

Data Sheet for Joysticks

Hand Joystick

Series 890



- Potentiometer or Hall Sensors
- IP65
- Spring Return to Center or Friction Clutch
- Center Detect and up to 6 Microswitches
- Pushbutton or Rocker inside Handle

Joysticks of the 890 series are often being used with cranes and construction vehicles. Besides the very robust mechanism optionally available switching features and further customer-specific solutions are contributing to the success of the 890 series.

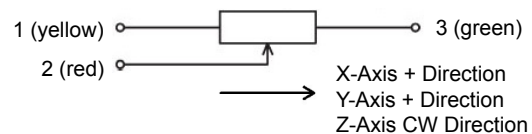
Technical Data Joystick

Sensor	Potentiometer or Hall Sensor
Expected Life	typ. 5 million cycles
Angle of Movement X-, Y-Axis	±22° .. ±26° from center
Angle of Movement Z-Axis	±45° .. ±50°
Return to Center Accuracy X/Y	±2°
Operating Force X-, Y-Axis	2..12 N
Operating Force Z-Axis	0,02..0,085 Nm
Protection Class	IP65 (above panel)
Vibrations	10..55 Hz 98 m/s ²
Shock	294 m/s ²
Operating Temperature	-20°C .. +65°C
Weight	ca. 650 g (2 Axes), ca. 750 g (3 Axes)

Technical Data Potentiometer

	X- & Y-Axis Type F	Z-Axis Type D
Technology	Conductive Plastic	Conductive Plastic
Bearing	Sleeve Bearing	Sleeve Bearing
Resistance	10 kOhm	10 kOhm
Resistance Tolerance	±15%	±15%
Independent Linearity Tolerance	±3% full-scale	±3% full-scale
Max. Current / Sensitivity V _{out}	1 mA	1 mA
Power Rating at 70°C	0,2 W	0,3 W
Electrical Rotating Angle	44°	90°
Expected Life (cycles)	typ. 5 million	typ. 5 million

890 Joysticks with bottom housing will be provided with wires AWG26, length ca. 300 mm.



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

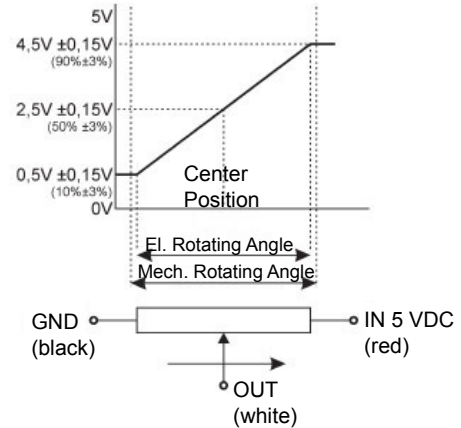
Data Sheet for Joysticks

Hand Joystick

Series 890

Technical Data Hall Sensor

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



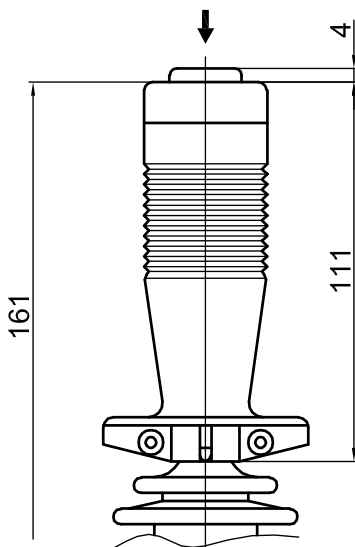
890 Joysticks with bottom housing will be provided with wires AWG26, length ca. 300 mm.

