

# Data Sheet for Joysticks

Finger Joystick

Series TRY12



- Up to two pushbuttons integrated into handle
- IP class up to 68
- Optional interfaces include USB and CAN (J1939)

The TRY12 series was mechanically optimized with regards to outdoor usage. Hall sensors guarantee long life time, while optional interfaces like e.g. CAN (J1939) allow easy integration into industrial applications.

## Electrical Data Joystick

Sensors	Hall-Effect
Supply Voltage	5 VDC $\pm$ 0,5 VDC transient free
Supply Current	13mA per sensor
Reverse Polarity Max	-10 V
Overvoltage Max	20 V
Output Impedance	2 Ohm
Resolution	1,22 mV
Independent Linearity Tolerance	$\pm$ 2% full scale
Return to Center Voltage Tolerance	$\pm$ 200 mV initial
Output Voltages	0..5 V / 0,5..4,5 V / 0,25..4,75 V / redundant output available

## Mechanical and Environmental Data Joystick

Expected Life	10 Million cycles
Mechanical Angle of Movement X-, Y-Axes	40° ( $\pm$ 20° from center)
Mechanical Angle of Movement Z-Axis	60° ( $\pm$ 30° from center)
Forces X-Y-Axes	Break out 1,8 N, operating 3,5 N, maximum applied 450 N
Momentum Z-Axis	Break out 0,09 Nm, operating 0,121 Nm, maximum applied 0,150 Nm
Environmental Sealing	up to IP68 (depending on handle)
Panel Thickness	1,17..3,17 mm (front mounting), max. 1,6 mm (rear mounting)
Operation Temperature	-25°C..+70°C
Storage Temperature	-40°C..+70°C
EMC Immunity Level (V/M)	IEC 61000-4-3:2006
EMC Emissions Level	IEC 61000-4-8:1993/A1:2000
ESD	IEC 61000-4-2:2008
Vibration Crash (non operational)	IAW MIL-STD-810F Method 516.5 Procedure V, Table 516.5-8 SRS (75G)
Vibration Shock (non operational)	IAW MIL-STD-810F Method 516.5 Procedure 1, 40G peak sine wave pulse with 11 ms duration
Vibration Shock (operational)	IAW MIL-STD-810F Method 516.5 Procedure 1, 20G peak half sine wave pulse with 11 ms duration

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Order Code							
<b>Series</b>	<b>TRY12</b>						
<b>Axes</b>							
1 Axis <sup>(*)</sup>		1 <sup>(*)</sup>					
<b>2 Axes</b>		<b>2</b>					
<b>3 Axes</b>		<b>3</b>					
<b>Rubber Boot Drop-In Mounting</b>			<b>5</b>				
Rubber Boot Rear Mounting <sup>(*)</sup>			6 <sup>(*)</sup>				
<b>Spring Return</b>				<b>1</b>			
<b>Handles</b>							
<b>Conical (1-2 Axes)</b>					<b>1</b>		
<b>Handle for 3 Axes, Low Profile, no P.button</b>					<b>6</b>		
Ball Tip (1-2 Axes) <sup>(*)</sup>					3 <sup>(*)</sup>		
Handle for 1-2 Axes, 1 Pushbutton <sup>(*)</sup>					4 <sup>(*)</sup>		
Handle for 3 Axes, no Pushbutton <sup>(*)</sup>					7 <sup>(*)</sup>		
Handle for 3 Axes, 1 Pushbutton <sup>(*)</sup>					9 <sup>(*)</sup>		
Handle for 3 Axes, 2 Pushbuttons <sup>(*)</sup>					A <sup>(*)</sup>		
<b>Limiter</b>							
<b>Square</b>					<b>1</b>		
<b>Round</b>					<b>3</b>		
<b>„Plus +“</b>					<b>9</b>		
Square rotated by 45° / Diamond <sup>(*)</sup>					2 <sup>(*)</sup>		
Slotted X (single axis) <sup>(*)</sup>					7 <sup>(*)</sup>		
Slotted Y (single axis) <sup>(*)</sup>					8 <sup>(*)</sup>		
„Cross X“ <sup>(*)</sup>					D <sup>(*)</sup>		
<b>Output Signal</b>							
Voltage Regulator (s.below.)							0 <sup>(*)</sup>
<b>0..5,0 V (rail to rail)</b> <sup>(1)</sup>							<b>1</b>
<b>0,5..4,5 V</b> <sup>(1)</sup>							<b>2</b>
<b>0,25..4,75 V</b> <sup>(1)</sup>							<b>3</b>
<b>USB</b>							<b>5</b>
USB Mouse Emulation <sup>(*)</sup>							6 <sup>(*)</sup>
CAN J1939 <sup>(*)</sup>							CAN <sup>(*)</sup>
<b>Output Options</b>							
<b>none</b>							-/-
Center Detect <sup>(*)</sup>							C <sup>(*)</sup>
Dual Decode <sup>(*)</sup>							D <sup>(*)</sup>
Analog Deadband <sup>(*)</sup>							A <sup>(*)</sup>
Voltage Regulator <sup>(2)</sup>							
Supply +12..+30 VDC, Output 0..+5 VDC							V1205 <sup>(*)</sup>
Supply +12..+30 VDC, Output 0..+10 VDC							V1210 <sup>(*)</sup>
Supply +12..+30 VDC, Output ±5 VDC							V1205B <sup>(*)</sup>
Supply +12..+30 VDC, Output ±10 VDC							V1210B <sup>(*)</sup>

