

Data Sheet for Joysticks

Hand Joystick

Series 871



- High-quality, medium-size, heavy-duty handheld joystick with ergonomic Cobra handle
- 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 offers the highest levels of mechanical and electronic quality. In demanding applications, such as mobile and special-purpose machinery, input devices are exposed to vibration and other harsh environmental conditions. This is where the 871 Series Joysticks really excel. The Cobra handle can be customised. Specific functions, such as thumb joysticks, rockers and buttons, can be integrated above and below the joystick head. The ergonomic design enables fatigue-free operation and optimum access to these additional functions.

Technical Data Joystick

Sensor	Hall Sensor
Supply Voltage	5.0 ± 0.5 VDC transient-free
Output Voltage	0.5 to 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 (IEC 61000-4-2)
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 to 4.5 N / 10 to 25 Nmm (rockers)
Vibration	10~55 Hz 98 m/s ²
Shock	294 m/s ² (30G)
Operating Temperature	-20°C to +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.

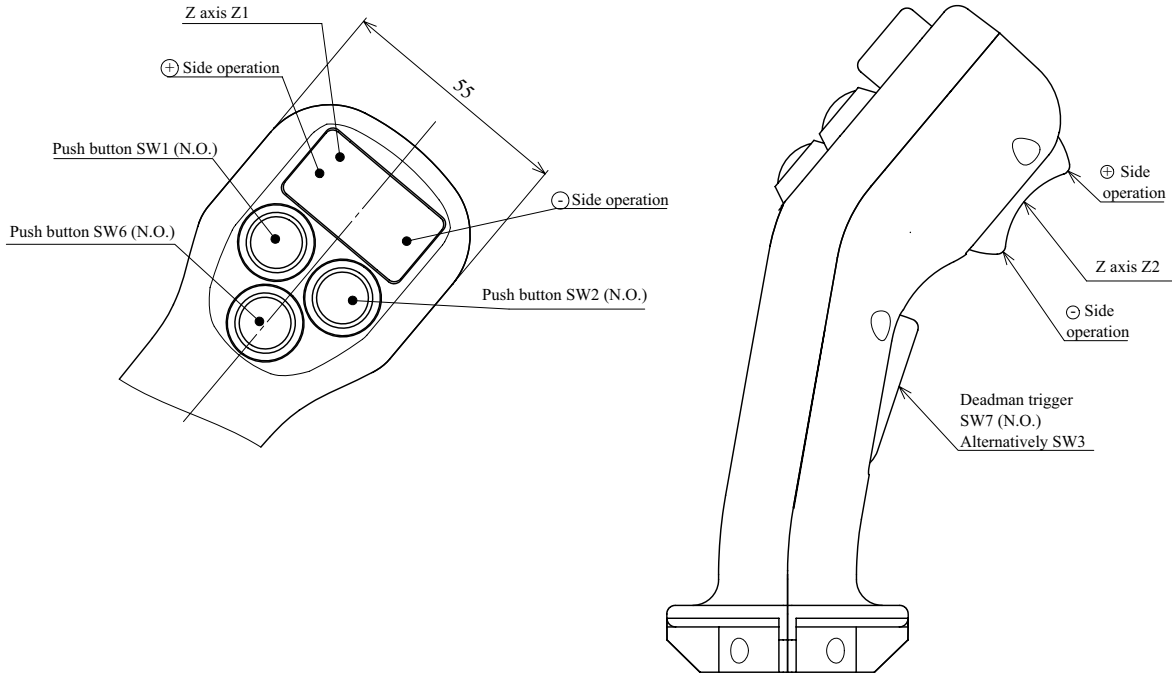
Please contact us for specific connector and cable length requirements.

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Configuration (Example)



Cobra joystick configuration options for special projects

- Up to 3 proportional rockers can be installed, giving the joystick up to 5 axes. This is done by replacing the SW1 and SW2 buttons with Z1, Z2 and an additional Z3 axis.
- 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 Z axis Z2 position.
- Two additional buttons SW4 and SW5 can be installed instead of Z-axis Z1.

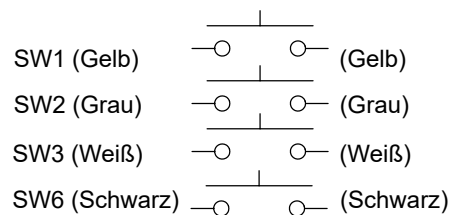
Please contact us for technical details and minimum order quantities for these special options.



