

Data Sheet for Joysticks

Finger Joystick

Series 847



- Dual redundant outputs
- IP67 sealed
- 2 lever heights: 48 mm and 60 mm
- 5 lever colours
- Detent positions and spring return available

The 847 series paddle joysticks offer high precision and quality - a claim supported not only by the soft-touch moulded grips, but also by the technical features. Contactless Hall technology combined with a smooth and easy-to-use mechanism results in a durable and reliable joystick, suitable for mild to extreme environments in mobile remote controls, cleaning machines, material handling and agricultural vehicles. Two different body geometries allow you to choose the one that best suits your application needs.

Technical Data

Sensor	Hall effect
Supply Voltage (Vsupply)	5.0 ± 0.5 V transient free
Output Voltages	0 to 5 V / 0.5 to 4.5 V (dual output), PWM optional
Center Voltage	Vsupply/2 ± 5% * full scale
Current Consumption	< 20 mA
Switch Output	Open drain, internal Pull-Up 1.5 kΩ to Vsupply, smoothed to 0 V with 100 nF
Loads	Minimum 10 kΩ, >100 kΩ recommended
Mechanical Operating Angle	60° (±30° from center)
Max. load to mechanism	Horizontal: 75 N / Vertical: IK08 (BSEN62262:2002)
Life Cycles	10 million cycles
Operating Temperature	-25 °C to +70 °C
Storage Temperature	-40 °C to +85 °C
Seal above Panel	IP67 above panel (with gasket) - BS EN 60529:1992+A2:2013
Damp Heat	BS EN 60068-2-78:2002, 21 days @ +85°C 85%RH
Salt Spray	BS EN 60068-2-11:1999, 48 hours @ +35°C with 5% NaCl
Conducted Emissions	CISPR 25:2008 Ed. 3.0
Radiated Emissions	CISPR 25:2008 Ed. 3.0, EN61000-6-4:2011
Radiated Immunity	ISO 11452-2: 2004 (150 V/m), EN61000-6-2: 2005
Conducted Immunity	ISO 11452-4:2011
Signal Cable Transients	EN 6100-6-2:2005
AC Magnetic Field Immunity	MIL-STD-461F
ESD	ISO 10605: 2008 inc A1: 2014 (8 kV contact / 15 kV air discharge) EN61000-4-2
Vibration	ISO15003 level 1 in 3 axes 10 to 350 Hz, Level 2, 8 hours/axis
Bump	BS EN 60068-2-27:2009 40 g 6 ms half sine, 50 shocks in each sense of each axis, total 300 shocks
Freefall drop	BS EN 60068-2-31:2008, 1000 mm onto all faces and edges
Shock	BS EN 60068-2-27:2009 50 g 6 ms half sine, 3 shocks in each sense of each axis, total 18 shocks

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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 <i>options=grey/italics</i>					
Series	847					
Paddle: 60 mm height above panel 48 mm height above panel		1 2				
Lever operation: Spring return to center <i>Spring return to center with detent at 0°</i>		(1)	1 2*			
Paddle inserts: Black <i>Red</i> <i>Blue</i> <i>Yellow</i> <i>Green</i>				A B C D E		
Output options: Dual output, signals parallel (standard) <i>Dual output, signal 2 inverted</i> <i>PWM signal*</i>					1 2 3*	(5)
Output signal: <i>0 to 5 V (rail to rail)</i> 0.5 to 4.5 V						5 4
Switching points: No switches <i>Switching at ±5°</i> <i>Switching at ±15°</i> <i>Switching at ±30°</i>						0 1 2 3

* only available for 60 mm version

* in case of PWM output select 0 to 5 V output

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

e. g. customer-specific cables

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Information on "Output Options" and "Switching Points"

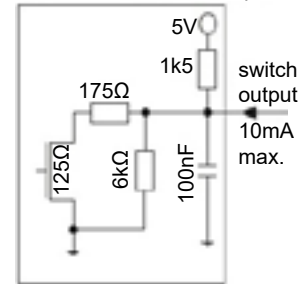
The 847 series joystick is configured as two "electrical" controls in one mechanical package. The Paddle operates from 5 V and provides two proportional outputs. The second output is accurate to the first within +/-3% of the power supply. The power supply for the secondary output is also completely independent. Customers may choose their preference of voltage outputs. The secondary output can be of the same or inverse polarity to the primary wiper. For example, with a secondary inverse output, the first and second outputs can be summed and compared to zero to verify that the joystick is operating correctly. Paddles having two identical outputs of the same polarity may be used to drive two identical dual redundant circuits

Selectable „Switching Points“

The joystick incorporates two Hall effect switches. The angle of the lever at the switch trigger point can be selected when ordering. If no switches are specified then the output on pins 2 and 7 will be unused.

