulics
- Measuring machines
- Medical technology
- Microscopy



## ELECTRICAL SPECIFICATIONS

Resistance value	5k $\Omega$ *
Resistance tolerance	$\pm 20\%$
Deflection angle, el.	$> \pm 26^\circ$ *
Independent linearity	$\pm 2\%$
Zero position switch per axis	$< \pm 3^\circ$ open
Load capacity/axis	0,2 W at 40°C
Operating voltage (VCC)	Max. 30 VDC
Contact current	$< 10 \mu A$
Max. contact current	1 mA in case of malfunction
Insulation resistance	10 G $\Omega$ at 500 VDC
Dielectric strength	2000 V

## MECHANICAL SPECIFICATIONS

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

Deflection angle, mech.	See drawing
Operating force	5 N typically
Gate shape	Square, soft cross guide
Wiper zero position	$\pm 1^\circ$
Impact strength	100 N
User control	Handle with Gaiter
Mounting	Outside mounting (OM)

## AMBIENT CONDITIONS

Storage temperature	$-40^\circ C \dots +85^\circ C$
Operating temperature	$-25^\circ C \dots +70^\circ C$
Protection class	IP 66

## MATERIALS

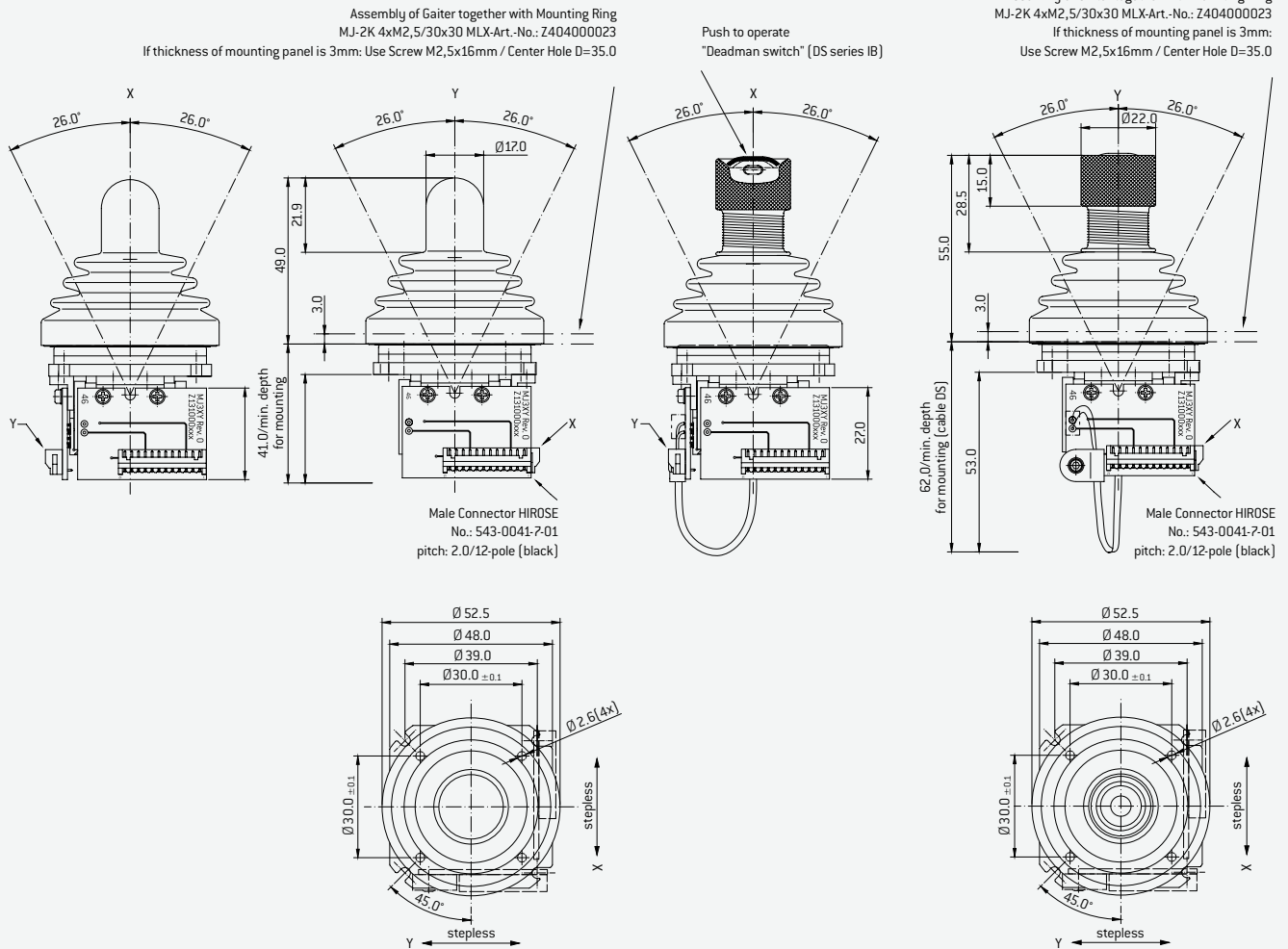
Base	Aluminium
Bearing	Stainless steel/plastic
Electrical connection	12-pin Hirose plug
Mounting	M2.5x16 with 3 mm mounting plate, mounting ring. Select screw length to match plate thickness.

