Data Sheet for Joysticks

Finger Joystick — Series 842

- Very robust potentiometric finger joystick with metal mechanics
- Wide range of knobs
- Degree of protection up to IP65 over the panel
- Inherently robust towards electromagnetic interference
- Custom versions possible with friction brake for one axis, spring return for the second axis
- Microswitches for detecting the central position/deflection, customer-specific billet shapes, bellows and sensors on request

The series 842 finger joysticks are robust joysticks with potentiometric sensors. They are therefore a alternative to Hall-effect joysticks, especially for applications with high requirements for EMC. The steel shaft for the pommel and the pommel itself are screwed, which allows flexible configurations of rubber bellows, pommel and shaft length. This is reflected in the large selection of knobs on offer and also offers the opportunity to easily integrate custom-made knobs.

Technical Data

Sensor technology	Potentiometric
Maximum supply voltage	24 VDC
Voltage in Center Position	50% of maximum output
Return to Center Accuracy	±2% of maximum output
Output impedance	0 to 5 kΩ (Potentiometer Type M)
Load resistance	min. 100 kOhm
Mechanical Life Cycles	5 mio. cycles
Deflection x, y axes / z axis	55° (±27.5° from center) / 50° (±25° from center)
Operating force x-y-direction	Breakout force standard typ. 1.3 N (1.0 N and 1.6 N possible on request)
Resistance tolerance of potentiometers	±20%
Operating- /Storage temperature	-20°C to +55°C / -40°C to +70°C
Above panel sealing	Up to IP65 (depends on handle configuration)
Weight	110 g (depends on configuration)
Insulating resistance	1000 MOhm, 500 VDC
Power rating at 40°C	0.15 W

Mechanical Properties

The joysticks of the 842 series are unique as potentiometer joysticks in their size class and feature a metal mechanism, which gives a very high-quality feel to the operation.

Spring return / friction brake

The actuation force of the standard spring of the joystick is 1.3 N. Optionally, weaker (1.0 N) and stronger versions (1.6 N) are also available. On request, we can also implement variants with friction brakes in the X and Y direction. We are happy to provide you with information on minimum order quantities for these options.

Limiters

Square - Option 6

Single Axis Y - Option 2

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

Order code								
Description	Selection: Standard=**black/bold**, possible options=*grey/italics*							
Series	**842**							
Axes:								
1 Axis		*1*						
2 Axes		**2**						
3 Axes		*3*						
Sealing:								
Rubber boot without bezel (rear mount)			*1*					
Rubber boot with square bezel (rear mount)			**5**					
Rubber boot with circular bezel (rear mount)			*6*					
*Internal rubber boot without bezel (rear mount)**			*7**					
Return mechanism:								
Spring return (standard)				**1**				
Spring return with higher spring tension				*8*				
Spring return with reduced spring tension				*6*				
*Friction clutch**				*2*				
Handles:**								
Handle C for 1-2 Axes, conical, without pushbuttons					**C**			
Handle E for 1-2 Axes, with 1 pushbutton					*E*			
Handle M for 1-2 Axes, with 1 pushbutton					*M*			
Handle A for 1-2 Axes, ball-shaped, no pushbuttons					*A*			
Handle F for 1-2 Axes, cylindrical, with rubber protection, no pushbutton					*F*			
Handle K for 3 Axes, fluted, no pushbuttons					*K*			
Handle U for 1-2 Axes, cylindrical, aluminium, no pushbutton					*U*			
Handle T for 1-2 Axes, cylindrical, aluminium, with 1 pushbutton					*T*			
Handle H for 1-2 Axes, with 1 pushbutton					*H*			
Handle G for 1-2 Axes, with 2 pushbuttons					*G*			
Limiter:								
Square						**6**		
Single axis, y direction						*2*		
Sensor / Output signal:								
Potentiometer Type M (5K 55°), for rail to rail output							**M**	
Potentiometer Type "M CT" (5K 55° with center tap)							*M CT*	
Special options:								
none								**-**
Open Frame								*O*
Open Frame with 2 micro switches (directional, for 1 axis version)								*O2*
Open Frame with 4 micro switches (directional, for 2 axis version)								*O4*

* Only available for open frame version
** Handle and cover are not fixed to the shaft for all variants, as otherwise installation from below would not be possible. The handle then needs to be fixed/glued when mounted.