For joysticks available from stock please see our stock types list: <http://www.megatron.de/en/stocklists/joysticks/lagerliste.html>

Bold print = Standard options

<sup>(\*)</sup> upon request

<sup>(1)</sup> also available with Dual Sensors (redundant Outputs, Signals parallel or inverse)

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

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Finger Joystick

Series TRY12

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

For example:

- Redundant Output Signals (inverted or parallel), Mouse Emulation, Voltage Regulator
- Customer-specific cable

Available options for small quantity orders can be found on our stock types list on

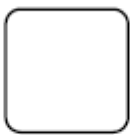
<http://www.megatron.de/en/stocklists/joysticks/lagerliste.html>

In addition, we have an extensive stock of samples for project needs.

For technical advice, projects, samples, questions about pricing, delivery times and availability please contact us

Tel.: +49 89 46094-500  
export@megatron.de

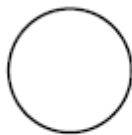
## Limiters



Square



Square



Round



1-axis Y



Plus



Cross

## Output Options

### USB Interface (USB 1.1 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 VDC serial) and USB (most versions of Microsoft Windows and Linux OS).

### Center Detect (Output Signal 0,5..4,5 V)

Utilizes a microprocessor to monitor joystick output and provides both logic and proportional signals for enhanced operator safety. Specified for a joystick normally ranged 0,5..4,5 VDC, the processor continuously monitors the proportional output and provides HI logic signal (5,0 VDC) when moved off center and an LO logical signal (0 VDC) for an over-range (>4,5 VDC) or under-range (<0,5 VDC).

### Dual Decode (Output Signal 0,5..4,5 V)

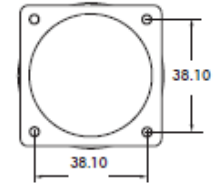
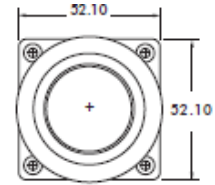
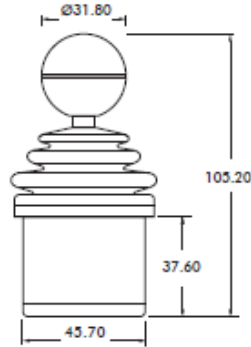
Utilizes a microprocessor to monitor linear opposite-ramp signals for each joystick axis and provides one proportional (0,5..4,5 V) and one logical output accordingly. The dual inversed signals are continuously monitored and a logical signal of 0 VDC is provided for over-range (>4,5 VDC), under-range (<0,5 VDC) and signal tracking (sum of both signals equals 4,5 V  $\pm 10\%$ ) error. A logical signal of 5,0 VDC is provided for a properly functioning joystick deflected from center.

### Analog Deadband

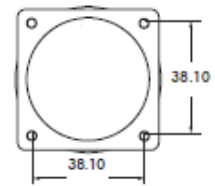
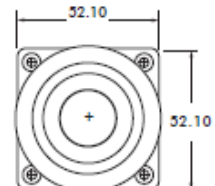
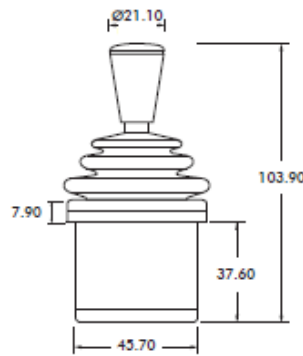
Utilizes an analog circuit to monitor proportional joystick outputs and enhance return to center accuracy over multiple axes. Specified for a joystick normally ranged 0..5 VDC at full axis travel, a constant output of 2,5 VDC is provided for the joystick's position  $\pm 2,5\%$  from center.

