

# Data Sheet for Joysticks

## Finger Joystick

Series 812



- Available with Potentiometers or Hall sensors
- Several handle options
- Small size at low installation depth

The 812 series is available with several different handle options. These small joysticks are recommended for indoor tasks with one to three axes, and where space is limited.

### Technical Data Joystick

Angle of Movement X-, Y-Axis	56° (±28° from center)
Angle of Movement Z-Axis	90° (±45° from center)
Return to Center Tolerance	±2%
Panel Thickness	1,3..4,7 mm
Break Out- / Operating / Max. Force X & Y	0,7 N / 1,3 N / 100 N
Break Out- / Operating / Max. Torque Z	0,022 Nm / 0,040 Nm / 0,049 Nm

### Technical Data Hall Sensor

Supply Voltage V <sub>supply</sub>	5 VDC ±10%
Output Voltage at center	V <sub>supply</sub> /2 ±5%
Output Voltages Hall Sensor	0..5 V / 0,5..4,5 V / 0,25..4,75 V
Independent Linearity Tolerance	± 2%
Power Consumption	< 11 mA (2 axes) / < 17 mA (3 axes)
Resolution	Infinite
Mechanical Life	1 Million cycles
Operating Temperature	-25°C..+70°C
Storage Temperature	-40°C..+70°C

### Technical Data Potentiometer

		Type P	Type M	Type S	Type R
Electrical Element		Conductive Plastic	Conductive Plastic	Conductive Plastic	Conductive Plastic
Track Resistance	[kOhm]	5	5	5	5
Resistance Tolerance	[%]	±20	±20	±15	±10
Independent Linearity	[%FS]	±1	±5	±1,5	±1
Operating Temperature	[°C]	-10..+85	-10..+85	-50..+125	-65..+125
Power Dissipation	[W]	0,25 @40°C	0,5 @70°C	0,2	1
Track Operating Angle	[°]	220 ±5	56 ±5	50 ±6	50
Bearing		Sleeve Bearing	Sleeve Bearing	Sleeve Bearing	Sleeve Bearing
Rotational Life	Million cycles	>1	>1	ca. 5	ca. 10
Wiper current in case of failure	[mA] @40°C/<1 min	≤1	≤1	≤1	≤1
Recomm. wiper current	[μA]	≤2	≤2	≤2	≤2
Max. Voltage	DC [V]	35	20	20	70

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### Technical Data Pushbuttons

	Voltage [VDC]	Current [mA]	Expected Life [number of actuations]	Color Pushbutton Cap
Handle E	50	100	5 Million	black
Handle G	24	50	1 Million	black
Handle H	24	50	1 Million	black
Handle 9	24	50	1 Million	black
Handle S	32	50	1 Million	black
Handle T	32	50	1 Million	black
Handle P	32	50	1 Million	black
Handle Q	32	50	1 Million	black

### Wiring for Joysticks with Potentiometers

**Function**                      **Color**

#### Joysticks with 2 or 3 Axes, 1 Pushbutton

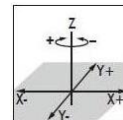
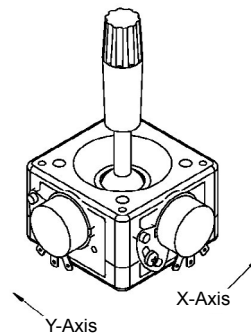
Pushbutton Common      orange  
Switch                      orange

#### Joysticks with 3 Axes, 2 Pushbuttons

Pushbutton 1/2 Common      green  
Pushbutton 1                      orange (pb left)  
Pushbutton 2                      brown (pb right)

#### Joysticks with 3 Axes, Z Axis

+Supply                      red  
Signal Out                      white  
-Supply / GND                      blue

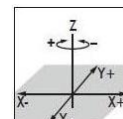
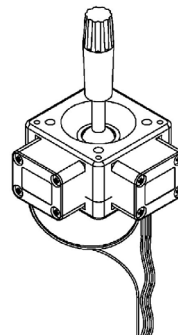


Wires AWG28, length ca. 290 mm, for  
- Joysticks with three axes  
- Joysticks with Pushbuttons  
Potentiometers w/o wires

### Wiring for Joysticks with Hall Sensors

**Function**                      **Color**

GND                              black  
+5VDC                          red  
X-Axis                              blue  
Y-Axis                              yellow  
Z-Axis                              green  
Pushbutton 1/2 Common      white  
Pushbutton 1                      orange  
Pushbutton 2                      violet



Wires AWG28,  
Length ca. 210 mm

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### Order Description / Options

