Data Sheet for Joysticks

Finger Joystick — Series 829

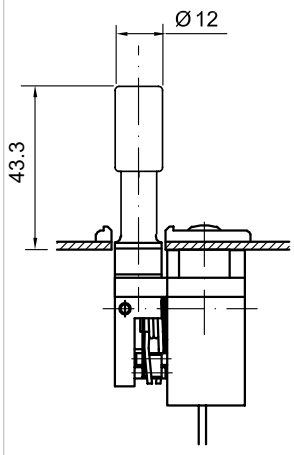
- Exceptional quality of mechanics and sensors
- For demanding applications
- 1 axis, spring return or friction clutch (with or without detent)
- Optional with Hall sensors or potentiometers
- Resting position of handle in center position, at negative max. deflection or at any angle using a friction clutch
- Optional extension for current output conversion (4 to 20 mA)

The 829 series joystick meets the highest quality standards. Its strengths lie in demanding single-axis applications where durability and reliability are paramount. The solid mechanical construction and the resulting high quality haptics provide a safe operating feel and enable the user to control machines precisely. The 829 series offers a wide range of configurations to suit almost any application.

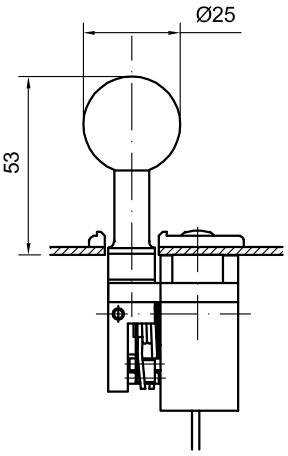
Technical Data Joystick	
Angle of movement	±20° from center
Operating force	1 to 2.5 N (1 to 5.5 N with rubber boot)
Return to center accuracy	±1°
Operating temperature	-20°C to +60°C
Vibration (MIL-STD-202F-204)	10 to 55 Hz 98 m/s²
Shock (MIL-STD-202F-213)	294 m/s²
Lifetime	typ. 2 million cycles
Weight	ca. 100 g
Protection grade	IP65 with rubber boot (handles without button), IP40 with rubber boot for handle 6

Handle versions

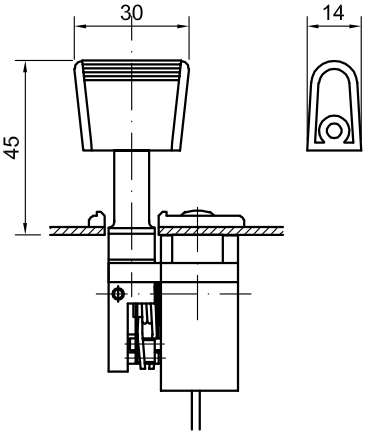
HANDLE 2



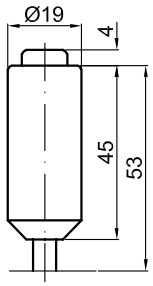
HANDLE 3



HANDLE F



HANDLE 6



Dimensions in mm

Data Sheet for Joysticks

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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	**829**								
Axes: **1 Axis**		**1**							
Sealing: **Rubber boot** *Square bezel (no sealing)*			**5** *8*						
Return mechanism: **Spring return** *Friction clutch with centre detent* *Friction clutch (no detents)* *Spring return to negative limit (-Y position)*				**1** *5* *6* *8*					
Handles: *Cylinder* **Ball tip** *Flat* *Cylinder, with pushbutton (IP40 above panel)*					*2* **3** *F* *6*				
Mounting plate: **none** *With mounting plate*						**1** *4*			
Sensors: **Potentiometer type K** *Hall sensor type H, single output, 0.5 to 4.5 V* *Hall sensor type H0505, single output, 0.0 to 5.0 V* *Hall sensor type HP, dual parallel output, 0.5 to 4.5 V* *Hall sensor type HX, dual crossed output, 0.5 to 4.5 V / 4.5 to 0 V*							**K** *H* *H0505* *HP* *HX*		
Micro switches: **none** *Center detect switch* *2 micro switches, ON @ ±5°*								**0** *1* *2*	
Additional options: *Custom resistance values potentiometer (1k, 5k)* *Center tap (for potentiometers)* *Output 4..20 mA, current transformer integrated in cable outlet, supply 24 VDC**									*RxK* *CT* *2442*

* Only available for potentiometers or Hall sensor option 0505. See information below.

