

# Data Sheet for Joysticks

Hand Joystick

Series 891



- Cobra head ergonomic multifunction handle
- 1 to 4 Axes
- Optional up to six micro switches, plus four pushbuttons and two switches

The 891 series offers an outstanding ergonomic handle and high quality mechanism. The Cobra head-like handle can be configured with pushbuttons, switches and a trigger enabling many different deflection-dependent operations according to your needs.

## Technical Data Joystick

Angle of Movement X-, Y-Axis	±22..±26° from center
Angle of Movement Z1-, Z2-Axis	15° ±4 °
Vibration	10 G
Shock	30 G
Length of Wires	300 mm
Return to Center Accuracy X / Y	±3%
Operating Force	2..12 N
Expected Life	10 million cycles
Operating Temperature	-20..+60°C
Weight (depending on configuration)	ca. 950 g

## Technical Data Pushbuttons

### Pushbuttons SW1, SW2, SW3, SW6

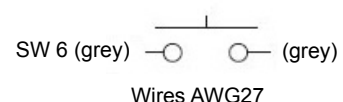
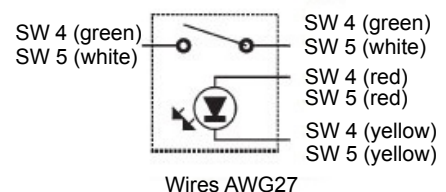
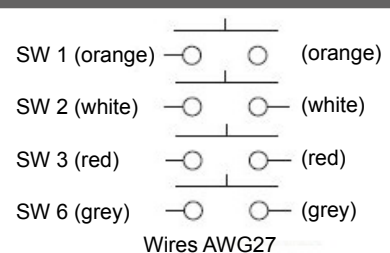
Operating Characteristics	ON when pushed (momentary)
Insulation Resistance	> 1.000 MOhm at 500 VDC
Expected Life	approx. 500.000 operations
Rating	50 VDC / 0,1 A
Dielectric Strength	1 minute at 1.000 VAC

### Pushbuttons SW4, SW5, illuminated

Operating Characteristics	Alternate type
Insulation Resistance	> 200 MOhm at 500 VDC
Expected Life	approx. 10.000 operations
Rating	30 VDC / 5 A
Rating LED	1,85 VDC / 20 mA

### Trigger SW7

Operating Characteristics	ON when pushed (momentary)
Insulation Resistance	> 100 MOhm at 500 VDC
Expected Life	approx. 100.000 operations
Rating	30 VDC / 100 mA
Dielectric Strength	1 minute at 600 VAC



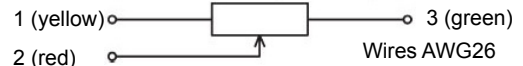
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## Technical Data Potentiometers X- / Y-Axis

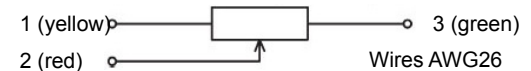
Total Resistance Value	10 kOhm $\pm 15\%$
Electrical Rotating Angle	44° $\pm 5^\circ$
Expected Life	approx. 5 million cycles
Power Rating	max. 0,2 W
Independent Linearity	$\pm 3\%$
Return to Center Accuracy	$\pm 1,5\%$



Only for joysticks 891 with bottom housing wires will be attached and fed to the outside.

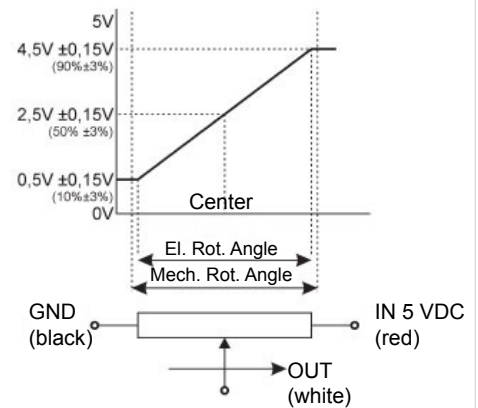
## Technical Data Potentiometers Z1, Z2

Total Resistance Value	10 kOhm $\pm 15\%$
Electrical Rotating Angle	30° $\pm 5^\circ$
Expected Life	approx. 2 million cycles
Power Rating	max. 0,2 W
Independent Linearity	$\pm 3\%$
Return to Center Accuracy	$\pm 3\%$



## Technical Data Hall Sensor Type H

Supply Voltage	5 VDC $\pm 10\%$
Current Consumption	approx. 6 mA
Output Voltage	0,5 .. 4,5 VDC
Impedance	> 100 kOhm
Independent Linearity	$\pm 3\%$
Temperature Drift Out	< $\pm 2,5\% U_{Out}$ FS
Temperature Drift Center	< $\pm 0,5\% U_{Out}$ FS
Dielectric Strength	1 minute at 250 VAC
Insulation Resistance	> 100 MOhm at 250 VDC
Operating Temperature	-20..+65 °C
Expected Life	approx. 5 million cycles



Note: Max. Voltage < 50VAC resp. < 75VDC, additionally max. power rating must be considered.

