

Data Sheet for Joysticks

Hand Joystick

Series 871



- Medium-sized heavy-duty hand joystick of the highest quality with ergonomic cobra knob
- Contactless sensor technology (Hall sensors)
- Multifunction knob for individual configuration with buttons, rockers, dead man's switch and thumb joystick
- Special configurations with up to 5 axes possible
- Low installation depth of <49 mm
- Lifespan of more than 5 million movements

The 871 series reaches a top level in terms of the quality of mechanics and electronics. Especially when used in demanding applications, such as mobile and special machines, influences such as vibrations as well as other harsh environmental influences act on the input devices. This is where the 871 series joysticks show their strengths. The Cobra knob can be customized: Specific functions (thumb joysticks, rockers, buttons, etc.) above and below the joystick head can be integrated. The ergonomic design enables fatigue-free operation and optimal accessibility of the additional functions is given.

Technical Data Joystick

Sensor	Hall Sensor
Supply Voltage	5.0 ± 0.5 VDC transient-free
Output Voltage	0.5..4.5 V (redundant signals available)
Independent Linearity Tolerance	±3% full scale
Load Resistance	> 10 kOhm
Insulation Resistance	Over 1000 MOhm at 500 VDC
Dielectric Strength	1 minute at 500 VAC
EMC Durability	100 V/m (80 MHz ~ 1 GHz 1kHz sine-wave 80% AM modulation)
ESD Durability	±8 kV Contact / ±15 kV Aerial Discharge
Mechanical Life Expectancy	5 million cycles
Protection class above the panel*	Standard IP40, higher protection class on request
Mech. Angle of Movement	±20° (±2.5°) from center
Operation Force X- & Y-Axis / Z-Axis	3 - 4.5 N / 10 - 25 mN*m (rockers)
Vibration	10~55 Hz 98m/s ²
Shock	294 m/s ² (30G)
Operating Temperature	-20°C..+60°C
*Depending on configuration	

Wire colours Joystick

Function	Colour	Function	Colour	Function	Colour
Ground X & Y	Black	Signal X-Axis	White	Signal X-Axis Dual Output	Blue
Supply Voltage X & Y	Red	Signal Y-Axis	White	Signal Y-Axis Dual Output	Blue
		Signal Z1	White	Signal Z1 Dual Output	Blue
		Signal Z2	White	Signal Z2 Dual Output	Blue

Each product comes with individually labelled wires, please compare prior to installation.

Lead wires AWG27, length ca. 300 mm.

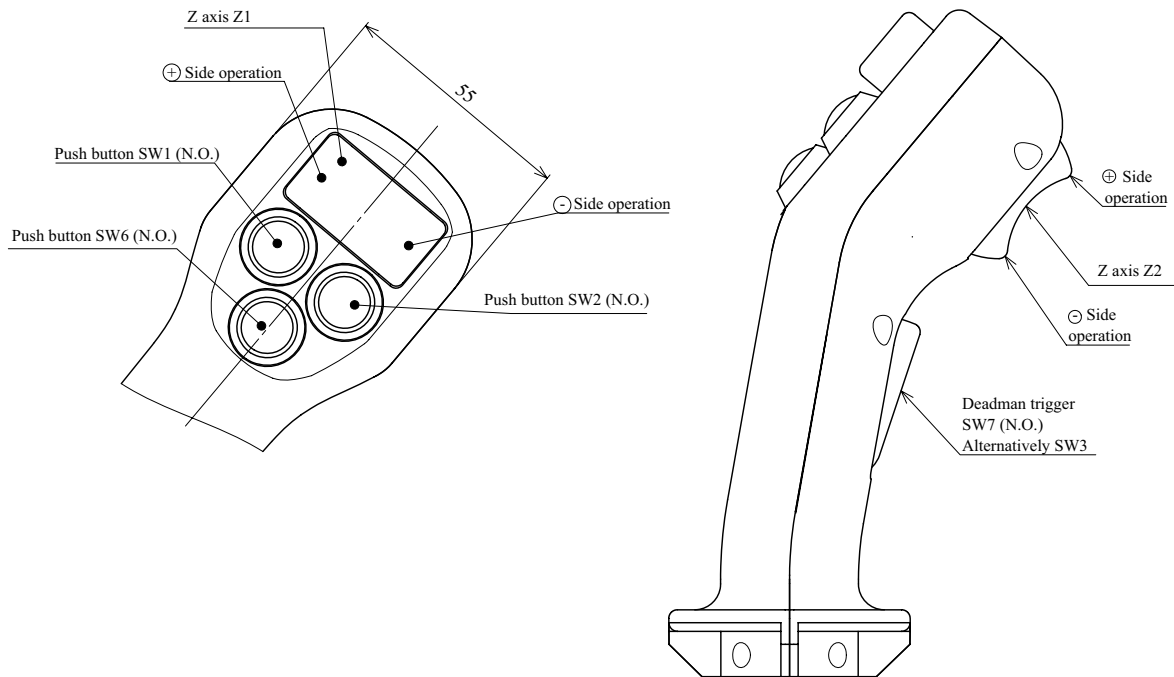
Please contact us for specific connector and cable length requirements.