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

For example:
- Specific switch configurations
- Customer-specific cable

Order example

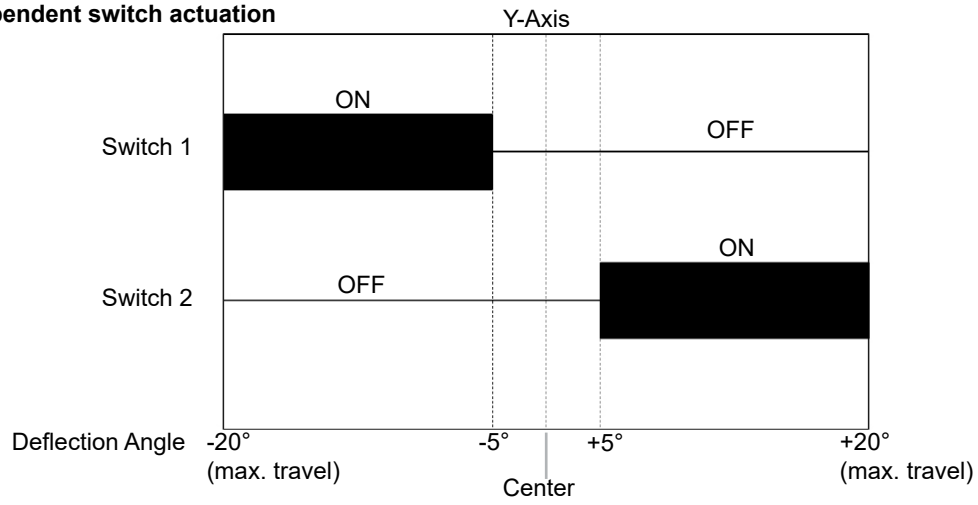
Requirements:
Round handle, rubber boot, with mounting plate, Hall sensor, current converter with output 4 to 20 mA

Example for order code:
829 1 5 1 3 4 H 0 2442

Finger Joystick — Series 829

Switches

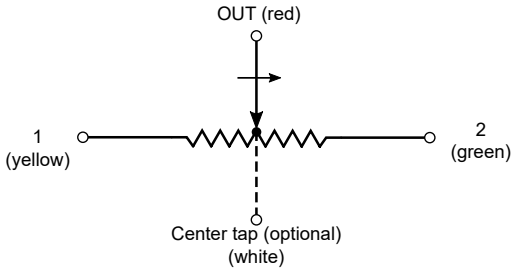
SCHEME of deflection-dependent switch actuation
e.g. “Switches ON @ ±5° ”



Technical Data Potentiometer Type K

Technology	Conductive plastic; bearing
Nominal total resistance	10 kOhm
Resistance tolerance	±20%
Independent linearity	±5% full-scale
Power rating @ 40°C	0.1 W
Effective electrical angle of rotation	40°
Lifetime	typ. 2 million cycles
Max. wiper current	1 mA (short-time)
Termination	Lead wires AWG20, length ca. 300 mm

