Data Sheet for Joysticks

Finger Joystick — Series 846

- Dual redundant outputs
- Spring Return or Friction Clutch with detents
- Two lever height variants and color-coded inserts available
- Effectively zero below panel depth

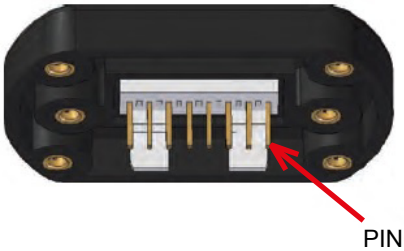
The 846 series is a member of the generation of precise contactless input devices. The paddle combines the features of a contactless single axis joystick and a switch in one control. Analog signal output, switch signals and even PWM output can be customized. The new design with its innovative mechanism and ergonomic styling is specifically designed for robustness, strength and performance.

Technical Data

Sensor	Hall effect
Supply Voltage Vsupply	5VDC ±0,5V transient free
Output Voltages	0..5 V / 0,5..4,5 V (Dual Output), PWM optional
Center Voltage	Vsupply/2 ± 5% * full scale
Current Consumption	< 20mA
Switch Output	Open Drain, pulled high within control via 1,5kΩ to Vsupply, and smoothed to 0V with 100nF
Loads	Minimum 10 kΩ, >100kΩ recommended
Mechanical Operating Angle	50° (±25° from center)
Max. load to mechanism	Horizontal: 75N / Vertical: IK08 (BSEN62262:2002)
Life Cycles	5 million cycles (sprung version), 2 million cycles (detents)
Operating Temperature	-25°C..+70°C
Storage Temperature	-40°C..+70°C
Seal above Panel	IP67 (with gasket)
EMC Emissions	EN61000-6-3:2001 CISPR 22:2005 Class B 30MHz - 11 GHz
EMC Immunity	100V/m, 80MHz - 2,7GHz, 1kHz 80% sine wave mod., EN61000-4-3 (extended)
ESD	EN61000-4-2 (extended), ±8kV (20 contacts) & ±15kV (20 air discharges)
Vibration	100Hz - 200 Hz @ 0,13g²/Hz, total 3,6gRMS (1 hour in each of three mutually perpendicular axes)

Wiring

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



8-pole Connector
2,54mm Pitch

Connection cable not included.
Please contact us for individual cable configurations.

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Order Code

Series	846						
Paddle							
74 mm height		1					
50 mm height		2					
Lever Operation							
Spring Return to Center = 0°			1				
Spring Return to Center + Detent at 0°			2				
Spring Return to Center + Detents at 0° & ±12,5°			3				
Spring Return to Center + Detents at 0° & ±25°			4				
Spring Return to Center + Detents at 0° & ±12,5° & ±25°			5				
Friction and Detent at 0°			6				
Friction and Detents at 0° & 12,5°			7				
Friction and Detents at 0° & 25°			8				
Friction and Detents at 0° & 12,5° & 25°			9				
Inserts							
Black				A			
Red				B			
Blue				C			
Yellow				D			
Green				E			
Output Options							
Dual Output, signals parallel (standard)					1		
Dual Output, signal 2 inverted					2		
PWM Signal					3		
Output Signal							
0 .. 5,0V (rail to rail)						5	
0,5 .. 4,5V						4	
Switching Points							
No Switches							0
Switching at ±5°							1
Switching at ±12,5°							2
Switching at ±25°							3

Information on „Lever Operation“

FRICTION with detents (the lever ‚clicks‘ into and stays at preset positions) at deflection angles:

0° ±12,5° ±12,5° & ±25° ±25°

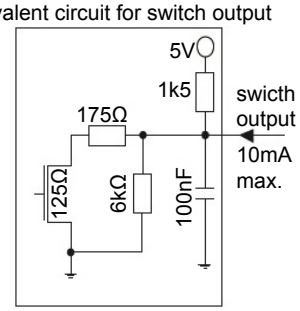
SPRING RETURN with detents (the lever ‚clicks‘ into preset positions and springs back to center position when released) at deflection angles:

0° ±12,5° ±12,5° & ±25° ±25°

Information on „Output Options“ and „Switching Points“

The 846 series joystick is configured as two “electrical” controls in one mechanical package. The Paddle operates from 5V 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

Equivalent circuit for switch output



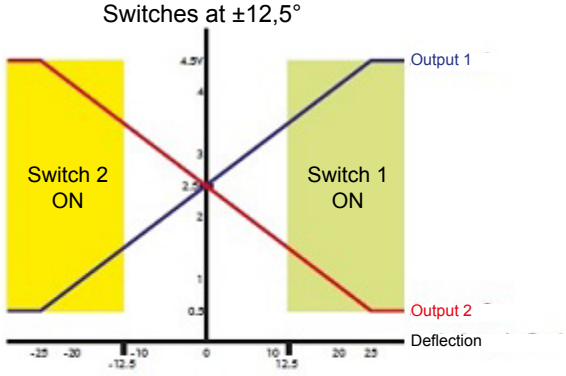
Selectable „Switching Points“
The joystick incorporates two Hall effect switches. The angle of the lever at the switch trigger point can be selected when ordering. If no switches are specified then the output on pins 2 and 7 will be unused.
The outputs are configured as ‘open drain’ type with a 1K5 pull up resistor to 5V.

