# TRF100

## HALL EFFECT JOYSTICK

The TRF100 is a table joystick that can be controlled by fingers, multi-axis and contactless, allowing precise position control over a long service life. This joystick is designed for applications requiring high precision and durability.

Ideal for surveillance camera control applications, robotics, medical devices and audiovisual production consoles

Optional USB 1.1 HID interface, joystick or mouse mode. Different options available, including redundant outputs.

- 1, 2 or 3 axes
- Wide choice of handles
- Hall effect sensors
- Analog output, CANopen or USB interface
- Many options available

| Technical characteristics | | | |
|---|---|---|---|
| | **Analog** | **CANopen** | **USB** |
| **Sensor** | Hall effect sensor | | |
| **Power supply** | 5 VDC ±0.5 VDC stabilised | 5 VDC | USB (5 VDC) |
| **Resolution** | 1.22 mV | | |
| **Independent linearity** | ±2% Full scale | | |
| **Return to central voltage** | ±200 mV (output voltage 0..5V; no charge) | | |
| **Load resistance** | **Min:** 10kΩ, recommended > 100kΩ | | |
| **Expected life** | 5 million cycles | | |
| **Output** | 0 - 5V / 0,5 - 4,5V / 0,25V – 4,75V | CANopen | USB |
| **Mechanical angles X&Y axes / Z axis** | 36° (±18° depuis le centre) / 60° (±30° depuis le centre) | | |
| **Operating force , axes X&Y** | 2,8 N / breaking force 1,3 N / max applied : 200 N | | |
| **Torque load, axe Z** | 0.12 Nm / breaking force 0,09 Nm / max applied : 2.5 Nm | | |
| **Operating / Storage temperature** | -40°C à 85°C | | |
| **Immunity level EMC** | EN61000-4-3 | | |
| **Immunity level EMC** | EN61000-6-3:2001 | | |
| **ESD** | EN61000-4-2 | | |
| **Cables** | 2 m AWG30 | 2 m AWG22 | 1,25 m USB male type A |