Technical Data Pushbuttons & Trigger

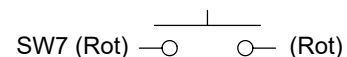
Pushbuttons SW1, SW2, SW3, SW6

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



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Order Code

Description	Selection: standard=black/bold , possible <i>options=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 (layout see page 2)							
Cobra					1		
Cobra with Deadman Trigger SW7					2		
Cobra with Pushbutton SW3					3		
Limiter:							
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 (layout see page 2)							
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 many more individual configuration options available for custom projects than this ordering code indicates. Some of these options for configuring the Cobra pommel are detailed on page 2.

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)

To select the best possible configuration of these joysticks for your needs from a wide range of possible configurations, please contact us.

Limiters



Square - Option "Q"

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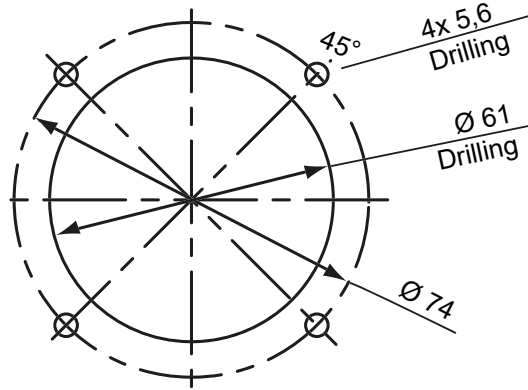


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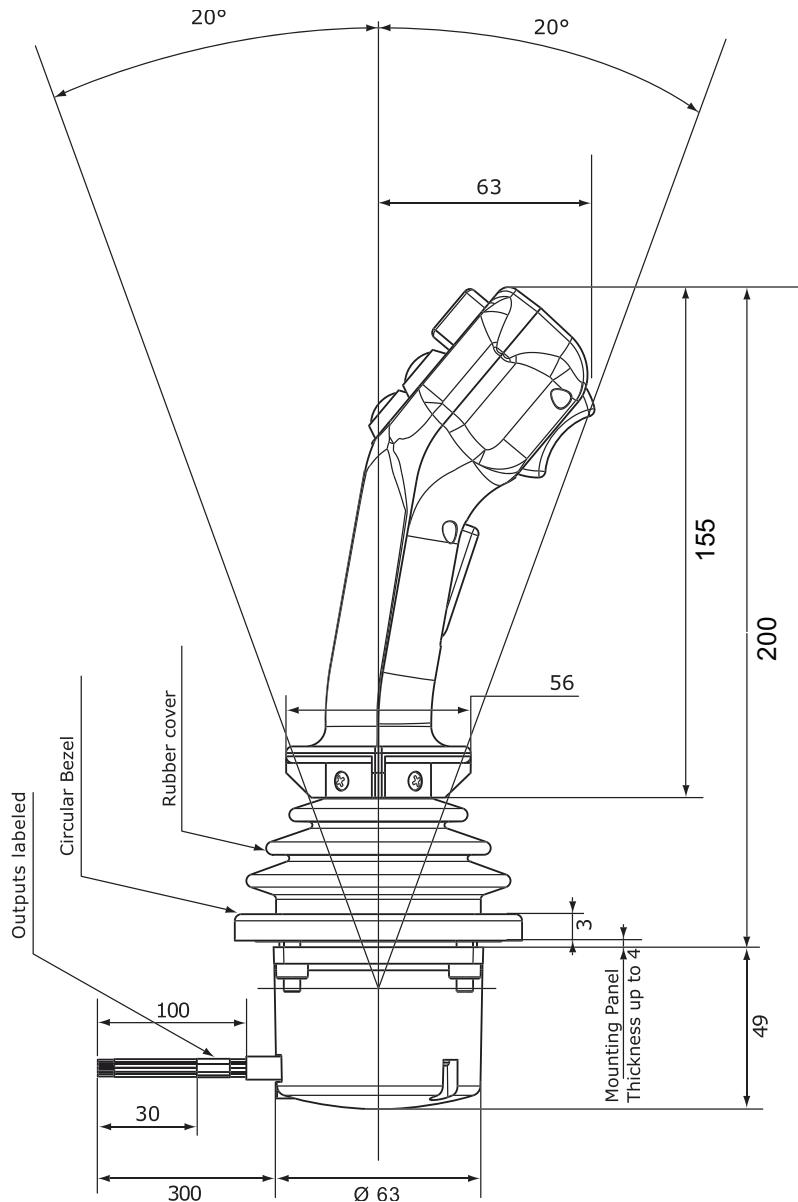
Panel Cut-Outs

Drop-In Installation



Dimensions in mm.

Drawing



Dimensions in mm.