

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.

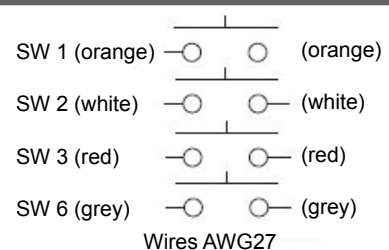
Technical Data Joystick

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

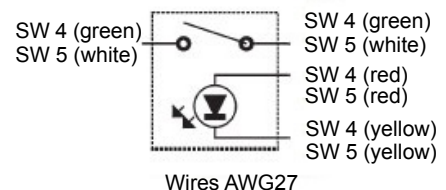
Pushbuttons SW1, SW2, SW3, SW6

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



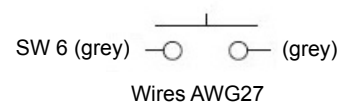
Pushbuttons SW4, SW5, illuminated

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



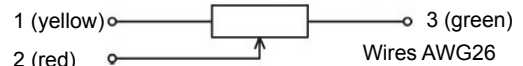
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Technical Data Potentiometers X- / Y-Axis

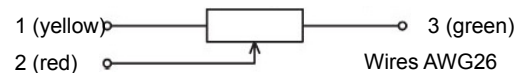
Total Resistance Value	10 kOhm $\pm 15\%$
Electrical Rotating Angle	44° $\pm 5^\circ$
Expected Life	approx. 5 million cycles
Power Rating	max. 0,2 W
Independent Linearity	$\pm 3\%$
Return to Center Accuracy	$\pm 1,5\%$



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

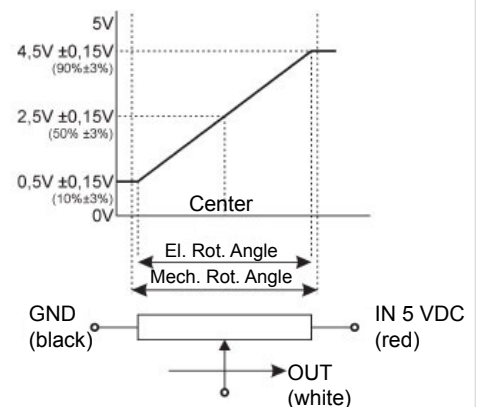
Technical Data Potentiometers Z1, Z2

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										
Series	891									
Axes										
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
Rubber Boot										5
Spring Return to Center Position										1
Without Spring Return										2
Friction Clutch with Center Detect Switch										5
Friction Clutch										6
Handles										
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
Sensors										
Potentiometer F (X-/Y-Axis), PW30 (Z-Axis)										4
Hall Sensors (X-/Y-Axis), PW30 (Z-Axis)										H
Housing										
Without Housing										0
With Housing										1
Limiters										
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
Pushbuttons										
None										0
1 Pushbutton SW6										1
2 Pushbuttons SW1, SW2										2
3 Pushbuttons SW6, SW1, SW2										3
Switches										
None										0
1 Switch SW4										1
2 Switches SW4, SW5										2

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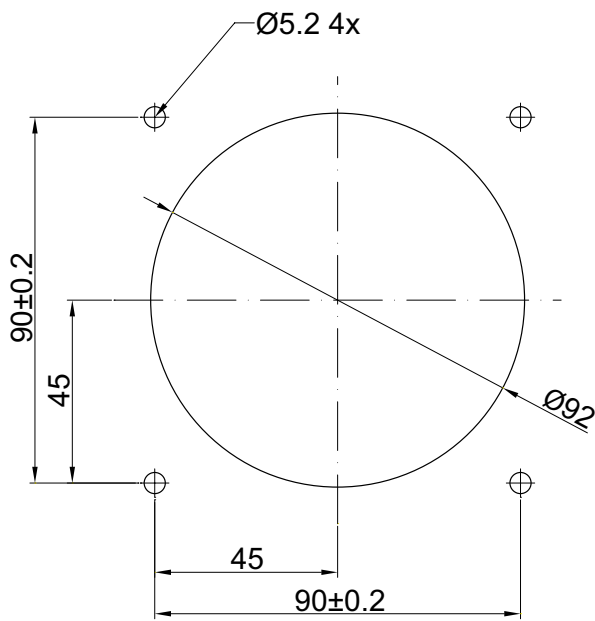
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For higher quantities or on-going demand, additional options are available