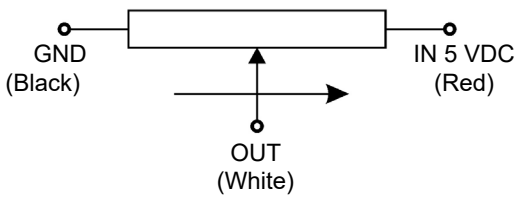
Terminals



Technical Data Hall Sensor Type H / H0505

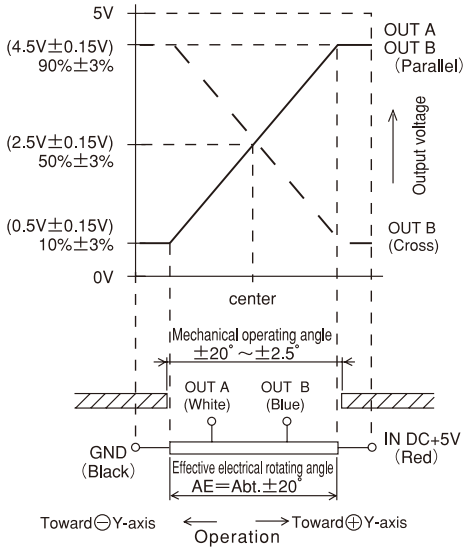
Technology	Hall sensor
Supply voltage	5 VDC ±10%
Power consumption	ca. 6 mA
Output voltage (U_{out})	0.5 V to 4.5 V (option H) 0.0 to 5.0 V (option H0505)
Independent linearity	±3% full-scale
Load resistance	> 100k Ohm
Temperature drift output	< ±2.5% U_{out} full-scale
Temperature drift center position	< 0.5% U_{out} full-scale
Insulation resistance	> 100 MOhm @ 250 VAC
Lifetime	typ. 5 million cycles