The outputs are configured as 'open drain' type with a 1.5K pull up resistor to 5 V.

Equivalent circuit for switch output



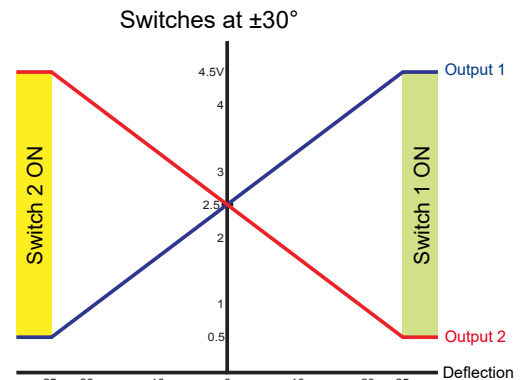
Output Impedance

The voltage outputs at center and at each end of travel are specified across an infinite load, with no current flowing. The output impedance specified in the electrical specification should be taken into account when designing a system. Load resistance of less than 10K Ohms is not recommended (also ref. to „Technical Data“ page 1)

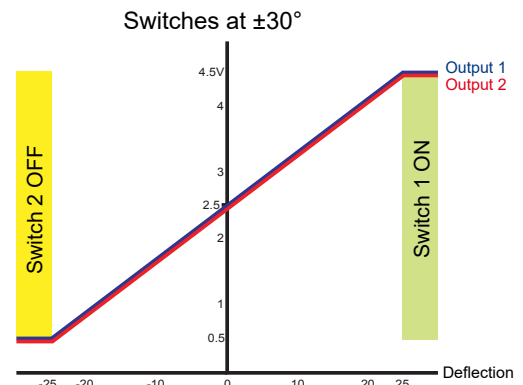
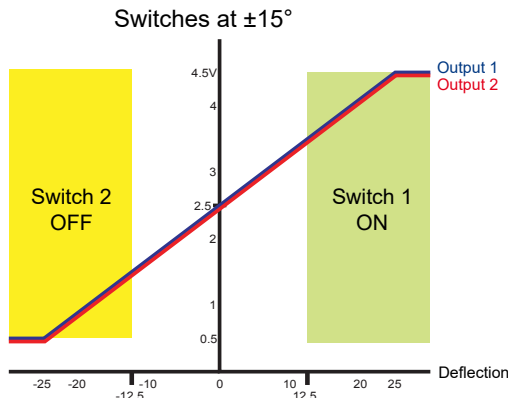
Output Characteristics (here: 0.5 to 4.5 V Output)

Note: When option „Dual Parallel Output“ is selected the polarity of Switch 2 is inverted.

