

# Data Sheet for Joysticks

Hand Joystick

Series TRY50



- Compact hand joystick
- Up to 3 axes
- Up to four push-buttons in handle
- Multiple handles available
- Protection Grade up to IP67
- Optionally available with USB, CAN J1939 or CANopen

The TRY50 range of compact handheld joysticks are designed for applications where finger-size joysticks are being replaced by hand-size joysticks. The construction is based on a robust mechanism combined with non-contact Hall sensors, while the mounting area is small. Multiple handles and analogue or optional digital outputs (USB, CAN-Bus) are available, making the TRY50 an option for heavy duty applications where space is limited.

## Electrical Data Joystick

Sensors	Hall-Effect
Supply Voltage	5 V $\pm$ 0.5 V transient free
Supply Current	max. 10 mA per axis
Reverse Polarity Max	-14.5 V
Over-voltage Max	18 V
Output Impedance	6 $\Omega$
Resolution	Infinite
Return to Center Voltage Tolerance	$\pm$ 200 mV
Output Options	Analogue: 0 to 5 V / 0.5 to 4.5 V / 0.25 to 4.75 V / redundant output available Digital: USB, USB Mouse Emulation, CAN J1939, CANOpen

## Mechanical and Environmental Data Joystick

Expected Life X-/Y-Axis	10 million cycles (typical use)
Mechanical Angle of Movement X-/Y-Axis	40° ( $\pm$ 20° from center; spring return)
Break Out Force X-/Y-Axis	5.6 N
Operating Force X-/Y-Axis	7.5 N
Maximum Applied Force X-/Y-Axis	650 N
Expected Life Z-Axis	1 million cycles (typical use)
Mechanical Angle of Movement Z-Axis	68° ( $\pm$ 34° from center; spring return)
Break Out Force Z-Axis	0.15 Nm
Operating Force Z-Axis	0.25 Nm
Maximum Applied Force Z-Axis	4.5 Nm
Environmental Sealing above Panel	up to IP67 (on request)
Operating Temperature	-25 °C up to +70 °C
Storage Temperature	-40 °C up to +70 °C
EMC Immunity Level (V/M)	IEC 61000-4-3:2006
EMC Emissions Level	IEC 61000-4-8:2009
ESD	IEC 61000-4-2:2008

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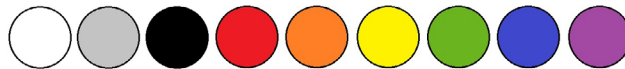
Series TRY50

## Technical Data Pushbuttons

Electrical Load	5 A resistive, 3 A inductive
DWV	1050 Vrms
Low Level	10 mA @ 30 mV
Electrical Life	1 million cycles 5 A @ 28 V
Mechanical Life	1 million cycles
Sealing	IP68
Action	Momentary, normally open
Operating Force	7.5 ± 2 N
Available Button Colours	white, grey, black, red, orange, yellow, green, blue, purple

Note:

1. Wire length ca. 400 mm
2. If unspecified, the pushbuttons will have snap action momentary switches („normally open“) and red button caps.



## Wire colour code - for analogue and voltage regulator versions

Colour	Function	Colour	Function	Colour	Function
BLACK	Ground	WHITE	Switch Common	BLUE/WHITE	X axis redundant
RED	Vcc	ORANGE	Switch 1	YELLOW/BLACK	Y axis redundant
BLUE	X Axis	VIOLET	Switch 2	GREEN/BLACK	Z axis redundant
YELLOW	Y Axis	GRAY	Switch 3		
GREEN	Z Axis	BROWN	Switch 4		

## USB-Options

### USB Interface (USB 2.0 HID compatible)

The USB Controller is integrated into the Joystick. Power Supply will be provided by the USB host via the connection cable. This USB interface supports most versions of Microsoft Windows and Linux OS.  
Cable included: USB cable (length approx. 1.75 m) with USB male type A connector. Other connectors and cable lengths available on request.