Technical Data Microswitches

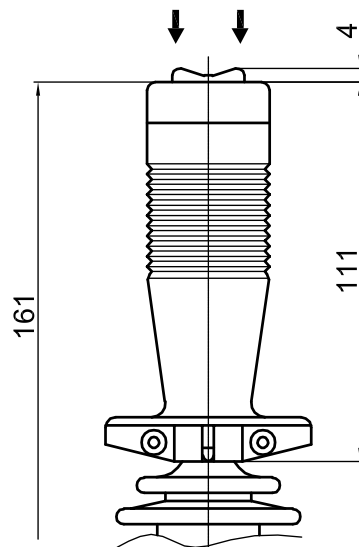
Joysticks of series 890 can be provided with directional switches for X- and Y-axis. For each axis up to three switching positions can be defined. Deflection angles can be specified by the customer. For example, one microswitch can be installed for detecting the handle resting at center position (or when moved away from center), and additional microswitches at $\pm 10^\circ$ on each axis detecting the degree of deflection for further switching or control scenarios.

	Pushbutton Handle	Microswitches (w/o / with Housing)	Microswitch at Center
Voltage, Current	50 VAC, 10 A	50 VAC, 5 A (30 VDC, 100 mA)	50 VAC, 5 A
Expected Life (typ.)	300.000 actions	200.000 (100.000) actions	200.000 actions

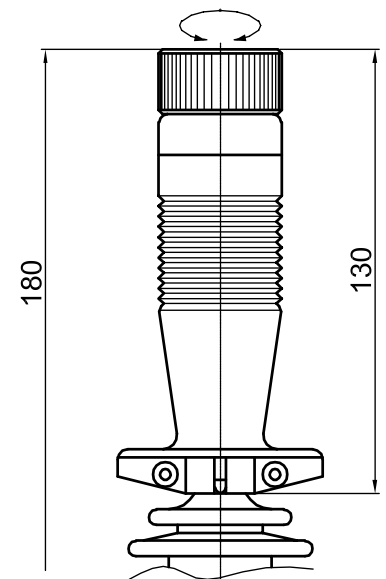
Handle 6 with Pushbutton



Handle A with Rocker



Handle 8 with 3. Axis



Dimensions in mm

Data Sheet for Joysticks

Hand Joystick

Series 890

Order Code

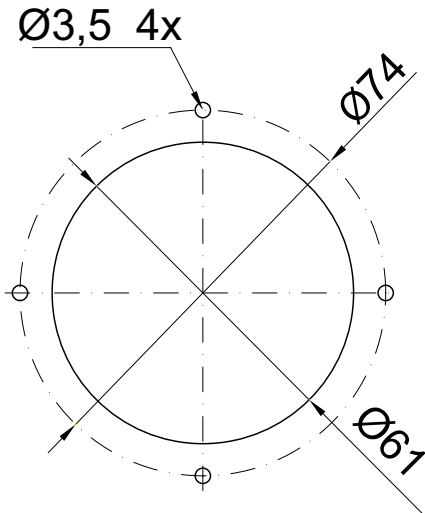
Series	890																			
Axes																				
1 Axis																				
1 Axis with Pushbutton																				
2 Axes																				
2 Axes with Pushbutton																				
2 Axes with Rocker																				
3 Axes																				
Rubber Boot																				
Spring Return to Center Position																				
Without Spring Return																				
Friction Clutch with Center Detect Switch																				
Friction Clutch																				
Handles																				
Stock Grip, for 1 or 2 Axes																				
Stock Grip, with Pushbutton, for 1 or 2 Axes																				
Stock Grip, with Rocker, for 1 or 2 Axes																				
Handle incl. 3rd Axis																				
No Trim Function																				
Sensor																				
Potentiometer, Type F X-/Y-Axis, Type D Z-Axis																				
Hall Sensor X-/Y-Axis (Type D Z-Axis if applicable)																				
Housing																				
Without Housing																				
With Housing																				
Limiters																				
Round (Standard)																				
Square																				
„L“-Shape																				
Single Axis Y																				
Single Axis X																				
Plus Shape „+“																				
Microswitches (*)																				
None																				
Center Detect X & Y (with Handle „1“)																				
2 Position Switches, 1 Axis, ON at $\pm 5^\circ$																				
2 Position Switches, 1 Axis, ON at $\pm 15^\circ$																				
2 Position Switches per axis, 2 Axes, ON at $\pm 15^\circ$ each																				
2 Position Switches, 1 Axis, ON at $\pm 10^\circ$																				
Center Detect, 1 Axis (Handle „6“)																				
Center Detect, 2 Axes (Handles „6, 8, A“)																				
2 Position Switches, 1 Axis, ON at $\pm 5^\circ$																				
2 Position Switches per axis, 2 Axes, ON at $\pm 5^\circ$																				
Center Detect & Position Switches, 2 Axes, ON at $\pm 5^\circ$, Handles „6, 8, A“																				
Center Detect & Position Switches, 1 Axis, ON at $\pm 5^\circ$, Handles „6, 8, A“, w/o Housing																				
2 Position Switches / axis, 2 Axes, ON at \pm max. Deflection																				