1) DUAL INVERSE OUTPUTS



2) DUAL PARALLEL OUTPUTS

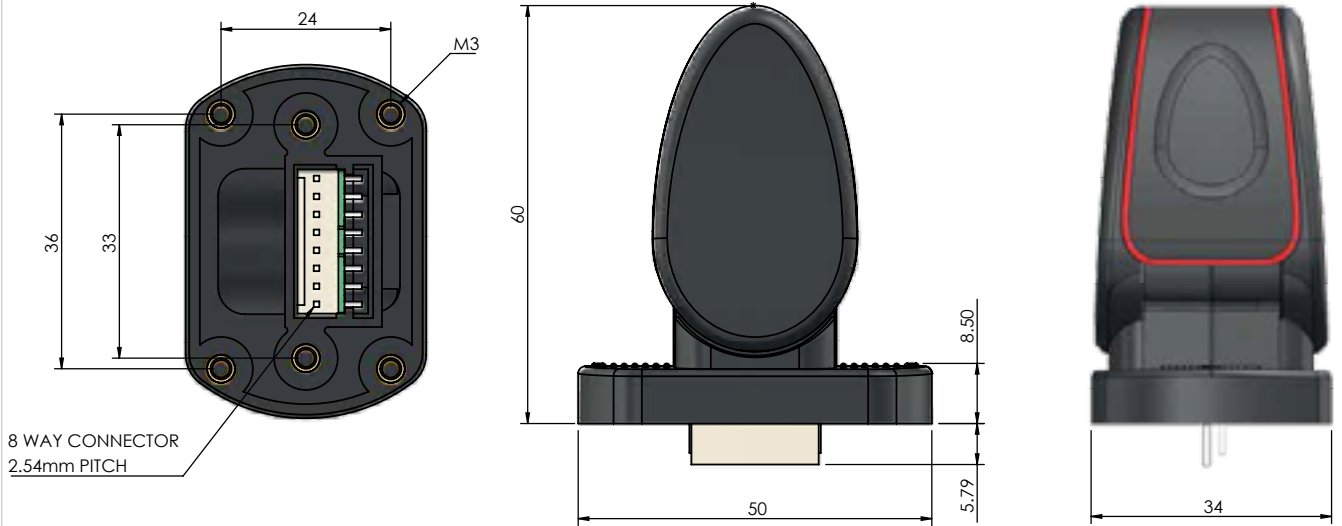


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Technical Drawing "Paddle 1" 60 mm height above panel

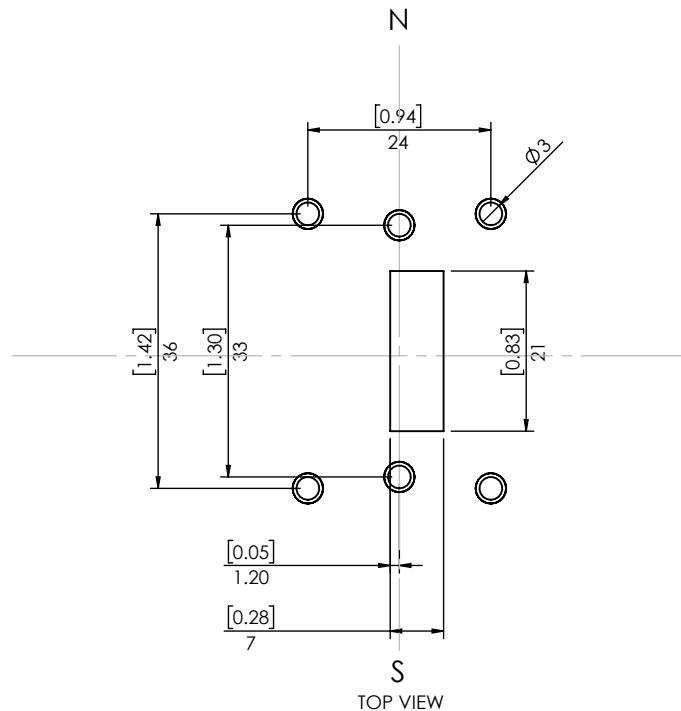
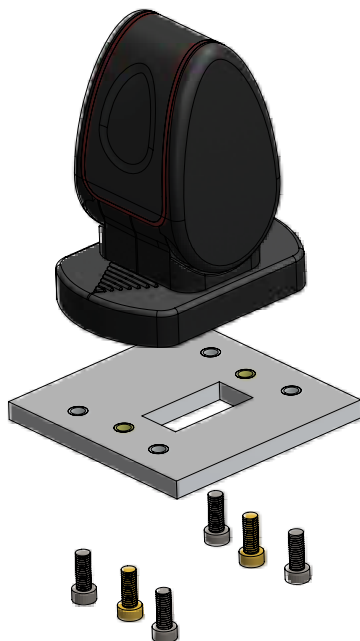


Dimensions in mm

Panel Cut-Out & Mounting "Paddle 1"

The Joystick is fitted with M3 bushes in all six positions and may be mounted with two different hole patterns:

- Two screws (shown in yellow)
- Four screws (shown in silver).



Screws are not included.
The appropriate length of the screws is dependent on panel thickness.