## Technical Data Micro Switches (activated by handle deflection)

Joysticks of Series 891 can be optionally supplied with micro switches. For each axis, up to 3 angles for activation of these switches are possible. The specification of suitable angles can be given by the customer. E.g. one variant could be: One switch for the detection of center position (Joystick at rest) plus additional positions at +10° and -10° on each axis.

	Angle Position (without / with housing)	Center Detection
Voltage, Current	50 VAC, 5 A / 30 VDC, 100 mA	50 VAC, 5 A
Expected Life approx.	200.000 / 100.000	200.000

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Order Code										
<b>Series</b>	891									
<b>Axes</b>										
1 Axis										1
2 Axes										2
3 Axes, with Rocker Z1										3
3 Axes, with Rocker Z2										4
4 Axes, with Rockers Z1 + Z2										6
<b>Rubber Boot</b>										5
<b>Spring Return to Center Position</b>										1
Without Spring Return										2
Friction Clutch with Center Detect Switch										5
Friction Clutch										6
<b>Handles</b>										
Cobra										1
Cobra with Trigger SW7										2
Cobra with Pushbutton SW3										3
No Trim Function (Standard)										1
With Trim Function (only w/ Pot and w/o housing)										3
<b>Sensors</b>										
Potentiometer F (X-/Y-Axis), PW30 (Z-Axis)										4
Hall Sensors (X-/Y-Axis), PW30 (Z-Axis)										H
<b>Housing</b>										
Without Housing										0
With Housing										1
<b>Limiters</b>										
Round (Standard)										1
Square										2
„L“-Shape										3
Single Axis Y										6
Single Axis X										7
Plus Shape „+“										9
Without Center Detecting Switch										0
Center Detect X-/Y-Axis										1
Position Switch X-/Y-Axis ON at $\pm 5^\circ$ Deflection										2
Position Switch X-/Y-Axis ON at $\pm 5^\circ$ Deflection & Center Detecting Switch										3
<b>Pushbuttons</b>										
None										0
1 Pushbutton SW6										1
2 Pushbuttons SW1, SW2										2
3 Pushbuttons SW6, SW1, SW2										3
<b>Switches</b>										
None										0
1 Switch SW4										1
2 Switches SW4, SW5										2

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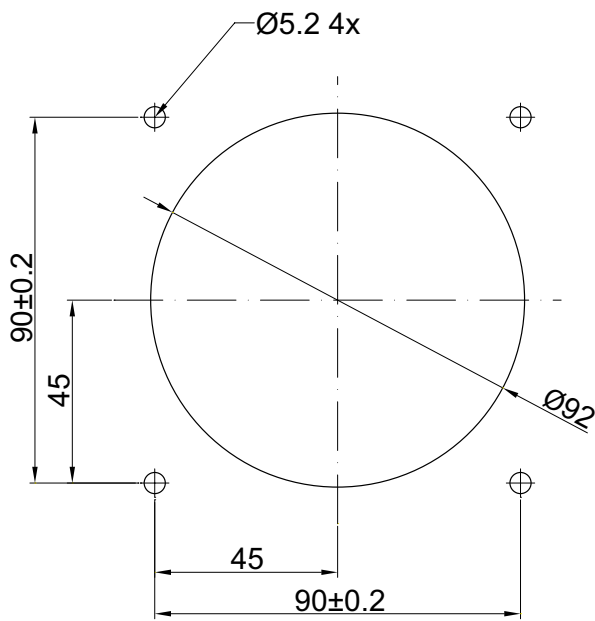
Series 891

For higher quantities or on-going demand, additional options are available

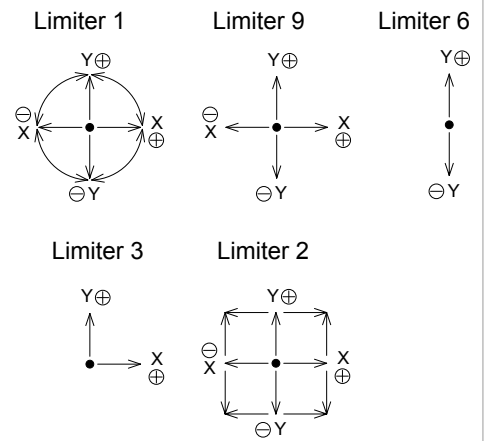
For example:

- Customer-specific wiring

## Mounting Cut-Out and Orientation of Limiters

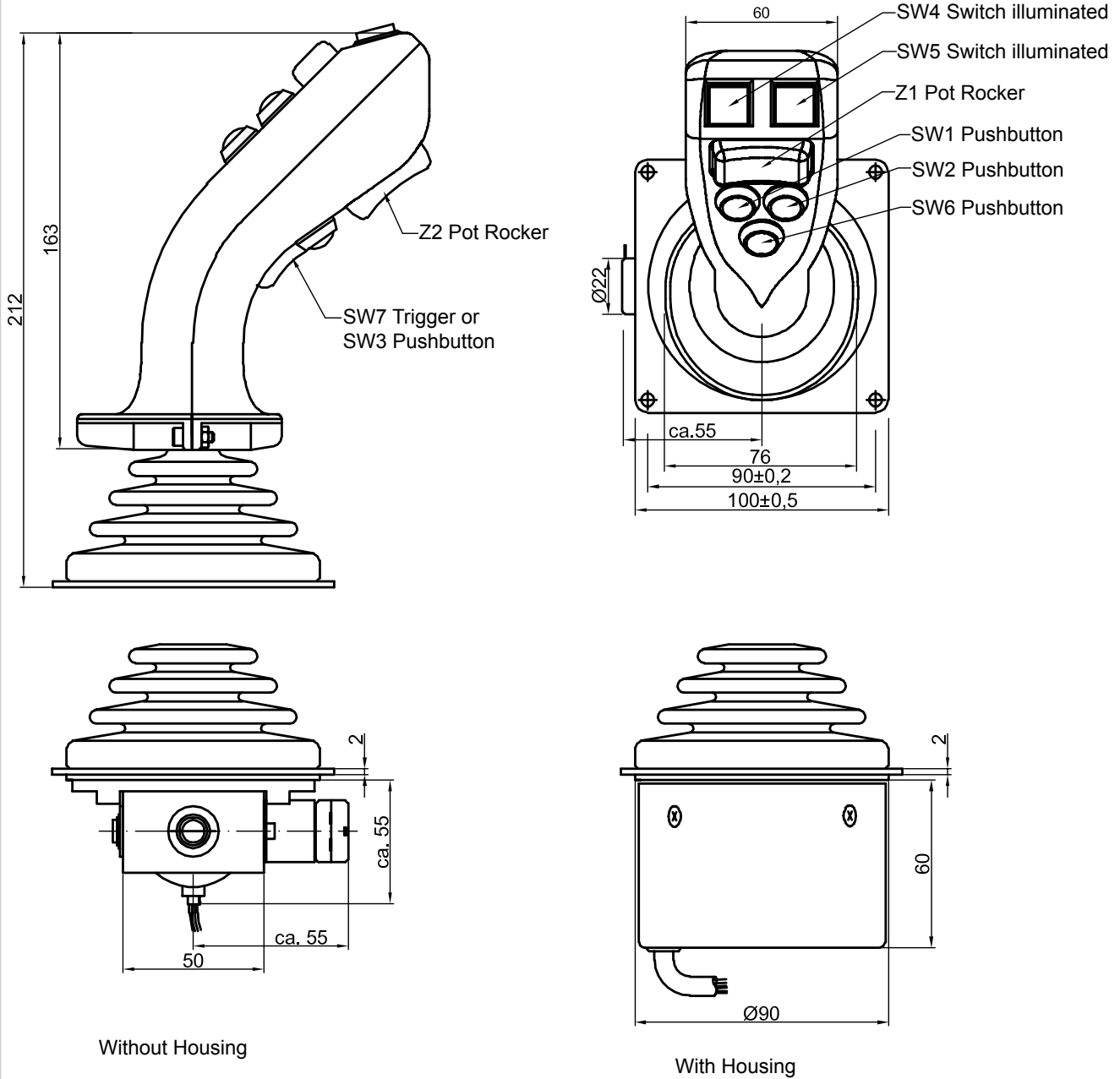


### Orientation of Limiters



All Dimensions in mm

### Technical Drawings



All Dimensions in mm