<b>Series</b>	<b>812</b>						
<b>Axes</b>							
<b>2 Axes</b>		<b>2</b>					
<b>3 Axes</b>		<b>4</b>					
<b>3 Axes with Pushbutton(s)</b>		<b>5</b>					
1 Axis		1 (*)					
1 Axis with Pushbutton(s)		6 (*)					
2 Axes and Pushbutton(s)		3 (*)					
<b>Mounting Bezel</b>							
<b>Split Bezel (Front Mounting)</b>			<b>1</b>				
<b>Rubber Boot (Front Mounting)</b>			<b>5</b>				
Square Bezel (Rear Mounting)			2 (*)				
Square Bezel Snap-On (Front Mounting)			3 (*)				
<b>Spring Return</b>							
<b>Standard Spring Force (50% enforced)</b>				<b>1</b>			
Spring Return 75% enforced Spring				8 (*)			
Spring Return 100% enforced Spring				9 (*)			
Friction Clutch (Potentiometer versions only)				2 (*)			
<b>Handles</b>							
<b>Handle 6</b>				<b>6</b>			
<b>Handle 3</b>				<b>3</b>			
<b>Handle 7 with Z-Axis</b>				<b>7</b>			
<b>Handle 9 with Z-Axis and Pushbutton</b>				<b>9</b>			
Handle B				B (*)			
Handle J				J (*)			
Handle L				L (*)			
Handle 1				1 (*)			
Handle A				A (*)			
Handle K				K (*)			
Handle H with Pushbutton				H (*)			
Handle E with Pushbutton				E (*)			
Handle G with Pushbutton				G (*)			
Handle R with Z-Axis				R (*)			
Handle S with Z-Axis and Pushbutton				S (*)			
Handle T with Z-Axis and 2 Pushbuttons				T (*)			
3 Axes Low Profile, Hall Sensors				O (*)			
3 Axes, Hall Sensors				N (*)			
3 Axes, Hall Sensors, 1 Pushbutton				P (*)			
3 Axes, Hall Sensors, 2 Pushbuttons				Q (*)			
<b>Trimm</b>							
Without (always with Hall Sensors)						0 (*)	
<b>Internal (always with Potentiometers)</b>						<b>1</b>	
<b>Sensors</b>							
<b>Potentiometer P (X-, Y-, Z-Axis)</b>							<b>P</b>
<b>Potentiometer R (X-, Y-Axis / Z-Axis Pot P)</b>							<b>R</b>
Potentiometer M (X-, Y-Axis / Z-Axis Pot P)							M (*)
Potentiometer S (X-, Y-Axis / Z-Axis Pot P)							S (*)
Hall Sensors, Output 0..5,0 V							K1 (*)
Hall Sensors, Output 0,5..4,5 V							K2 (*)
Hall Sensors, Output 0,25..4,75 V							K3 (*)

(\*) upon request

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## Finger Joystick

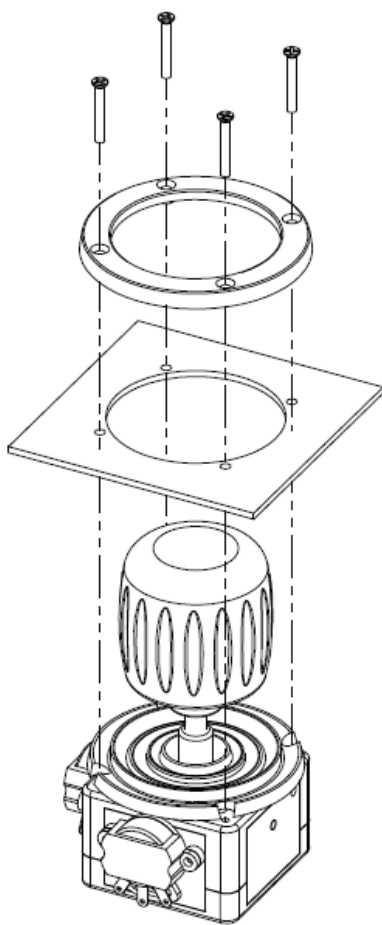
Series 812

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

For example:

- Redundant Output Signals (inverted or parallel), Mouse Emulation, Voltage Regulator
- Customer-specific cable

## Mounting Options / Covers



### Split Bezel, Option „1“

- Insert the joystick with bezel from beneath the panel
- Cover ring to be attached from above the panel (see scheme left)
- Cutout diameter required for mounting: 39,70 mm
- Mounting accessories included: Bezel, cover ring, 4 black screws 2-56x1/2in