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)

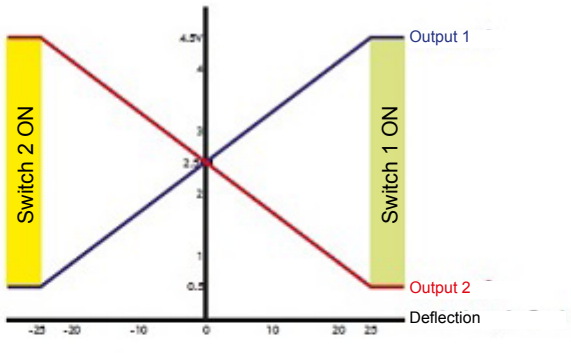
Output Characteristics (here: 0,5 - 4,5V Output)
Note: When option „Dual Parallel Output“ is selected the polarity of Switch 2 is inverted.

1) DUAL INVERSE OUTPUTS

Switches at ±12,5°

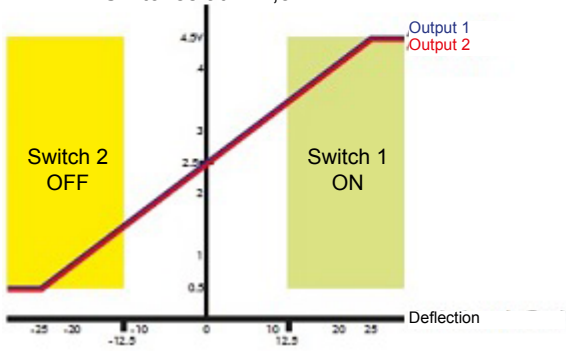


Switches at ±25°

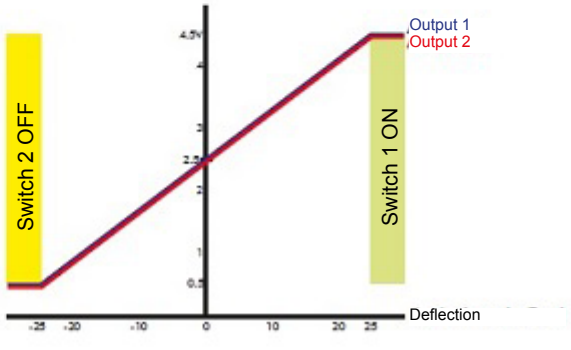


2) DUAL PARALLEL OUTPUTS

Switches at ±12,5°



Switches at ±25°



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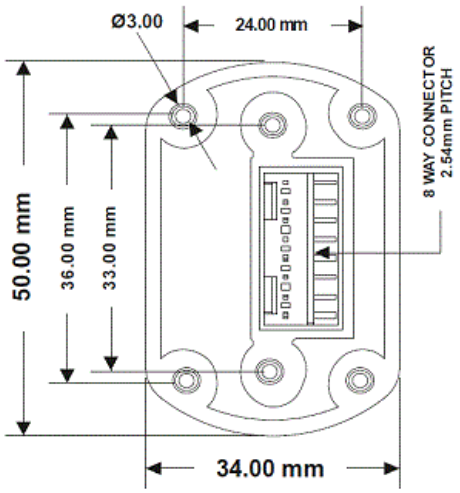
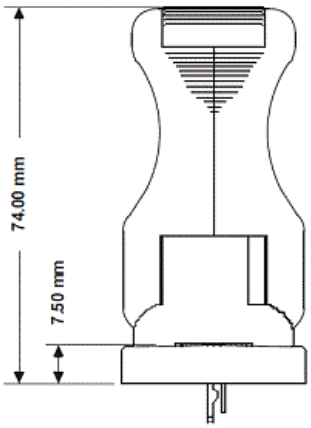
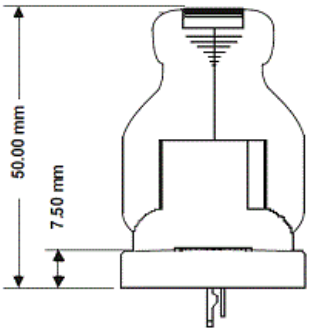
Technical Drawing





Paddle option „1“



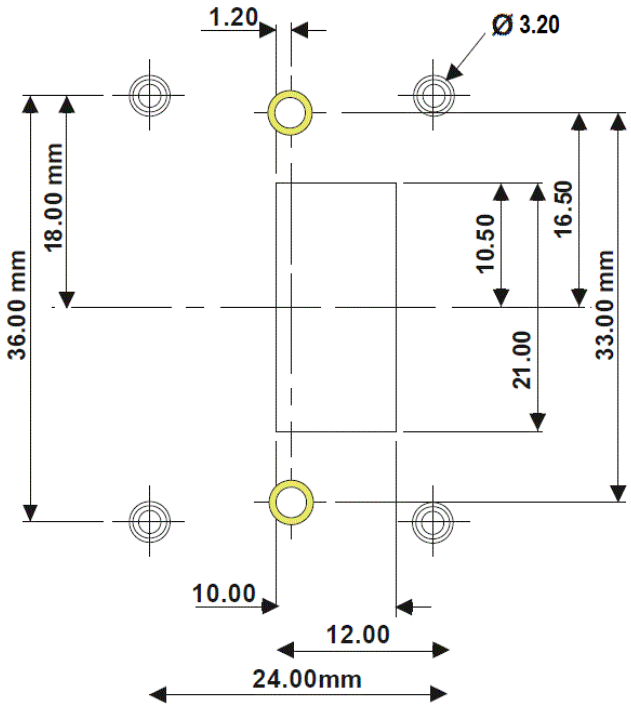
Paddle option „2“

Dimensions in mm

Panel Cut-Out & Mounting

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 mm