

# Data Sheet for Joysticks

## Hand Joysticks

## Series TRY52



- 1 or 2 axes
- Life expectancy of 10 Million cycles
- Sealed up to IP68
- Multifunction handle for additional functions, e.g. Switches, Rockers, Deadman
- Optional interfaces: USB, CANbus J1939 or CANopen

The TRY52 offers everything a joystick for heavy-duty applications needs: High durability of all components, IP68 (depending on specific configuration), and an ergonomic handle design for the integration of further functional devices like e.g. switches, rockers, mini joysticks, trigger, deadman switch, and others.

*The Series TRY52 is the best choice for customer-specific projects requiring individual configuration optimal suited to your application. As there is a large variety of possible configurations for these joysticks, we kindly ask you to contact us to discuss the best solution for you.*

### 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 (typical use)
Mechanical Angle of Movement	40° ( $\pm 20^\circ$ from center)
Break Out Force	5,6 N
Operating Force	7,5 N
Maximum Applied Force	650 N
Environmental Sealing	up to IP68
Operating Temperature	-40°C .. +70°C (CAN-bus: -25°C .. +75°C)
Storage Temperature	-40°C .. +75°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

#### Notes:

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

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### Pushbuttons Characteristics

Max. Current / Voltage Rating with Resistive Load	400mA 32VAC - 100mA 50VDC - 125mA 125 VAC
Low Level	10mA at 30mV
Electrical Life at Full Load	500000 cycles
Mechanical Life	1 million cycles
Environmental Seal	IP67
Action	Momentary, pushbutton
Operating Force	7N $\pm$ 3N
Total Travel	1,9mm $\pm$ 0,3mm
Pushbutton Colors available	White, grey, black, red, orange, yellow, green, blue, violet

#### Notes:

1. The maximum possible configuration for the handle of TRY52 is up to 2 Front Buttons, 6 Top Buttons, and a Deadman lever
2. If unspecified, the pushbuttons will have momentary „normally open“ switches with red caps

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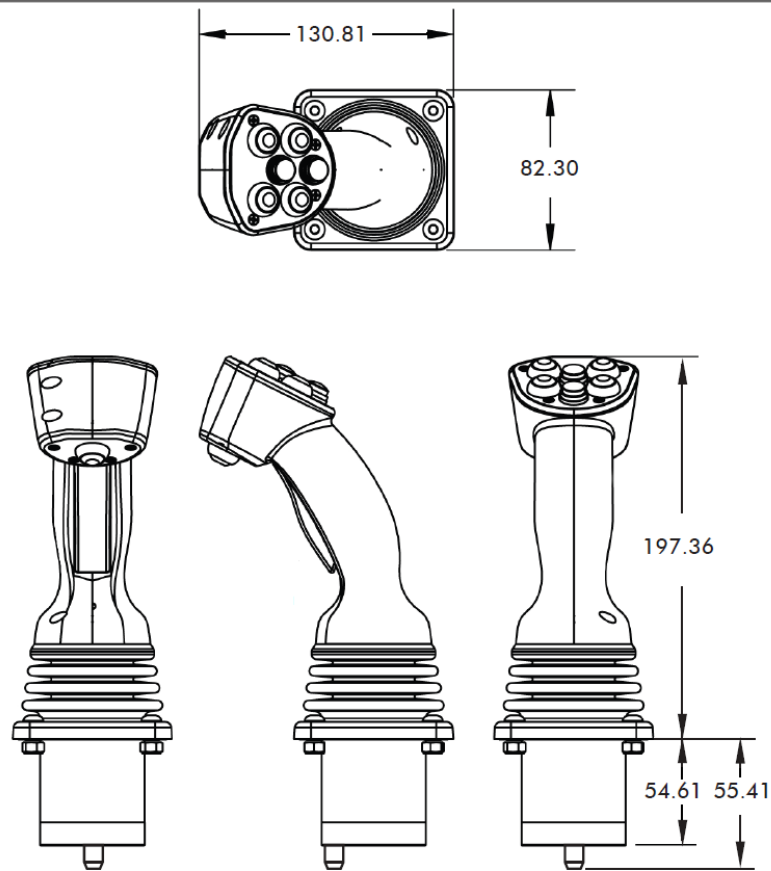
### Order Code

Series	TRY52								
<b>Axes</b>									
1		1							
2		2							
<b>Rubber Boot</b>			5						
<b>Return Mechanism</b>									
Spring „Standard“				1					
<b>Limiter Plate</b>									
Square					1				
Square rotated by 45° / Diamond					2				
Round					3				
Slotted X (single axis only)					7				
Slotted Y (single axis only)					8				
Plus					9				
Square, Guided Feel in X & Y					GS				
Round, Guided Feel in X & Y					GR				
<b>Output Options</b>									
0 .. 5V (rail to rail)						1			
0,5 .. 4,5V						2			
0,25 .. 4,75V						3			
USB 1.1 HID						5			
Voltage Regulator						V			
CANbus J1939						CAN			
CANopen						COP			
Custom						X			
<b>Upper Face Buttons</b>									
None							0		
1							1		
2							2		
3							3		
4							4		
5							5		
6							6		
Custom							X		
<b>Lower Face Buttons (s. page 2)</b>									
None								0	
1A								1A	
1B								1B	
1C								1C	
2								2	
Custom								X	
<b>Deadman Lever</b>									
None									0
Deadman Paddle									1