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Configuration (Example)



Configuration options of the cobra knob for special projects

- Up to 3 proportional rockers can be installed, whereby the joystick can be equipped with up to 5 axes. For this purpose, Z-axes Z1, Z2 and an additional Z3 axis are installed instead of the SW1 and SW2 buttons.
- Variants with a 2-axis thumb joystick built into the head are possible, if rocker Z1 and buttons SW1, SW2 and SW6 are not required.
- The dead man's switch can also be installed at the position of the Z-axis Z2
- Instead of the Z-axis Z1, two additional buttons SW4 and SW5 can be installed

Please contact us for technical details and minimum order quantities for these special options.



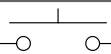
Technical Data Pushbuttons & Trigger

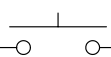
Pushbuttons SW1, SW2, SW3, SW6

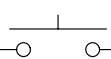
Operating Characteristics	Momentary (Normally Open)
Rating	100 mA, 50 VDC
Dielectric Strength	1 minute at 1000 VAC
Insulation Resistance	Over 1000 MOhm at 500 VDC
Expected Life	500.000 operations

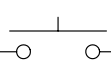
Trigger SW7


Operating Characteristics	Momentary (Normally Open)
Rating	100mA, 12VDC
Dielectric Strength	1 minute at 500 VAC
Insulation Resistance	Over 100 MOhm at 500 VDC
Expected Life	300.000 operations

SW1 (Yellow)  (Yellow)

SW2 (Gray)  (Gray)

SW3 (White)  (White)

SW6 (Black)  (Black)

SW7 (Red)  (Red)

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Order Code

Description	Selection: standard= black/bold , possible options= <i>grey/italics</i>						
Series	871						
Axes/Functions*:							
2 Axes		2					
3 Axes, with Rocker Z1		3					
3 Axes, with Rocker Z2		4					
4 Axes, with Rockers Z1 + Z2		6					
4 Axes, with Thumb Joystick		7					
Sealing:							
Rubber Boot			5				
Return Mechanism:							
Spring Return to Center Position				1			
Handles:							
Cobra					1		
Cobra with Deadman Trigger SW7					2		
Cobra with Pushbutton SW3					3		
Limiters:							
Square						Q	
Output Signals:							
0.5 to 4.5 V, single output							2
0.5 to 4.5 V, dual output parallel							P
0.5 to 4.5 V, dual output inverse							X
Pushbuttons:							
None							0
1 Pushbutton SW6							1
2 Pushbuttons SW1, SW2							2
3 Pushbuttons SW6, SW1, SW2							3

*Special variants see page 2

For ongoing demand we can implement customer-specific solutions for you

There are far more individual configuration options available for customer-specific projects than this order code shows. Page 2 details some of these options for configuring the cobra pommel.