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

- Customer-specific cables
- Different potentiometer types (resistance and operating angle)
- Further handle versions
- Customer-specific handles
- Axis configuration can be customized independently for both x and y direction

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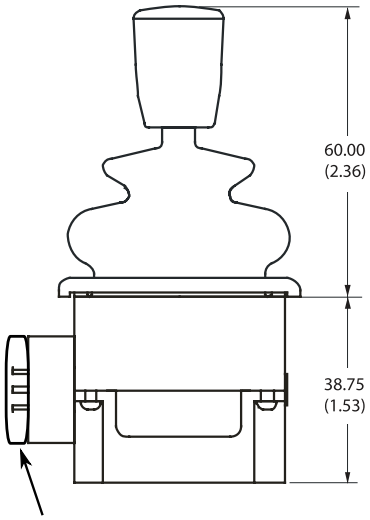
Wiring

Joystick version/wires		Colour	Function	Description
Single axis versions	Lead wires for y axis	black	ground / 0 V for y axis	Copper wires with 150 (+50) mm length, cross-section 0.163 mm², 14/0.12 mm, diameter 1 mm, PVC insulated, twisted
		red	+Vcc for y axis	
		blue	wiper y axis	
2 and 3 axis versions	Lead wires for x and y axes	black	ground / 0 V for x and y axis	Copper wires with 150 (+50) mm length, cross-section 0.163 mm², 14/0.12 mm, diameter 1 mm, PVC insulated, twisted
		red	+Vcc for x and y axis	
		yellow	wiper x axis	
		green	center detect (custom versions, optional)*	
		blue	wiper y axis	
	Lead wires for buttons and z axis (3rd axis, handle can be rotated)	orange	pushbutton	Copper wires with 150 (+50) mm length, cross-section 0.081 mm², 7/0.125 mm, diameter 0.7 mm, ETFE insulated, twisted
		green	wiper z axis	
		red	+Vcc for z axis	
		blue	ground / 0 V for z axis	

*Only available as custom version

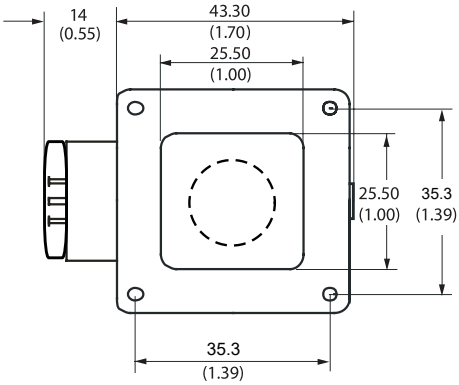
Technical drawing

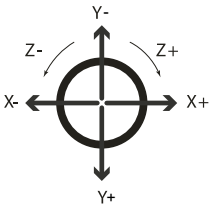
Standard version with handle C without micro switches



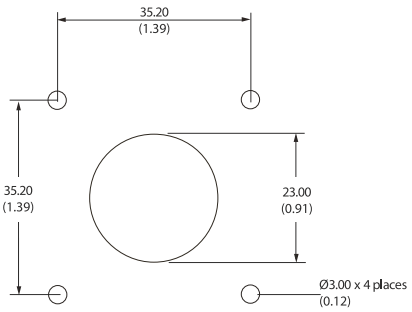
supplied with 150 mm of twisted cable harness, with tinned ends
(see table of cable specs on page 3)

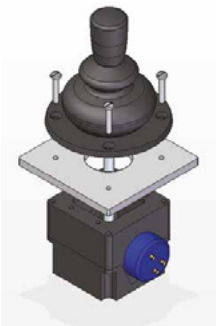
View from top
(without handle and gaiter)