### USB Joystick as Mouse replacement

Cursor emulation optionally available. Supported protocols include Sun Microsystems (mouse systems 5 V serial) and USB (most versions of Microsoft Windows and Linux OS).

## Voltage Regulator

The Voltage Regulator is a multi-wired analogue option used to mate to a variety of industrial control voltages. The Voltage Regulator may be used when the supply or output voltage is greater than 5V or when bipolar output is required.

### Technical Data

Supply Voltage	(Output Voltage + 1 V) to 30 V
Output Voltage	0 to 5 V ; 0 to 10 V ; +/-5 V ; +/-10 V
Supply Current	max. 90 mA

## CANBUS

### CAN-bus J1939 / CANopen

A complete display is not possible due to many-fold ways of configuration. Please contact us directly with your specific requirements.

### Technical Data

Supply Voltage	6 to 35 V
Supply Current	min. 15 mA, +5 mA per LED, +10 mA per axis

### Wiring

Red	VCC	/	Green	CAN high	/	Blue	Identifier Select LSB
Black	Ground	/	White	CAN low	/	Orange	Identifier Select MSB

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

## Order Code

### Description

Series	TRY50								
<b>Axes:</b>									
1 Axis		1							
2 Axes		2							
3 Axes		3							
<b>Sealing:</b>									
Rubber Boot			5						
<b>Return Mechanism:</b>									
Spring Return „Standard“				1					
<b>Handle / Pushbuttons:<sup>(3)</sup></b>									
Ball Tip <sup>(4)</sup>						3			
Low Profile, no Pushbutton						6			
Low Profile, Square Front, 2 Pushbuttons						R			
Stock Grip Long, 2 Top Pushbuttons <sup>(4)</sup>						A			
Stock Grip Long, 2 Top Buttons, 2 Side Buttons <sup>(4)</sup>						B			
Stock Grip Long, no Pushbuttons <sup>(4)</sup>						C			
Stock Grip Long, 2 Top Pushbuttons, Deadman paddle <sup>(4)</sup>						D			
Stock Grip Long, no Top Pushbutton, Deadman paddle <sup>(4)</sup>						G			
Stock Grip Short, no Pushbuttons <sup>(4)</sup>						E			
Stock Grip Short, 1 Top Pushbutton <sup>(4)</sup>						F			
Stock Grip Long, 1 Top Pushbutton, Deadman paddle <sup>(4)</sup>						H			
<b>Limiters:</b>									
Square							1		
Round							3		
X/Y Plus „+“							9		
Square, 45° rotated („Diamond“)							2		
1-axis Y							8		
<b>Output Options:</b>									
0 to 5 V single (redundant signals parallel / inverse) <sup>(1)</sup>								1 (1P / 1X)	
0.5 to 4.5 V (redundant signals parallel / inverse) <sup>(1)</sup>								2 (2P / 2X)	
0.25 to 4.75 V (redundant signals parallel / inverse) <sup>(1)</sup>								3 (3P / 3X)	
USB Joystick <sup>(6)</sup>								5	
USB Mouse-Emulation <sup>(6)</sup>								6	
CAN-bus J1939								CAN	
CANopen								COP	
<b>Voltage Regulator:</b>									
Supply +5 to +30 V, Output 0 to +5 V								V1205 <sup>(2)</sup>	
Supply +10 to +30 V, Output ±10 V								V1210B <sup>(2)</sup>	
<b>Mounting:</b>									
Drop-In Mounting									2
<b>Additional Options:</b>									
None									-
Max. IP grade (above panel)									IP <sup>(5)</sup>

<sup>(1)</sup> For analogue output redundant signals are available on request.

<sup>(2)</sup> The switching power supply for the electronics of this device requires an initial current of at least 100 mA. The use of power supply units with current limiters operating below this threshold can damage the circuitry of the joystick!