(*) Does your application require a joystick microswitches for Center Detect and/or for the detection of specific deflection angles? Please contact us. Due to the large number of different possible combinations of microswitches, we would recommend personal consultation in order to define the best solution optimally suited to your needs.

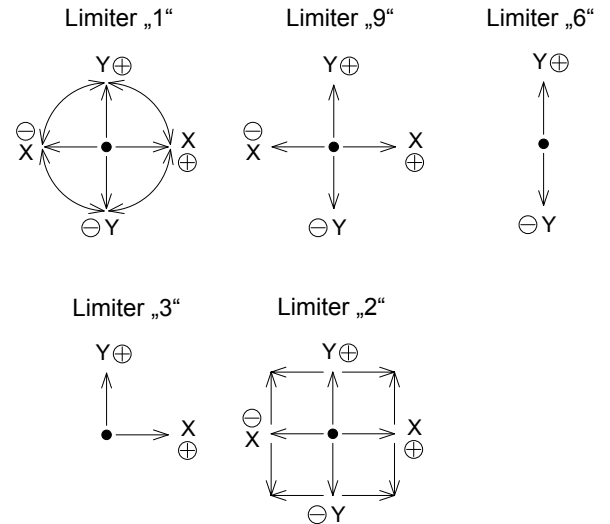
For higher quantities or on-going demand, additional options are available

Mounting Cut-Out and Orientation of Limiters

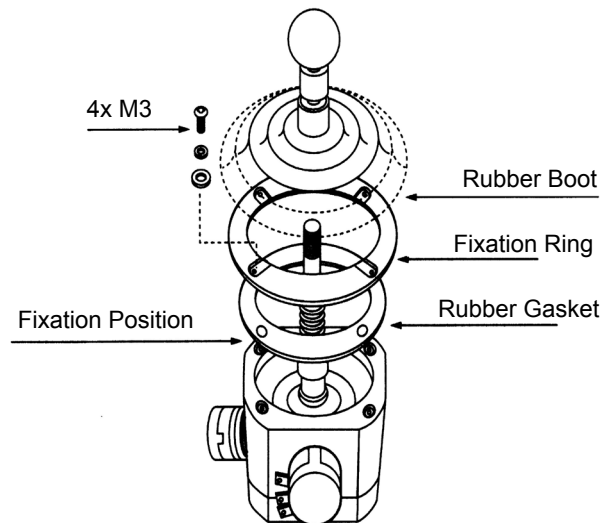
Panel Cut-Out



Limiters



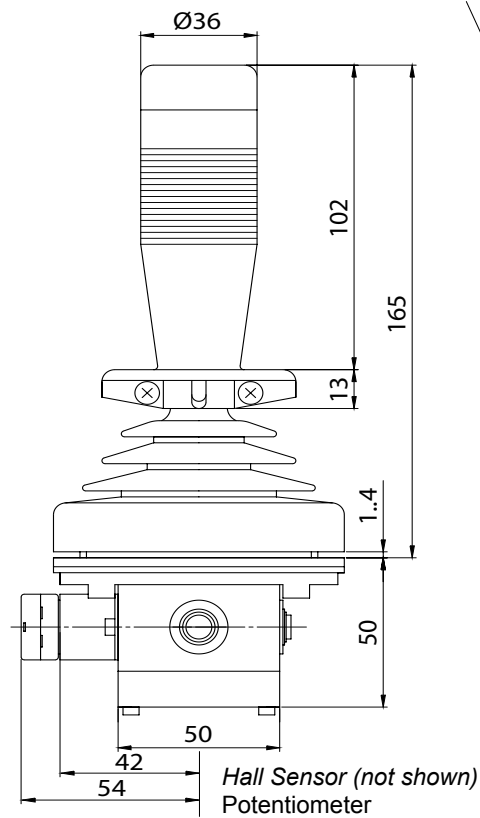
Structure (schematic)



