

Data Sheet for Joysticks

Hand Joysticks

Series TRY81



- Up to 3 axes
- Spring return, friction clutch optionally
- Sealed up to IP63
- Multifunction handle for additional functions, e.g. switches, rockers, deadman paddle
- Also available with USB- or CAN-Bus-Interface

The TRY81 series derives from the TRY80 series, providing the same specifications regarding robustness, durability and precision. The handle can be individually configured with different kinds of pushbuttons, switches, rocker switches - even our TRY13 and TRY14 can be integrated.

Electrical Data Joystick

Sensor	Hall Effect
Supply Voltage	5 VDC ± 0.5 VDC transient free
Power Rating	10 mA per Axis
Reverse Polarity max.	-10 VDC
Overvoltage max.	16 VDC
Output Impedance	6 Ohm
Resolution	Infinite
Independent Linearity Tolerance	$\pm 2\%$ full scale
Return to Center Voltage (no Load)	± 200 mV initially
Output Voltages	0 - 5 V / 0.5 - 4.5 V / 0.25 - 4.75 V / dual signals available

Mechanical Data Joystick

Expected Life	5 million cycles
Mechanical Angle of Movement X & Y / Z Axis	38° ($\pm 19^\circ$) / 42° ($\pm 21^\circ$)
Break Out Force X & Y / Z Axis	7,7 N / 0,6 Nm
Operating Force X & Y / Z Axis	14,0 N / 1,1 Nm
Maximum Applied Force X & Y / Z Axis	900 N, 20 cm above panel / 24,5 Nm
Environmental Sealing (above panel)	up to IP63 (depending on handle configuration)
Operating Temperature	-40°C to +85°C
Storage Temperature	-40°C to +85°C
EMC Immunity Level (V/M)	IEC 61000-4-8:2009
EMC Emissions Level	IEC 61000-4-3:2006
ESD	IEC 61000-4-2:2008

Notes:

1. All values are nominal
2. Exact specifications may be subject to configuration

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Configuration Examples Oval Faceplate



Configuration Examples Square Faceplate

Technical Data Pushbuttons

Max. Electrical Resistive Load	400 mA 32 VAC - 100 mA 50 VDC - 125 mA 125 VAC
Low Level	10 mA at 30 mV
Electrical Life	25000 cycles 5 A @ 28 VDC
Mechanical Life	1 million cycles
Environmental Sealing	up to IP67
Action	Momentary, snap-action
Operating Force	7,5 N ±2 N
Total Travel	2 mm + 0,25 mm
Available Button Colors	white, grey, black, red, orange, yellow, green, blue, purple



Note:

1. Max. configuration of the handle takes up to 8 pushbuttons and 4 LEDs in the faceplate, plus an Index trigger or Proximity sensor
2. If unspecified, the pushbuttons will have snap-action momentary switches with red button caps.

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Order Code									
Description	Selection: standard=black/bold, possible options=grey/italics								
Series	TRY81								
Axes:									
1 Axis		<i>1</i>							
2 Axes		2							
3 Axes		3							
Sealing:									
Rubber Boot			5						
Return Mechanism:									
Spring Return				1					
Limiters:									
Square					Q				
Round					R				
X/Y „Plus“					P				
1 Axis X					X				
1 Axis Y					Y				
Handles:									
Handle with rectangular faceplate							1		
Handle with 2 Pushbuttons, rect. faceplate							2		
Handle with 4 Pushbuttons, rect. faceplate							3		
Handle with 8 Pushbuttons, rect. faceplate							4		
Handle with oval faceplate, customer-spec.							S		
Index Trigger:									
None							0		
With Trigger							1		
Output Options:									
0 - 5 V single (<i>inverse dual output</i>)									1 (1X)
0.5 - 4.5 V (<i>inverse dual output</i>)									2 (2X)
0.25 - 4.75 V (<i>inverse dual output</i>)									3 (3X)
USB Joystick									5
USB Mouse Emulation									6
CAN J1939									CAN
CANopen									COP
Voltage Regulator									
Supply 6 - 35 VDC, Output 0 - 5 VDC									V1205
Supply 11 - 35 VDC, Output ±10 VDC									V1210B
Additional Options									
max. IP grade (above panel)*									IP