Handles

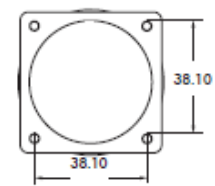
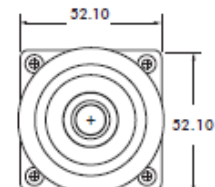
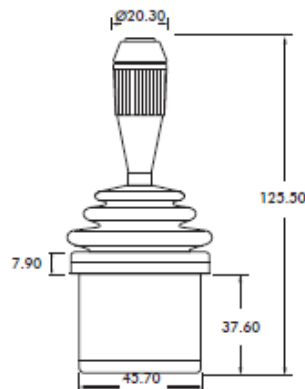
Handle 3



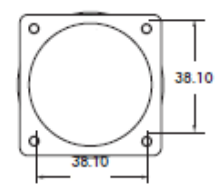
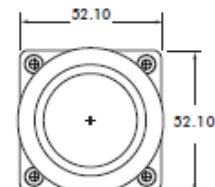
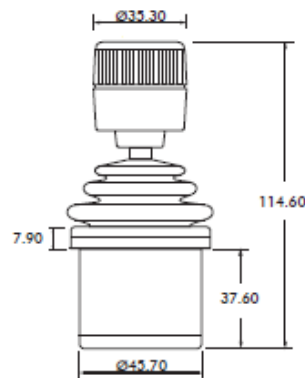
Handle 1



Handle 4



Handle 7



All dimensions in mm

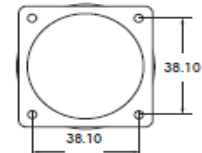
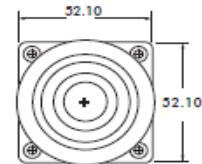
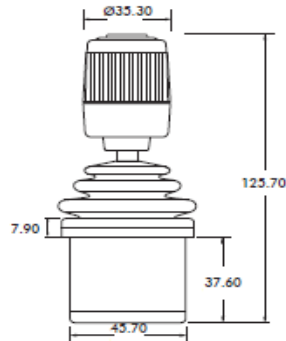
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Finger Joystick

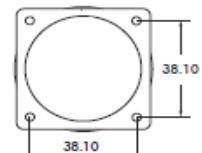
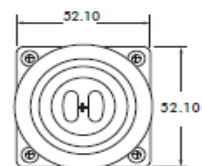
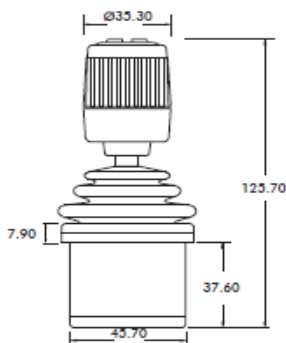
Series TRY12

## Handles

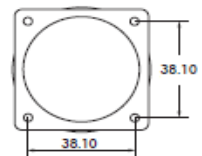
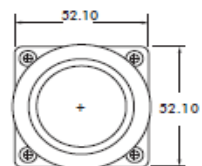
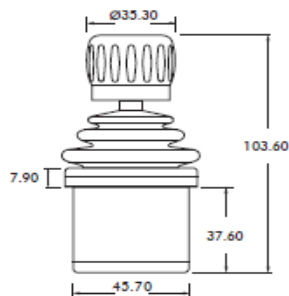
Handle 9



Handle A



Handle 6

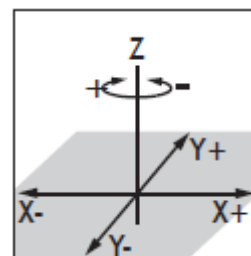


All dimensions in mm

## Wire Color Code

Function	Color	AWG
Ground	black	28
Vcc	red	28
X-Axis	blue	28
Y-Axis	yellow	28
Z-Axis	green	28
Pushbutton 1	orange	22
Pushbutton Common 1/2	white	22
Pushbutton 2	violet	22