## MJ-2K CP (CONDUCTIVE PLASTIC) ANALOGUE OM

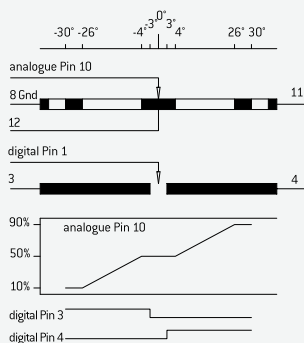
Type Item number	MJ-2K X:0 Y:5k MC 1-0-1 OM Hirose 12-pin E060200412	Type Item number	MJ-2K XYZ: 5k MC 1-0-1 OM Hirose 12-pin E060200380
Type Item number	MJ-2K XY: 5k MC 1-0-1 OM Hirose 12-pin E060200394	Connection cable Item number	MJ-2K Hirose 12-pin (ws) LiYv 0.14mm_ 500mm Z301000512
Type Item number	MJ-2K XY:5k MC1-0-1 DS series IB OM Hirose 12-pin E060200395		

## DRAWINGS FOR MJ-2K CP XY OM

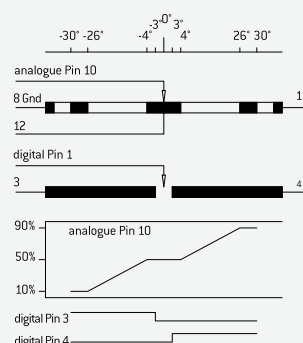
## DRAWINGS FOR MJ-2K CP XY OM BUTTON



## CONNECTOR PIN ASSIGNMENT / DIAGRAM



Connect. Resistance 5 kOhm  $\pm 20\%$   
Analogue band 10% – 90% Utotat  $\pm 3\%$   
Medium Voltage 50% Utotat  $\pm 2,5\%$   
Linearity =  $\pm 2\%$   
Contact Resistance Switch < 1 kOhm  
Life CP/PCB > 5 Mio Cycles



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Pin1  
9 Deadman Switch

## OPTIONS/ACCESSORIES

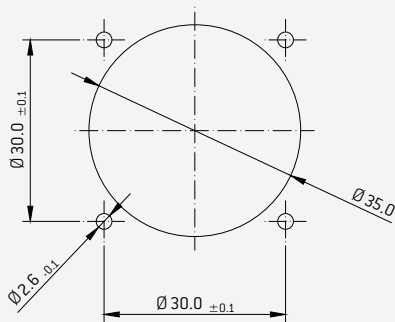
Description	Short form	Description	Short form
Cross gate	CG	Without direction guide	NG
Soft Control	SC	Mechanical detents	1 - 4 steps with end stops, free combination
[60% of standard operation force, not in combination with mechanical detents]		Outside mounting	OM
Digital to ground switching	GND	Electrical contact	Solder connection
Push Button in the grip	DS [series IB]		

# MOUNTING HOLES FOR MJ-2K AND MJ-3K



Mounting, Technology and Options

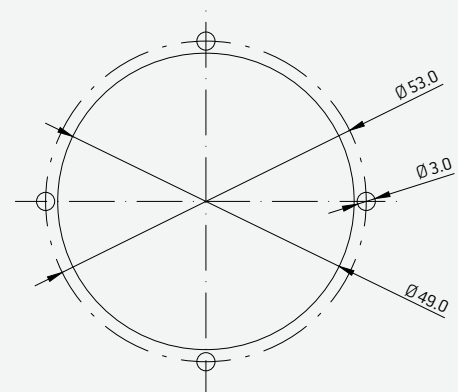
## MOUNTING HOLE MJ-2K OM



Dimension Tolerance  
DIN ISO 2768-m

If thickness of mounting panel/housing is 3mm thickness, following screw is to be used: Mounting Screw Type for example: M2,5x16 DIN7985 (4x) /H/Z/TX  
Material: Steel galvanized/A2 (stainless). Length of screw has to be changed accordingly to mounting panel/housing thickness, to avoid damages to the gaiter!

## MOUNTING HOLE MJ-3K



Dimension Tolerance  
DIN ISO 2768-m

If thickness of mounting panel/housing is 3mm thickness, following screw is to be used: Mounting Screw Type for example: M3x10 DIN7985 (4x) /H/Z/TX  
Material: Steel galvanized/A2 (stainless). Length of screw has to be changed accordingly to mounting panel/housing thickness.

KEY TECHNOLOGY / OPTIONS	SHORT FORM
<b>Technology</b>	
Conductive plastic	CP
Membrane sensor	MTP
Hall-Effect	Hall
<b>Options</b>	
Square platform	MJ-2K
Circular platform	MJ-3K
Grip height 55 [only MJ-3K]	55
Grip height 65 [only MJ-3K]	65
Center tap	MC
Dead man switch outside	DS series IB
Dead man switch (microswitch-inside)	DS
Cross gate	CG
Gaiter assembled from "outside" with respective mounting ring; IP 66	OM
Brake stepless – Put and Stay	BRS
Brake respective step – max. 2-0-2	BR 2-0-2
Circular deflection: 19,5°	3C
Soft control	SC
No guiding	NG