<sup>(3)</sup> Other number of pushbuttons or custom configurations available on request

<sup>(4)</sup> Only for 1 or 2 axes version

<sup>(5)</sup> IP grade depends on handle configuration, protection grade is specified on request

<sup>(6)</sup> Linux operating systems not officially supported

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

For example:

- Custom handle types
- Customer-specific cables
- Custom CAN configuration

## Limiters



Square - Option "1"



1-axis "Y" - Option „8“



Round - Option "3"



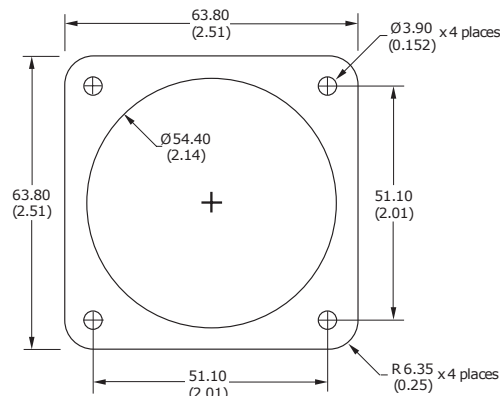
X/Y Plus "+" - Option „9“



Square, 45° rotated ("Diamond") - Option "2"

## Mounting Cut-Out

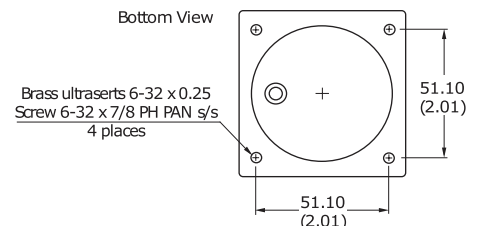
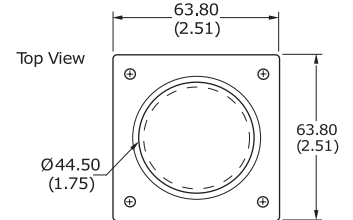
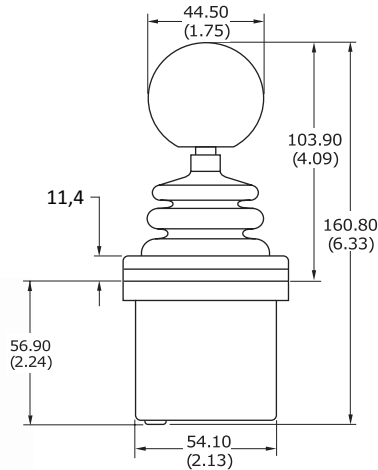
Drop-In installation



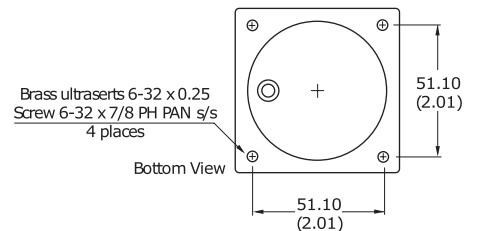
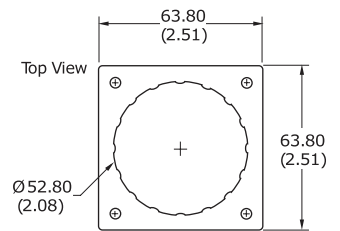
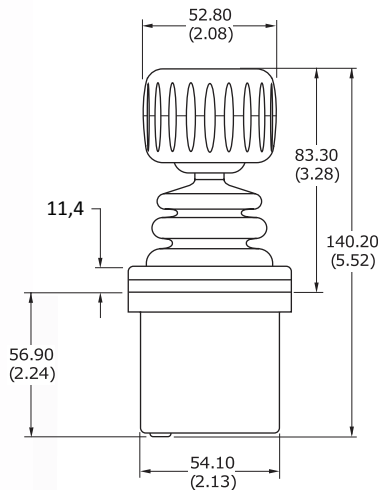
Dimensions in mm (inches)