### Rubber Boot, Option „5“

- Insert the joystick with bezel from beneath the panel
- Cover ring to be attached from above the panel (see scheme left)
- Cutout diameter required for mounting: 39,70 mm
- Mounting accessories included: Bezel, cover ring, 4 black screws 2-56x1/2in



### Square Bezel, Option „2“

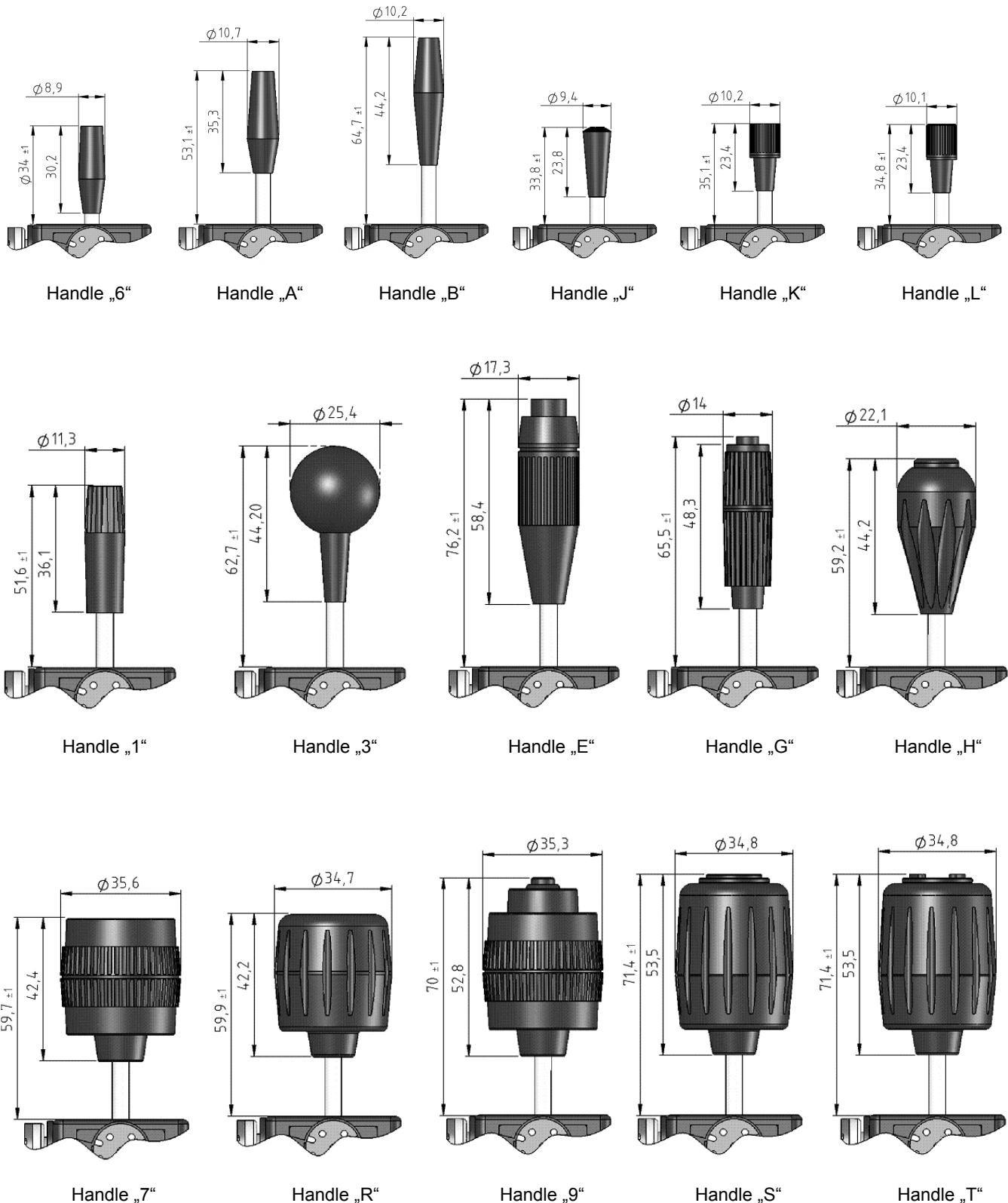
- Insert the joystick with bezel from beneath the panel
- Cover ring to be attached from above the panel, screws fixed to joystick from beneath the panel
- Cutout diameter required for mounting: 30,20 mm
- Mounting accessories included: Bezel, cover ring, 4 black screws 2-56x1/2in