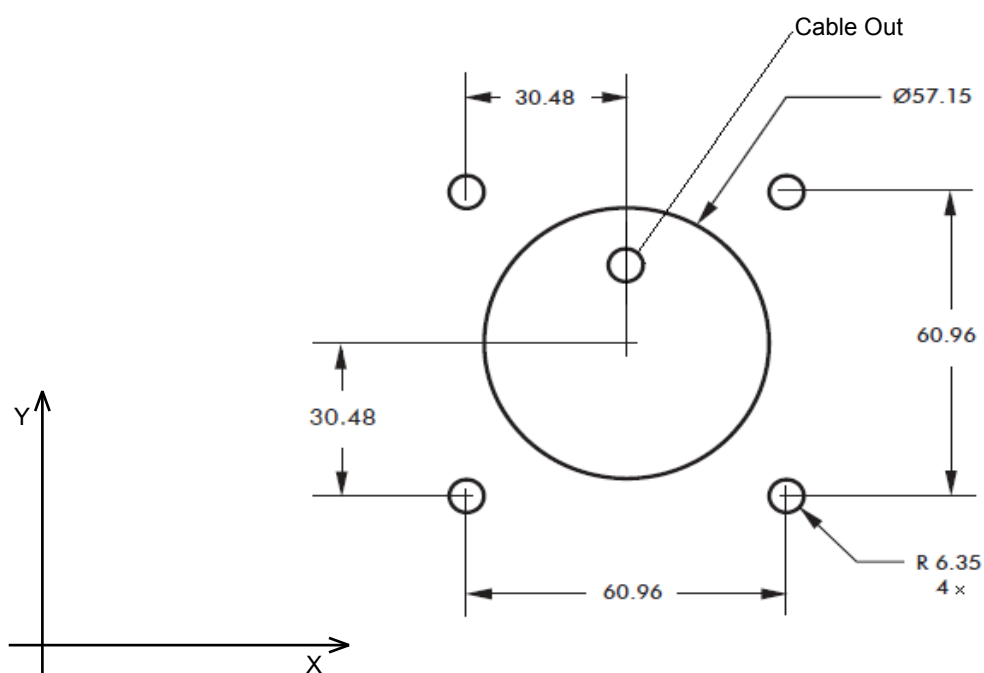
### Note:

Further options like e.g. Dual Output Voltages (inverse and parallel), Discrete Output, Mouse Emulation, Center Detect, different Spring Tensions, IP68 Sealing, etc. are available. Please contact us to discuss your specific requirements.

### Technical Drawings



### Standard Panel Cutout Dimensions



All dimensions in mm

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### Wire Color Code

Color	Function	Color	Function	Color	Function
BLACK	Ground	WHITE	Switch Common	VIOLET/WHITE	Deadman
RED	Vcc	ORANGE	Switch 1	YELLOW/WHITE	Proximity Sensor
BLUE	X Axis	VIOLET	Switch 2	RED/WHITE	Index Trigger
YELLOW	Y Axis	GRAY	Switch 3	LIGHT GREEN	LED 1
GREEN	Z Axis	BROWN	Switch 4	LIGHT ORANGE	LED 2
		PINK	Switch 5	GRAY/WHITE	LED 3
		BLUE/WHITE	Switch 6	BLACK/WHITE	LED 4
		YELLOW/BLACK	Switch 7		
		GREEN/BLACK	Switch 8		

#### Notes:

1. Standard cable length ca. 400mm; Cable AWG 28 for Joystick functions, Cable AWG 22 for Switches, LEDs, etc.
2. Joysticks with USB interface or Mouse Emulation are supplied with wiring with USB Male type A connector; optionally ruggedized military connectors are available

### Technical Data - CANbus J1939 (\*)

CAN-bus conform to SAE J1939 Serial Bus Specification.  
I/O extensions for up to 24 digital and 11 analog inputs.

Supply Voltage	6 .. 35 VDC
Supply Current	min. 15 mA; +10 mA per axis; +5 mA per LED
Operating Temperature	-25°C .. +70°C
Storage Temperature	-40°C .. +70°C

### Wire Color Code - CANbus J1939

Color	Function	Color	Function	Color	Function
BLACK	Ground	GREEN	CAN high data	BLUE	Identifier Select LSB
RED	Vcc	WHITE	CAN low data	ORANGE	Identifier Select MSB

#### Notes:

1. Additionally to CAN J1939 a CANopen version is available. Please contact us.
2. Customer-specific and standard cable assembly available (e.g. Deutsch DT04)