Mounting / Drilling pattern for closed frame version



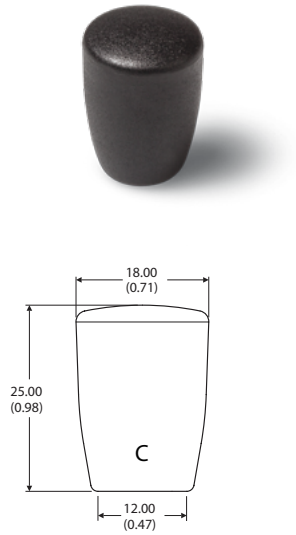


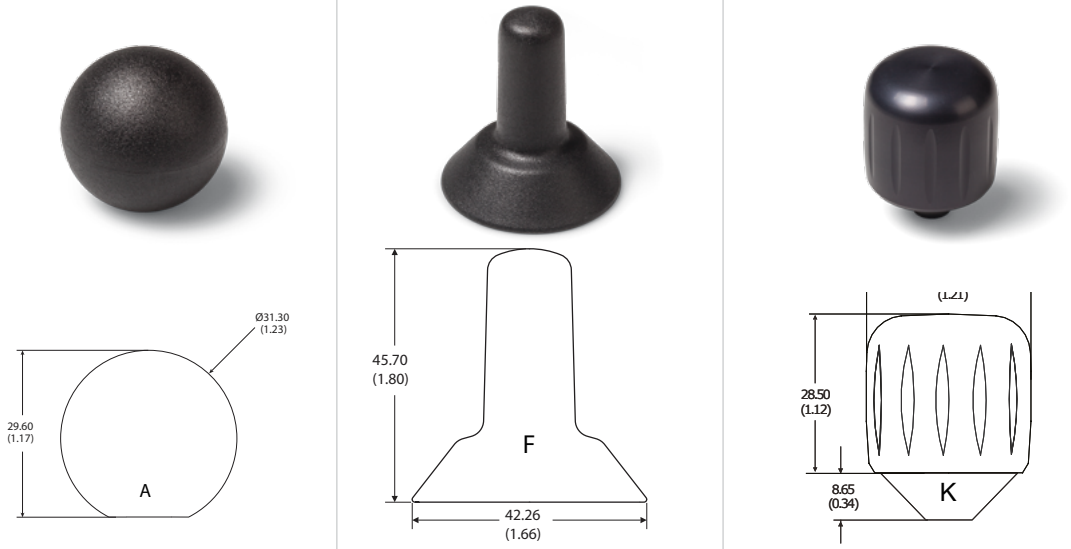
The joystick is mounted from below. The rubber bellows is guided through the hole in the mounting plate and pressed against the front. The screw connection is made through the cover.
Handle and cover are not fixed to the shaft for all variants, as otherwise installation from below would not be possible. The handle then needs to be fixed/glued when mounted.
The rectangular cover has a glossy finish and is designed for 3/8“ self-tapping screws.

Data Sheet for Joysticks

Finger Joystick — Series 842

Handles

Handle code	C	E	M
Picture / drawing			
Material	Nylon	Aluminium	ABS
Surface	Sparked matt	Anodized	Sparked matt
Standard colour	Black	Black	Black
Other colours	on request	not available	not available
Notes	1-2 Axes without Pushbutton	1-2 Axes, 1 Pushbutton	1-2 Axes, 1 Pushbutton

Handle code	A	F	K
Picture / drawing			
Material	Nylon	Nylon	Aluminium
Surface	Sparked matt	Sparked matt	Anodized
Standard colour	Black	Black	Black
Other colours	not available	not available	not available
Notes	1-2 Axes without Pushbutton	1-2 Axes without Pushbutton	3 Axes without Pushbutton

