

Series 890

### Hand Joystick



- Large heavy duty hand joystick of the highest quality with stock grip handle
- Detection by conductive plastic potentiometers or Hall sensors
- Handles available with button, rocker, or third axis (z rotation) protection class IP65
- Spring Return to Center or Friction Clutch
- Wide range of configuration options for switches, latching positions

The large 890 series hand grip joysticks are specially designed for multi-axis machine control in harsh, demanding environments where quality, tactility and sensor configurability are required. The joysticks are a guarantee of success in demanding applications with up to three axes.

Technical Data Joystick	
Sensor	Potentiometer or Hall Effect
Expected Life	typ. 5 million cycles
Angle of Movement X-, Y-Axis	±22° to ±26° from center
Angle of Movement Z-Axis	±45°to ±50°
Return to Center Accuracy X/Y	±2°
Operating Force X-, Y-Axis	2 to 12 N
Operating Force Z-Axis	0.02 to 0.085 Nm
Protection Class	IP65 (above panel)
Vibrations	10 to 55 Hz 98 m/s <sup>2</sup>
Shock	294 m/s <sup>2</sup>
Operating Temperature	-20 °C to +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 <sub>Out</sub>	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				
Lead wires (AWG26, length approx. 300 mm) are when the joystick is configured with a housing.	supplied as standard only 1 (Yellow)	3 (Green)				

For versions without a housing, the sensors are directly accessible for connection to their terminals (no cables included). We can supply customized wiring if required. 2 (Red) For Z-axis : ⊕ direction 2 (Red) For Z-axis : CW direction

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



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Technical Data Hall Sensor		
Supply Voltage	5 VDC ±10%	5V —
Current Consumption	ca. 6 mA	4.5V±0.15V OUT A (90%±3%) OUT B(Parallel)
Output Voltage	0.5 to 4.5 V	
Impedance	> 10 kOhm	2.5V±0.15V (500 + 500)
Independent Linearity	±3%	(30 / 6 3 / 6)
Temperature Drift Output	< ±2.5% U <sub>out</sub> *FS	0.5V±0.15V
Temperature Drift Center	< 0.5% U <sub>out</sub> *FS	
Dielectric Strength	1 minute @ 250 VAC	Mechanical rotating angle
Insulation Resistance	> 100 MOhm @ 250 VAC	Z axis: ±45 ~ ±50' Effective electrical rotating angle
Operating Temperature	-20 °C to +65 °C	X&Y axes: Abt.±22° Z axis: Abt.±45°
Expected Life	typ. 5 million cycles	Toward⊖each-axis ←
Lead wires (AWG26, length approved the joystick is configured w	ox. 300 mm) are supplied as standard only ith a housing pot.	OUT-A OUT-B (White) (Blue)
For versions without a pot, the set	ensors are directly accessible for connection to	(Black) (DC+5V) (Red)

For versions without a pot, the sensors are directly accessible for connection to their terminals. We can supply customized wiring if required.



### **Technical Data Micro Switches**

Series 890 joysticks can be fitted with directional switches for the X and Y axes. Up to three switch positions can be defined for each axis. Deflection angles can be specified by the customer. For example, a microswitch can be fitted to detect when the handle is in the centre position (or away from the centre) and additional microswitches can be fitted at +10°/-10° on each axis to detect the degree of deflection for further switching or control scenarios.

	Pushbutton Handle	Micro switches (w/o / with Housing pot)	Micro switch 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

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### Please contact us for information regarding stock articles, delivery times and minimum order quantities.

Order Code										
Series	890									
Axes / Functions 1 Axis 1 Axis with Pushbutton 1 Axis with Rocker 2 Axes 2 Axes with Pushbutton 2 Axes with Rocker 3 Axes		1 7 5 2 3 6 4								
Sealing Rubber Boot			5							
Return Mechanism <sup>(*)</sup> Spring Return to Center Position Without Spring Return Friction Clutch with Center Detect Switch Friction Clutch				1 2 5 6						
Handles Stock Grip "1", for 1 or 2 Axes Stock Grip "6", with Pushbutton, for 1 or 2 Axes Stock Grip "A", with Rocker, for 1 or 2 Axes Stock Grip "8" incl. 3rd Axis					1 6 A 8					
No Trim Function						1				
Sensor Potentiometer, Type F X-/Y-Axis, Type D Z-Axis Hall Sensor X-/Y-Axis (Type D Z-Axis if applicable)							4 H			
Housing <sup>(*)</sup> Without Housing pot With Housing pot								0 1		
Limiters Round Square "L"-Shape Single Axis Y Single Axis X Plus Shape "+"									1 2 3 6 7 9	
Micro switches <sup>(*)</sup> None Center detect X & Y (with handle "1") 2 Position switches, 1 Axis, ON at ±15° 2 Position switches per axis, 2 Axes, ON at ±15° each 2 Position switches, 1 axis, ON at ±10° Center detect, 1 axis (handle "6") Center detect, 2 axes (handles "6, 8, A") 2 Position switches, x axis, ON at ±5° 2 Position switches, y axis, ON at ±5° 2 Position switches per axis, 2 axes, ON at ±5° Center detect & position switches, 2 axes, ON at ±5°, handles "6, 8, A" Center detect & position switches, x axis, ON at ±5°, handles "6, 8, A"										0 1 3 3xy 4 5 6 7x 7y 7xy 8xy 8xy 8x

<sup>(\*)</sup> For custom versions, the feel of the x and y axes can be customized independently of each other. Versions with detent positions can only be realized without housing.

(\*\*) Micro switches can be realized also for different angles and as redundant versions.

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

Please contact us. Because of the broad configuration options, we suggest personal advice to find the optimum solution for your requirements.



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Specifications are subject to change without notice

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