Terminals



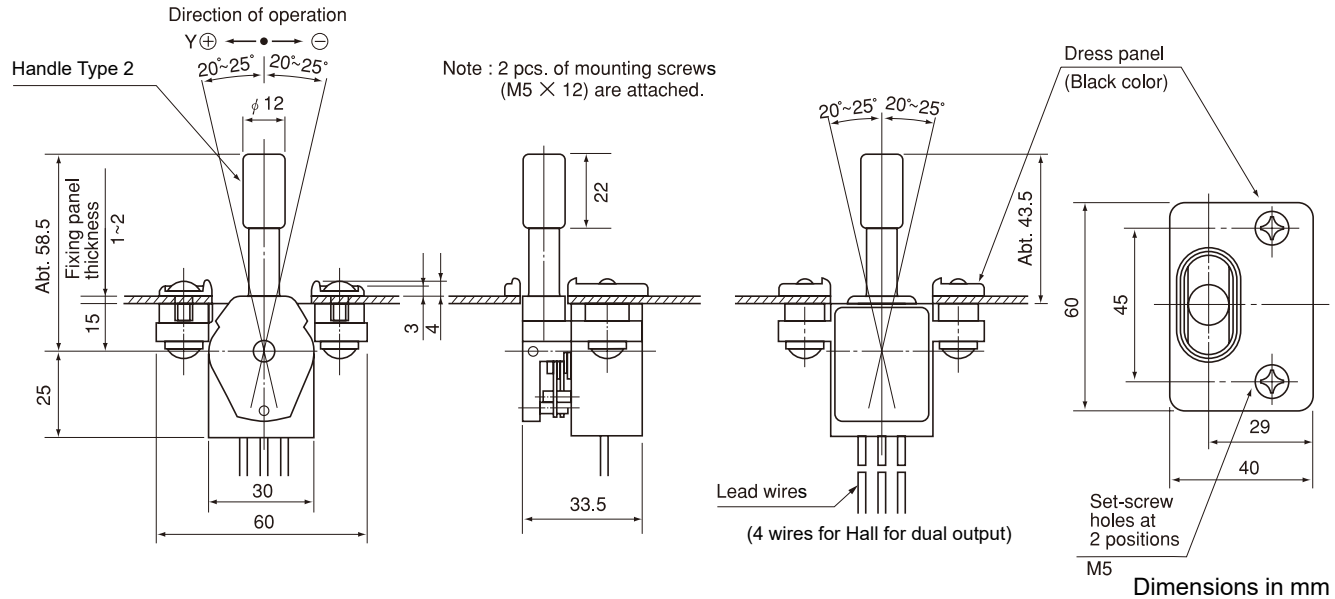
Wires AWG20, Length ca. 300 mm

Output signal for option H



Finger Joystick — Series 829

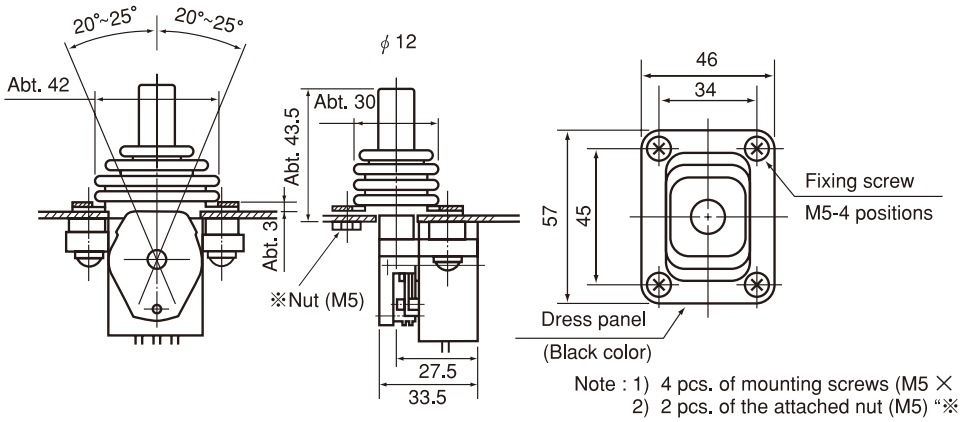
Technical drawing - for option sealing „8“ with rectangular bezel



Dimensions in mm

Technical drawing - for option sealing „5“ with rubber boot

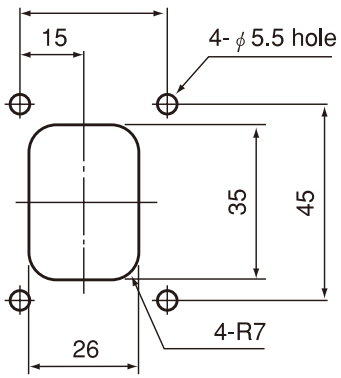
Dimensions in mm



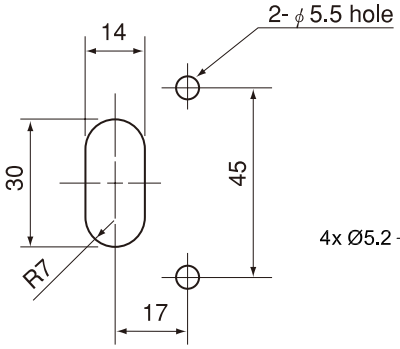
Note : 1) 4 pcs. of mounting screws (M5 X 12) are attached.
2) 2 pcs. of the attached nut (M5) “※” use for mounting of the one side.