*Dependent on handle configuration

On request additional options are available

For example:

- Multi-function faceplates with additional buttons, rocker switches, small joysticks
- Customer-specific wiring

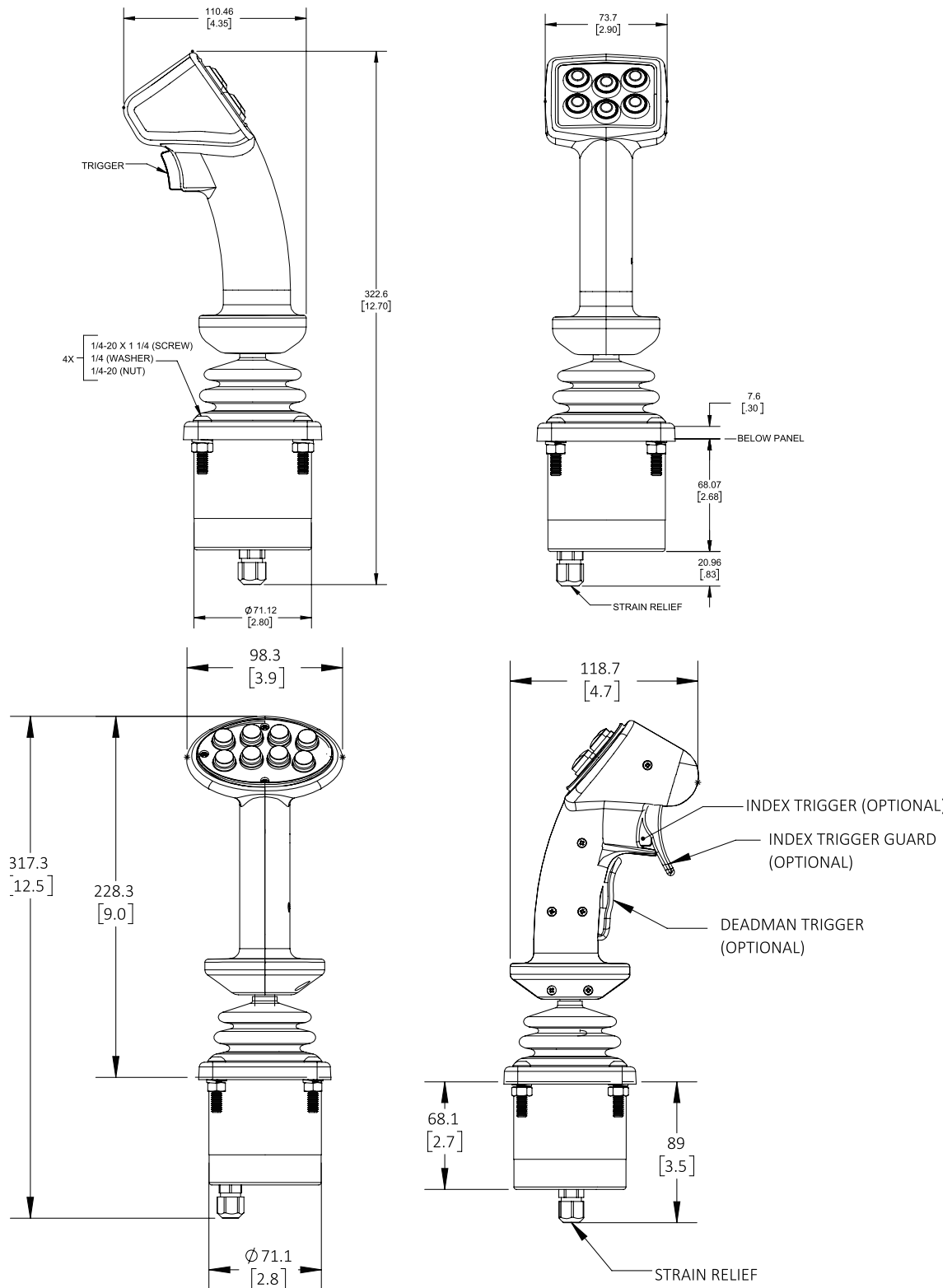
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Technical Drawing