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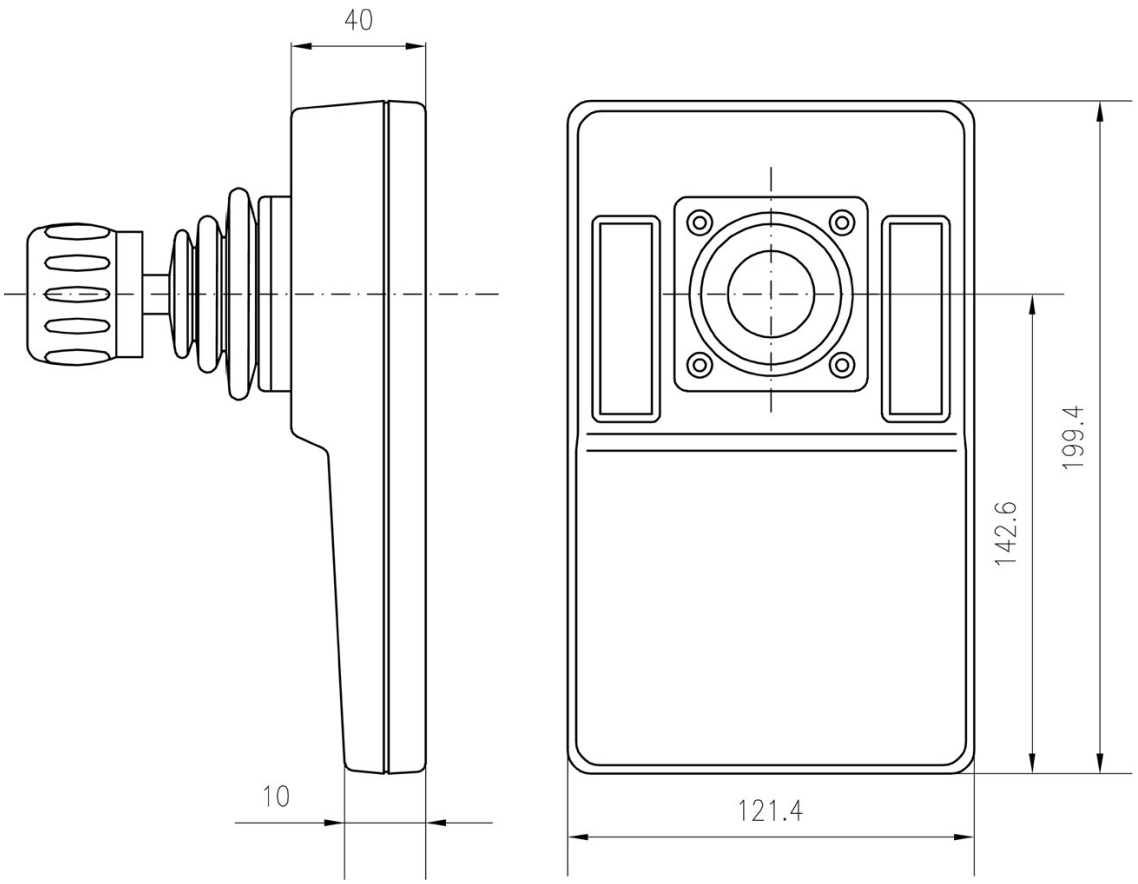
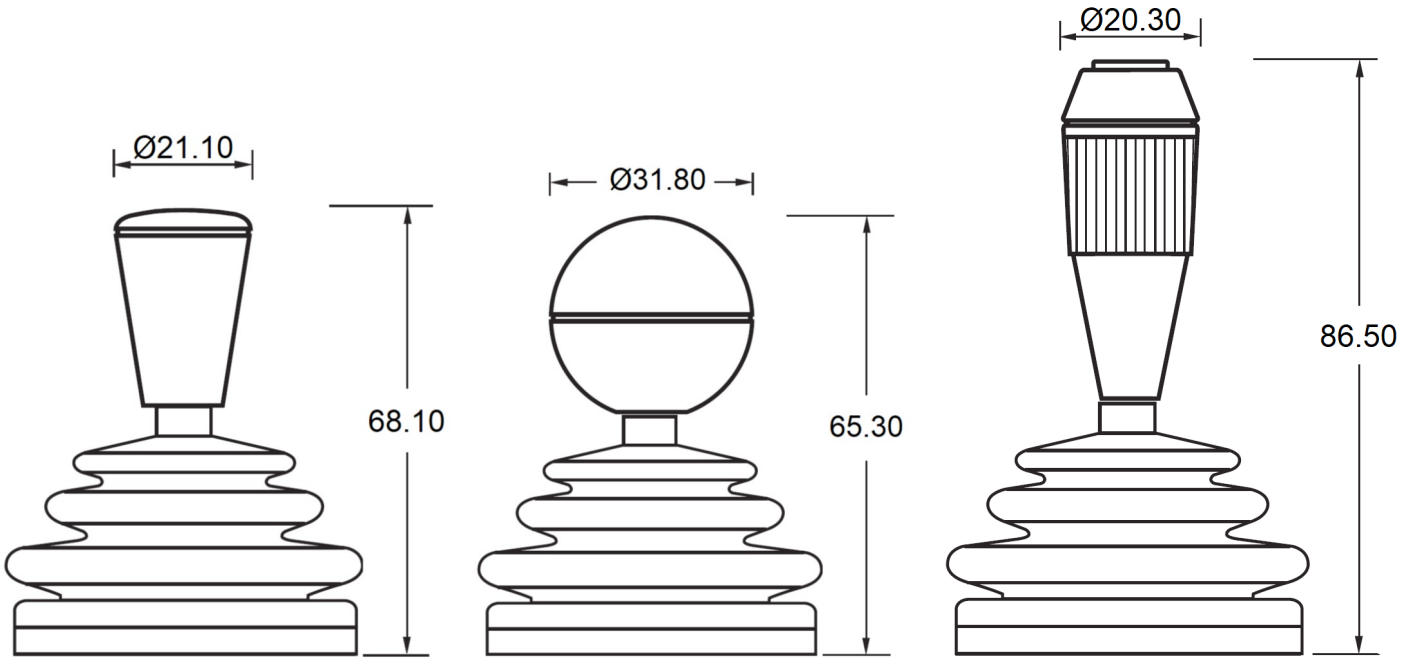
## ***Dimensions :***