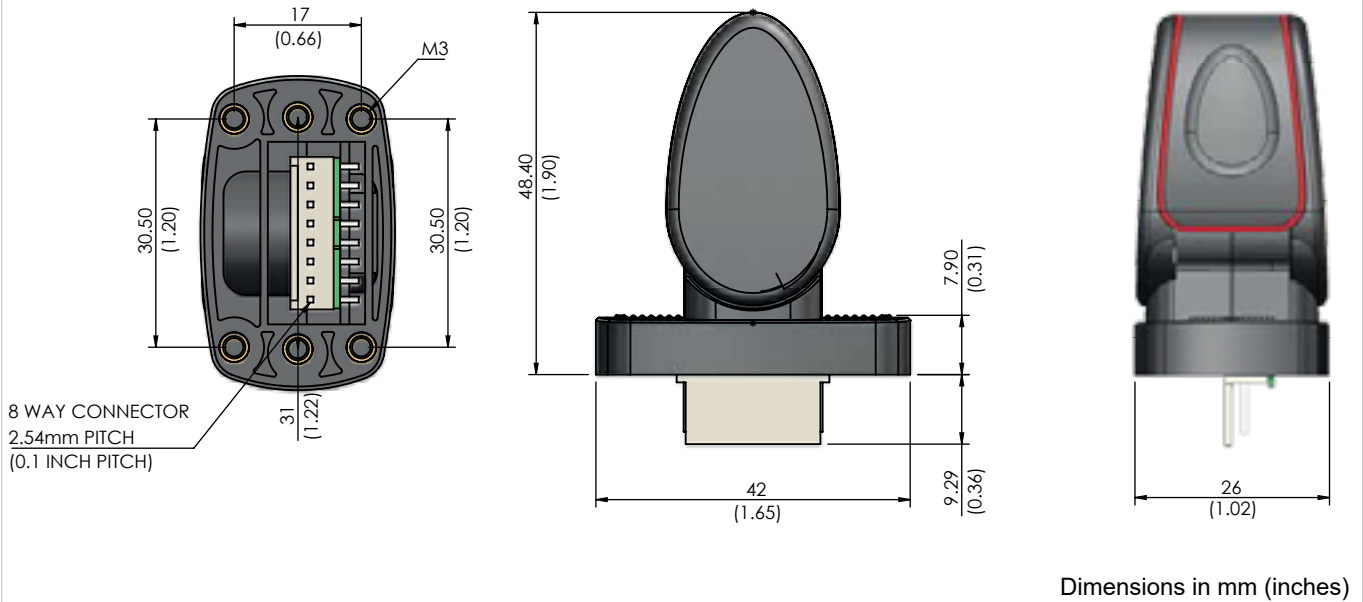
Dimensions in [inches] mm

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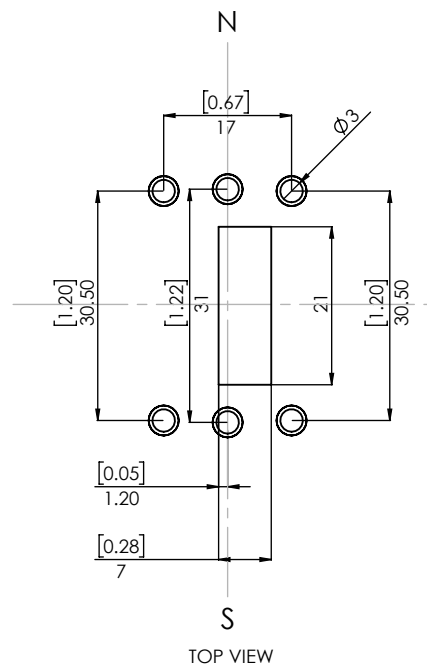
Technical Drawing "Paddle 2" 48 mm height above panel



Panel Cut-Out & Mounting "Paddle2"

The Joystick is fitted with M3 bushes in all six positions and may be mounted with two different hole patterns:

- Two screws (shown in yellow)
- Four screws (shown in grey).



Screws are not included.
The appropriate length of the screws is dependent on panel thickness.

Dimensions in [inches] mm

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Wiring

PIN	Function
1	Vsupply 2
2	Switch 2 (-)
3	Ground 2
4	Output 2
5	Output 1
6	Ground 1
7	Switch 1 (+)
8	Vsupply 1

(+) direction:
Increasing Signal
Output 1



(-) direction:
Decreasing Sig-
nal Output 1

Pin1

Connection via 8-pole connector, 2.54 pitch. Cable not included.
Cable can be ordered separately (Part no. 135686, see below).

Drawing of optional connector cable part no. 135686 – not included in joystick delivery!

PIN	colour
1	red
2	orange
3	black
4	blue
5	pink
6	yellow
7	violet
8	brown