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### Handles



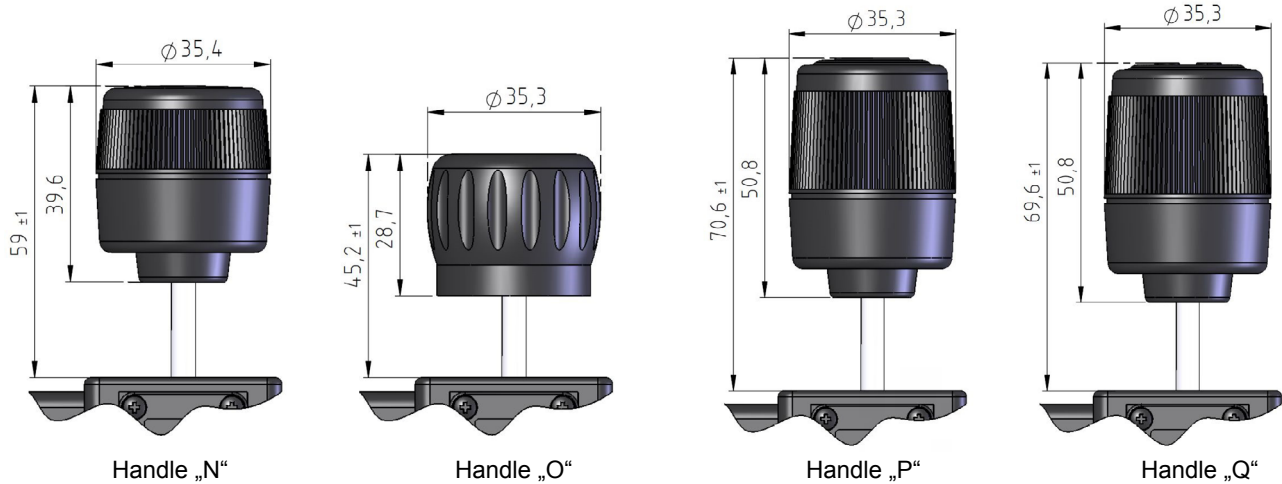
All Dimensions in mm

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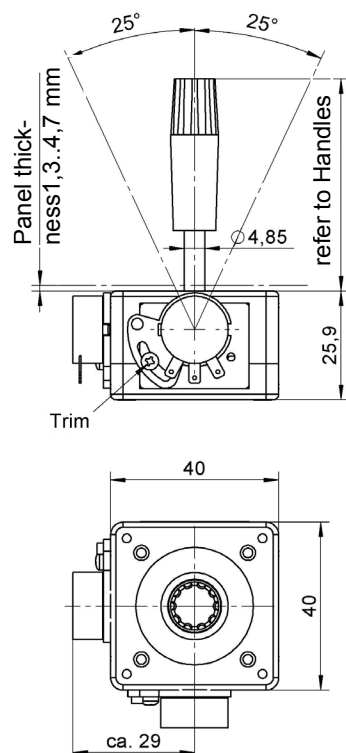
### Handles



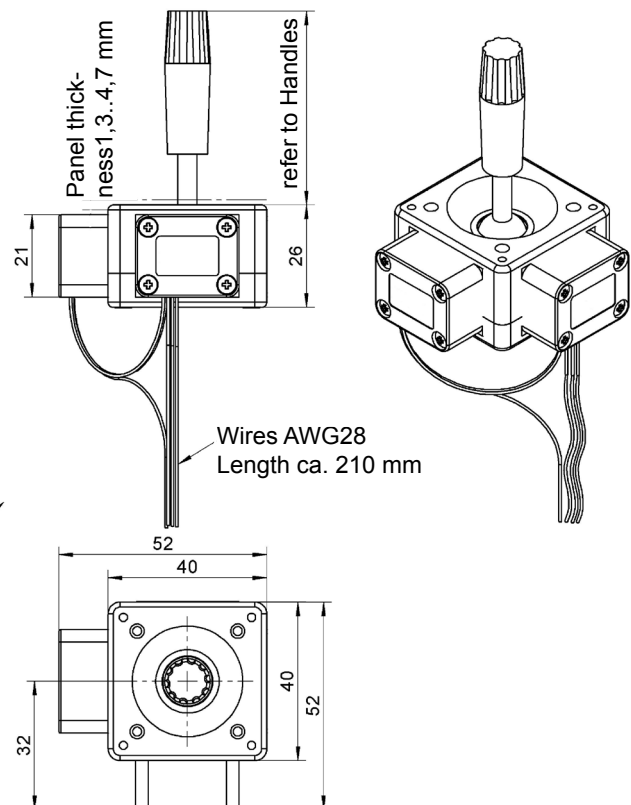
All Dimensions in mm

### Dimensions

#### Version „Potentiometers“



#### Version „Hall Sensors“



All Dimensions in mm