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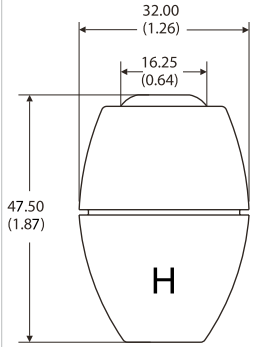
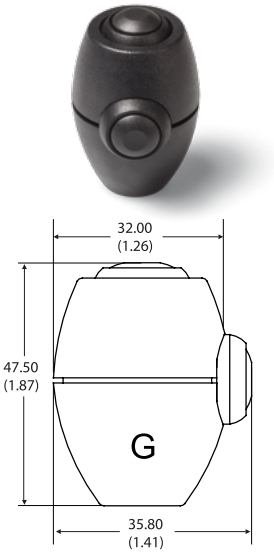
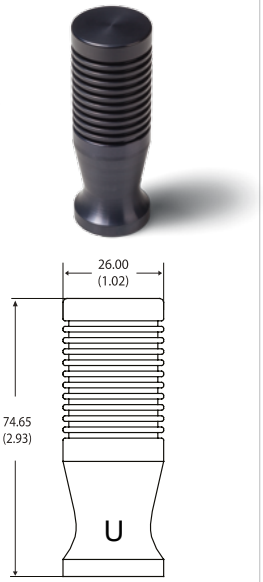
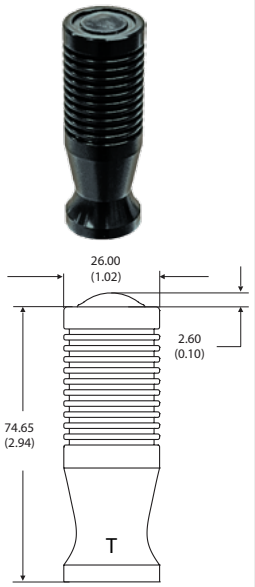
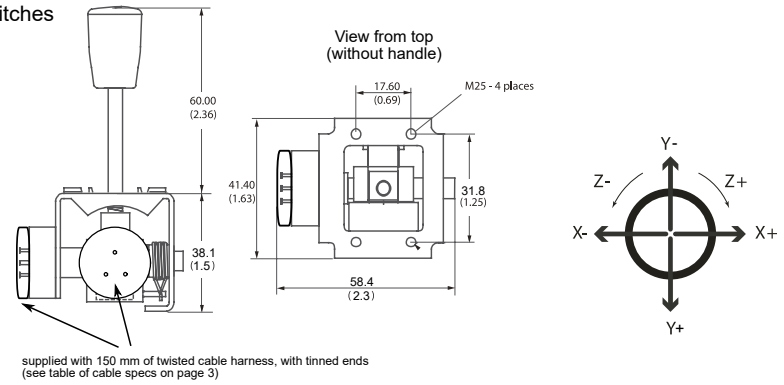
Handle code	H	G	U	T
Picture / drawing				
Material	ABS	ABS	Aluminium	Aluminium
Surface	Sparked matt	Sparked matt	Anodized	Anodized
Standard colour	Black	Black	Black	Black
Other colours	not available	not available	not available	not available
Notes	1-2 Axes, 1 Pushbutton	1-2 Axes, 2 Pushbutton	1-2 Axes without Push-button	1-2 Axes, 1 Pushbutton

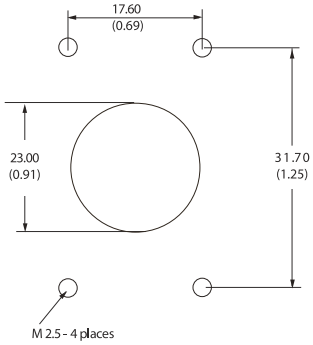
All dimensions in mm (inches)

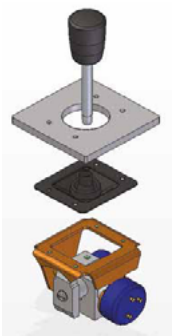
Technical drawing (special open frame variant)

Open frame version “O“ without micro switches



Mounting / drilling pattern (special open frame variant)





The joystick is mounted from below. The frame has M2.5 tapped holes.
Handle and cover are not permanently connected to the shaft in all variants, as otherwise installation from below would not be possible. The handle then needs to be fixed/ glued when mounted.
If the internal boot is selected, the rubber boot is pressed against the front. The screw connection is made through the cover. Then no bezel is needed, since the panel acts as a bezel.

Mounting example with open frame and internal seal (type 7)