All dimensions in mm (inch)

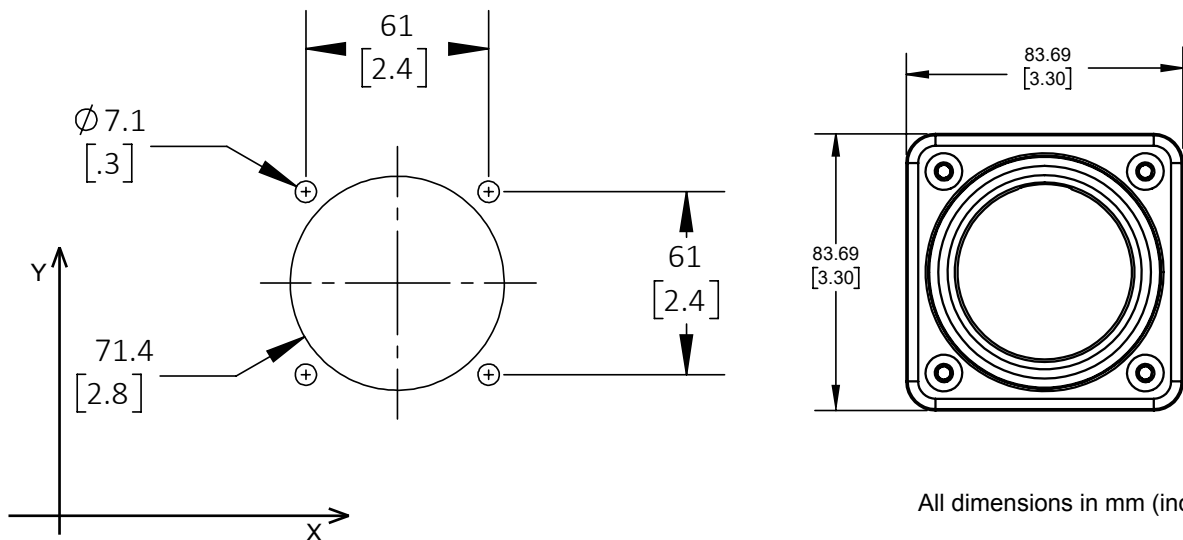
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Mounting

Drop-In Installation



All dimensions in mm (inch)

Wiring (analog output)

Color	Function	Color	Function	Color	Function
BLACK	Ground	WHITE	Pushb. Common	RED/WHITE	Trigger
RED	Supply Power	ORANGE	Pushbutton 1	LIGHTGREEN	LED 12
BLUE	X Axis	PURPLE	Pushbutton 2	LIGHTORANGE	LED 13
YELLOW	Y Axis	GREY	Pushbutton 3	GREY/WHITE	LED 14
GREEN	Z Axis	BROWN	Pushbutton 4	BLACK/WHITE	LED 15
		PINK	Pushbutton 5	PURPLE/WHITE	Deadman-Trg.
		BLUE/WHITE	Pushbutton 6		
		YELLOW/BLACK	Pushbutton 7		
		GREEN/BLACK	Pushbutton 8		

Notes:

- Standard cable length ca. 400 mm; Cable AWG 22 for Joystick functions, Switches, LEDs, etc.
- Joysticks with USB interface or mouse emulation are supplied with wiring with USB male type A connector; optionally ruggedized military connectors are available
- Wire color code might deviate from this table for special output options (CANbus J1939, CanOpen, Center Detect; etc.), detailed information will be given with your specific product