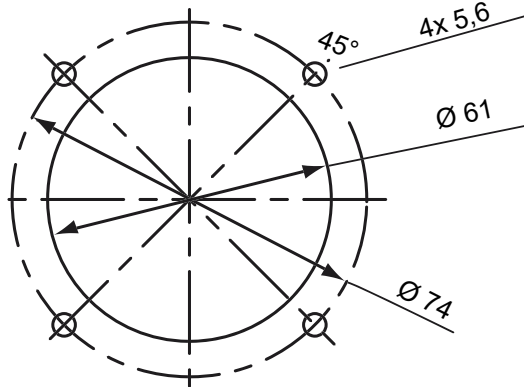
In addition, the following adjustments can be made:

- Customized cable assemblies
- Adjustment of the return-to-center force in the middle position by means of stronger or weaker springs
- If Hall sensors are not desired, the 871 joystick's cobra knob can also be mounted on a joystick base with potentiometric sensors (see 826 and 890 series)

In order to select the best possible configuration of these joysticks from a large number of possible configurations for your needs, please contact us.

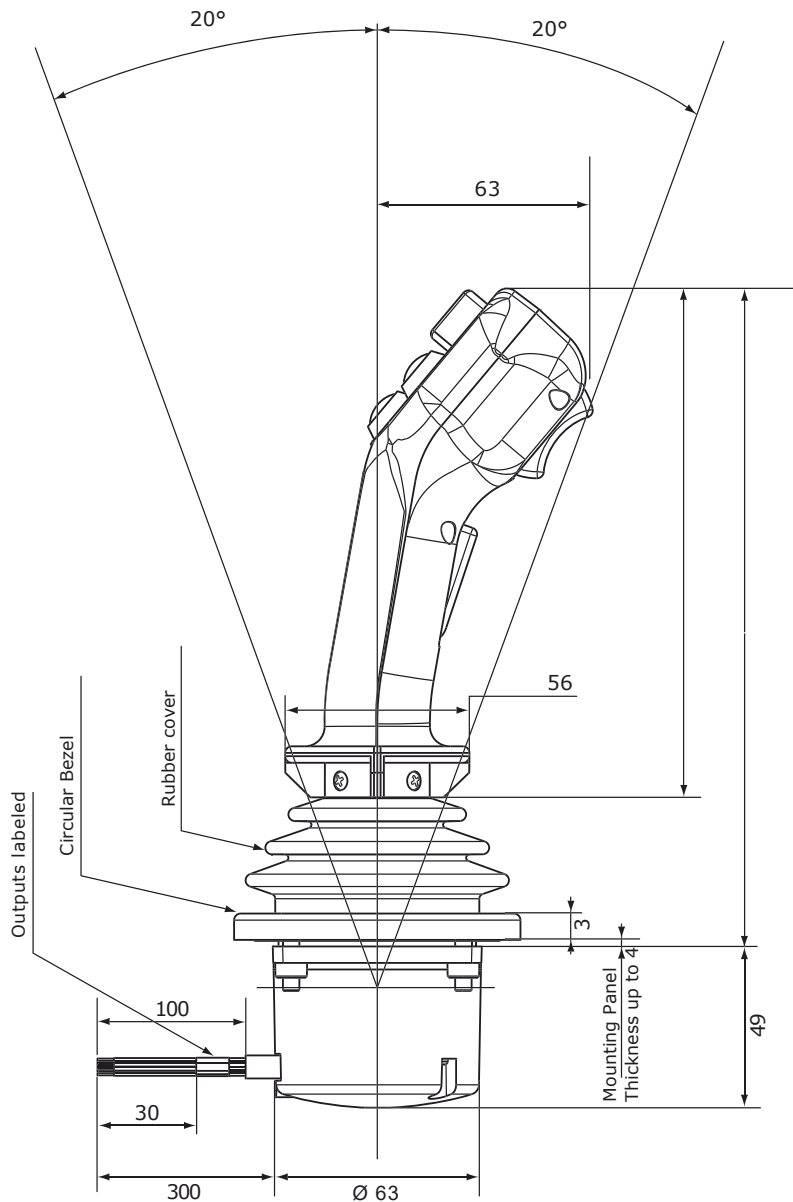
Panel Cut-Outs

Drop-In Installation



Dimensions in mm.

Drawing



Dimensions in mm.