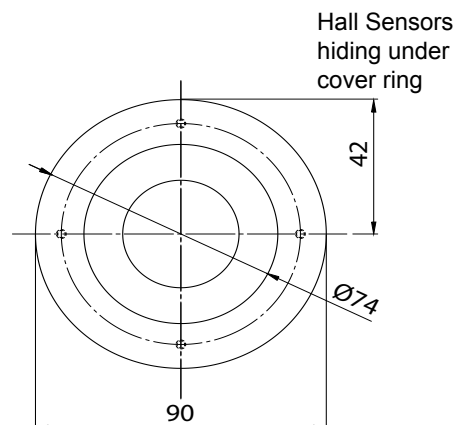
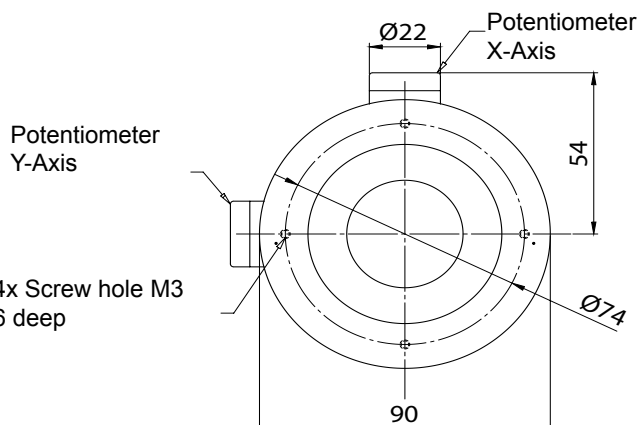
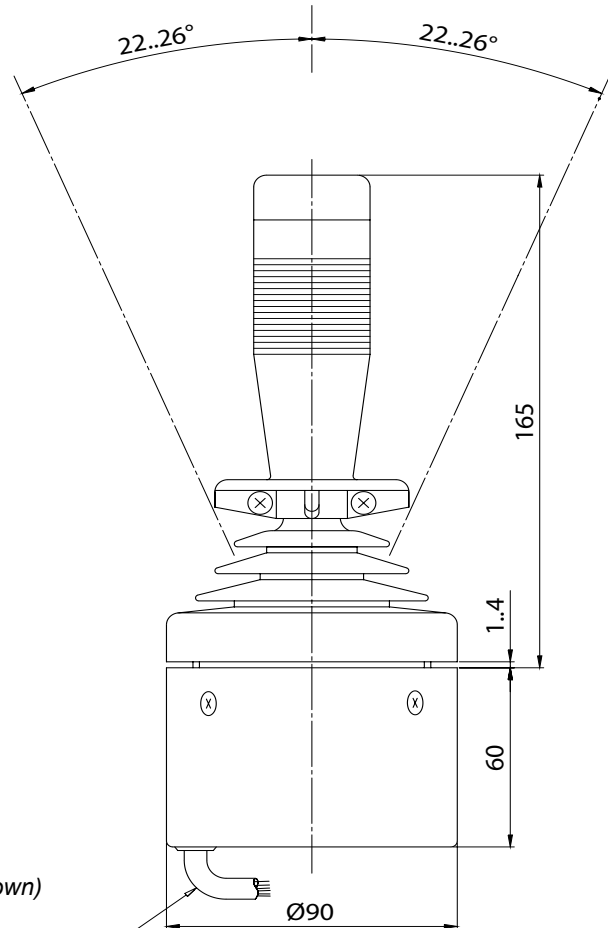
Dimensions in mm

Drawing

Housing Option „0“



Housing Option „1“



Dimensions in mm