### Drawing

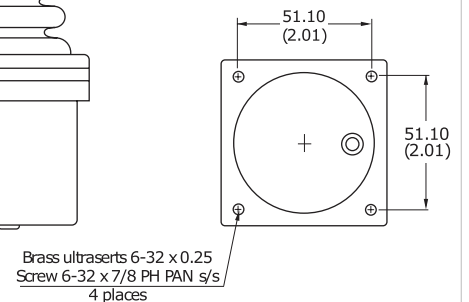
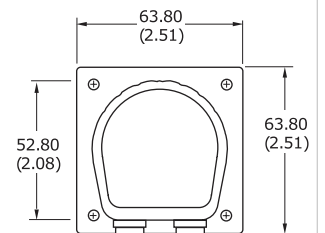
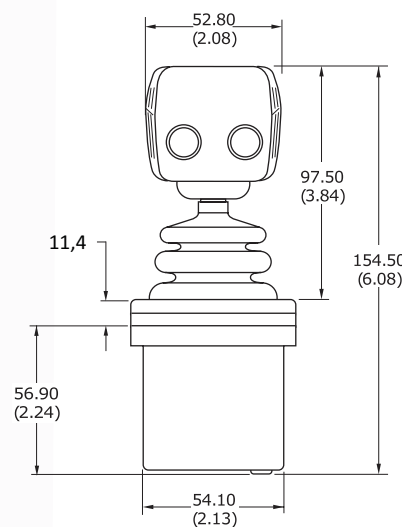
#### HANDLE „3“ Ball Tip



#### HANDLE „6“ Low Profile



#### HANDLE „R“ Low Profile



Dimensions in mm (inches)

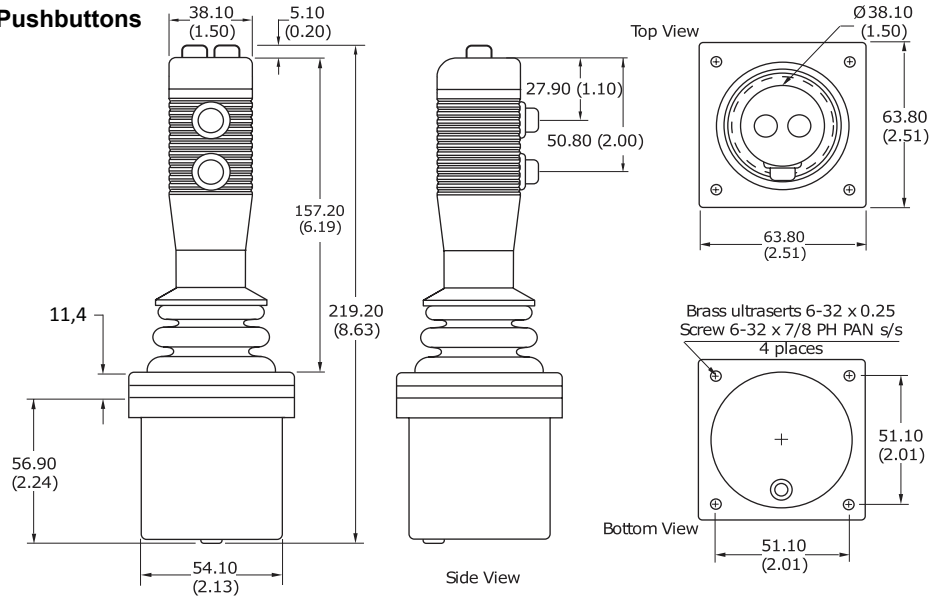
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## Drawing

**HANDLE „B“ Stock Grip Long, 4 Pushbuttons**



**HANDLE „F“ Stock Grip Short, 1 Top Pushbutton**