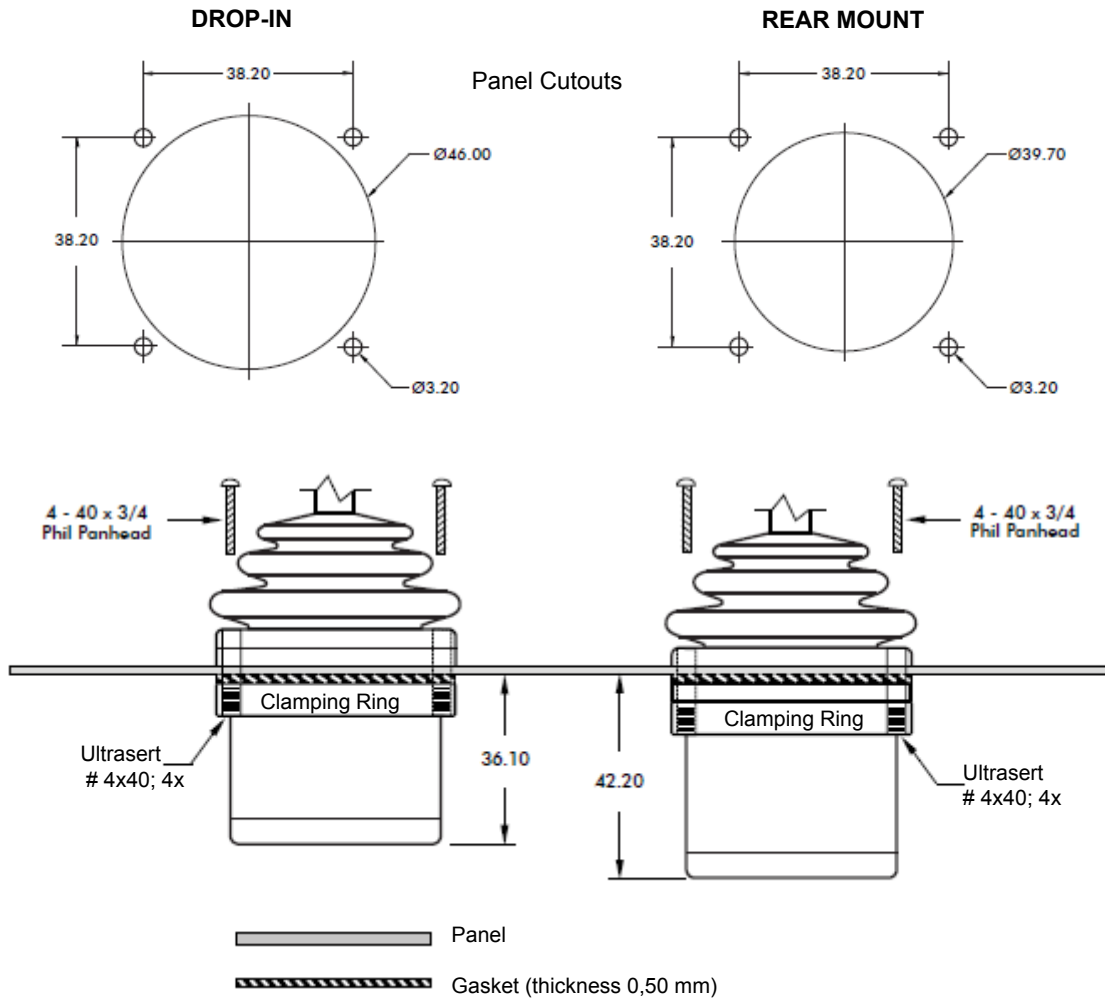
## Orientation of Axes



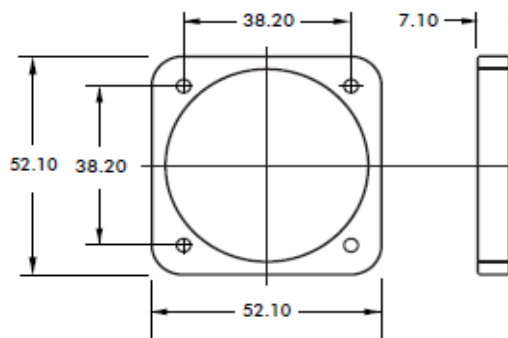
Leads are leaving joystick housing heading to X- direction

Length of Leads: 178 mm

### Mounting Options



### Dimensions of Clamping Ring



#### NOTES:

- For Drop-In mounting, the panel thickness can be 1,17..3,17 mm.
- For Rear Mount the maximum panel thickness is 1,6 mm.
- A panel thickness of 1,6 mm was considered for all the below-panel depth values.
- The below-panel depth is extended by 7,11 mm with USB/USB Mouse Emulation, Voltage Regulator, Dual Decode, Center Detect, Analog Deadband

All dimensions in mm