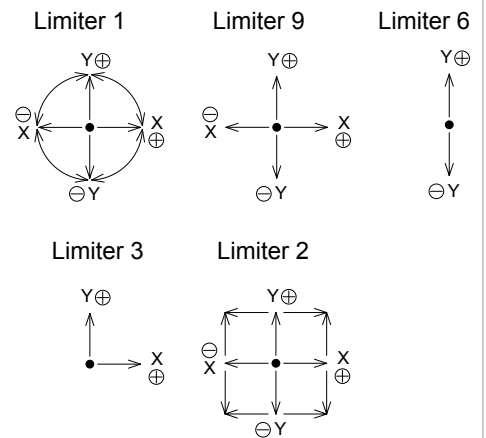
For example:

- Customer-specific wiring

Mounting Cut-Out and Orientation of Limiters

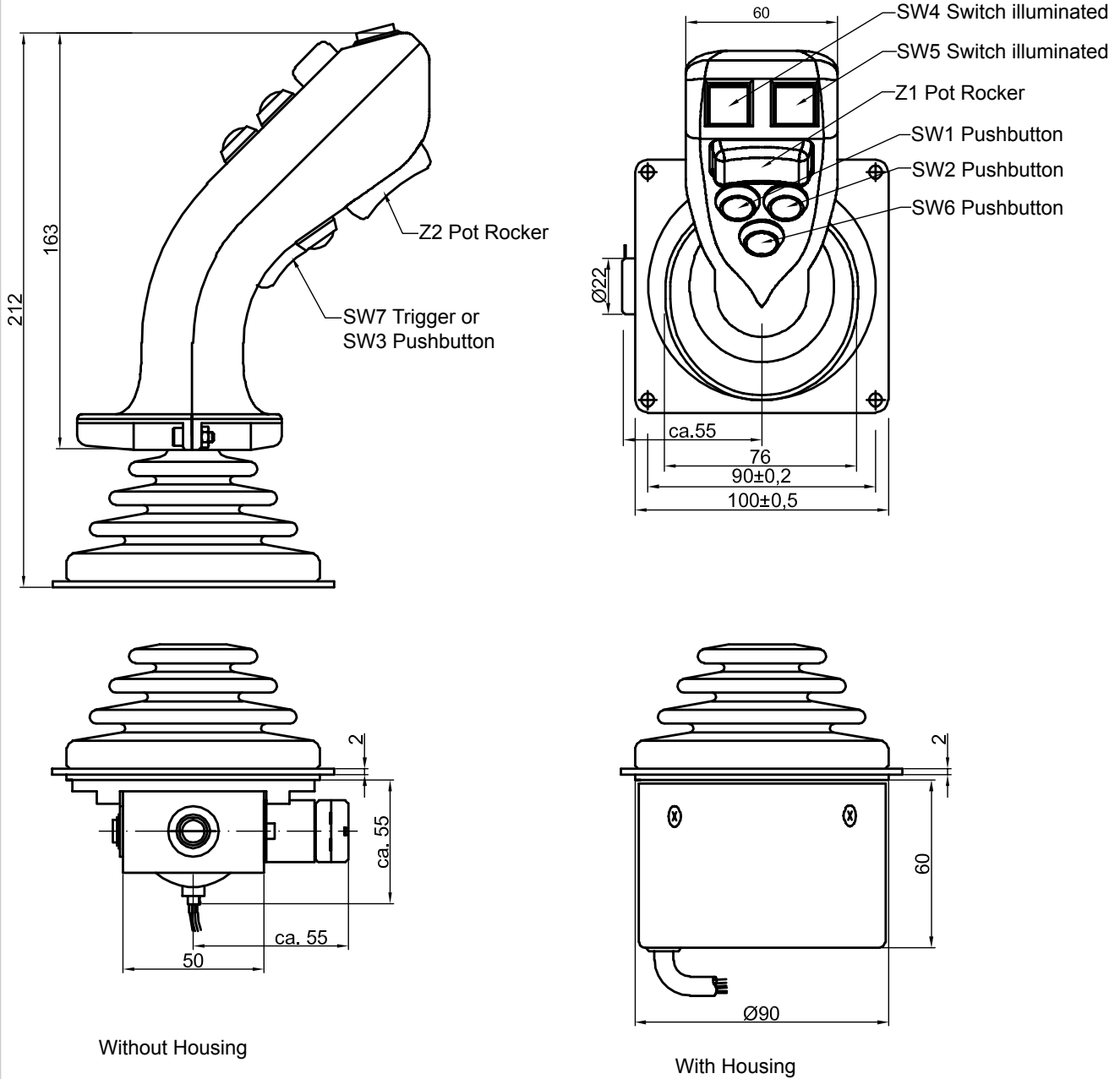


Orientation of Limiters



All Dimensions in mm

Technical Drawings



All Dimensions in mm