Panel cut-outs and mounting plate option

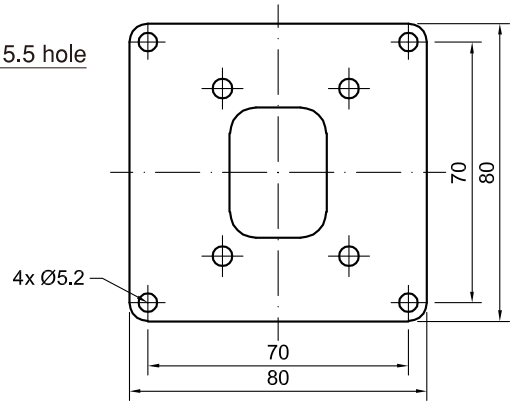
Option “rubber boot“



Option “square bezel“



Option “Mounting plate“



Dimensions in mm

Data Sheet for Joysticks

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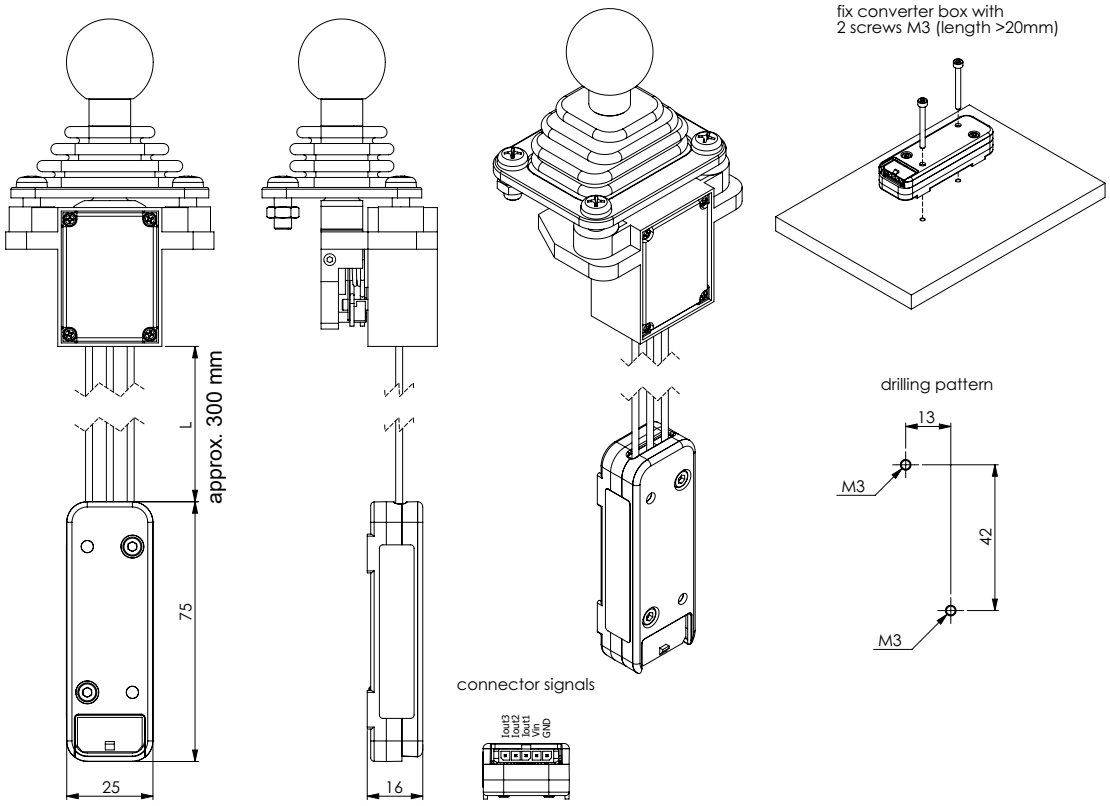
Technical data current converter (additional option 2442)

Supply voltage	12 to 24 V
Current consumption	Maximum consumption <100 mA, Consisting of: 1) Basic consumption voltage transformer 40 mA + 2) sum of currents per channel (4..20 mA, max. 30 mA) + 3) consumption joystick (max. 30 mA)
Output signal	4 to 20 mA (max. 2 channels)
Operating temperature	-20°C to +60°C
Independent Linearity	< ±1% (note: this is added to the one of the mechanics and the sensor)
Temperature dependent drift	< ±0,01%/°C
Insulation resistance	> 1000 MOhm at 500 VDC
Terminating resistor	25 to 50 Ohm (Attention: this resistance must be provided by the customer!)

The current transformer is a separate electronics box that can be ordered as an extension to the joystick. The converter supplies the sensor of a joystick with voltage and converts the voltage signal (0-5V) of the joystick into a current signal of 4 to 20 mA. The current transformer can provide up to 3 analogue signals as current outputs, while the joystick 829 offers up to two channels. It is equipped with a Molex connector type 43650-0501. The converter box can be mounted by the customer using two M3 screws (see drawing for details). Tensile loads on the converter connections must be avoided.



Immunity

Port	Disturbance type	EMC Specification	Test Level
Housing	ESD	IEC 61000-4-2	4 kV Contact / 8 kV Air
	Conducted Sinus Wave	IEC 61000-4-3	3 V/m 80 MHz - 6 GHz
DC Power	BURST	IEC 61000-4-4	1 kV (5 kHz)
	Conducted Sinus Wave	IEC 61000-4-6	3 V (150 kHz-80 MHz)
I/O	BURST	IEC 61000-4-4	1 kV (5 kHz)
	Conducted Sinus Wave	IEC 61000-4-6	3 V (150 kHz-80 MHz)

Emission

Port	Disturbance type	EMC Specification	Class
AC/ DC Power	Emission	CISPR 55011	B
Housing	Emission	CISPR 55011	B

Finger Joystick — Series 829

Technical data Hall sensor option H2442 (deprecated)	
Supply voltage	24 ± 0.5 V
Current consumption	ca. 16 mA
Output signal	4 to 20 mA
Load resistance	500 Ohm (must be applied, otherwise damage might occur)
Independent linearity	±3%
Insulation voltage	±8 kV (contact), ±16 kV (air) (IEC 61000-4-2)
Insulation resistance	> 1000 MOhm at 500 VDC