## ***Different handles available :***




**Handle 1** **Handle 3** **Handle 4**

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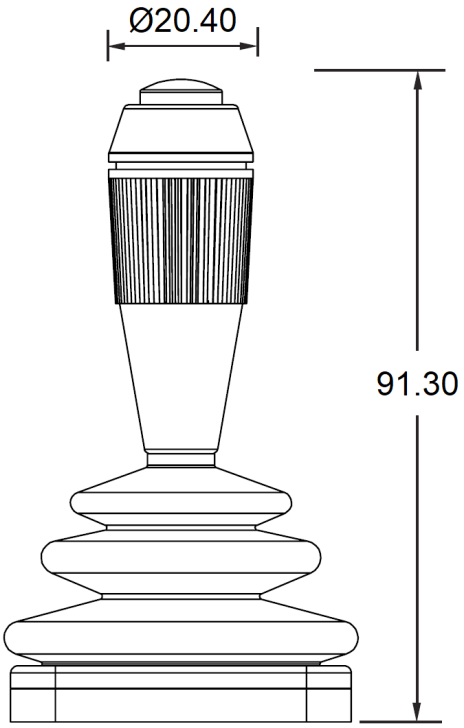
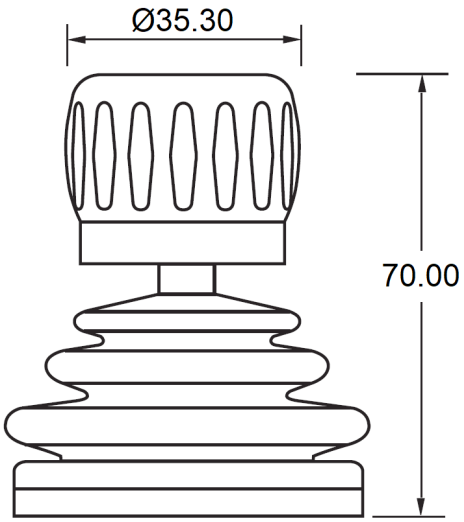
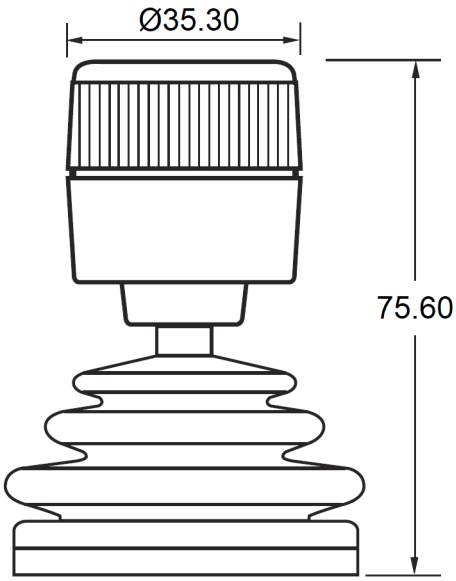


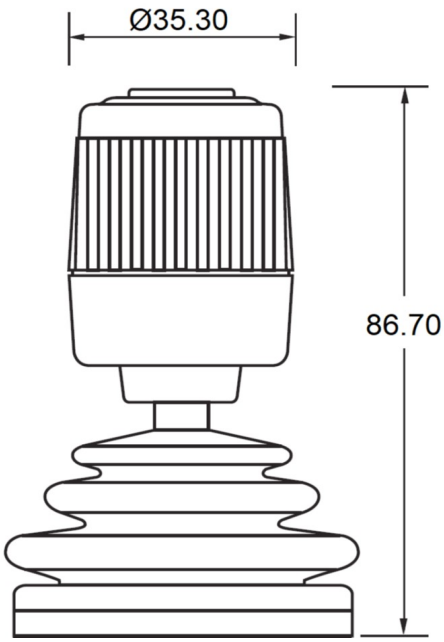

**Handle 5**



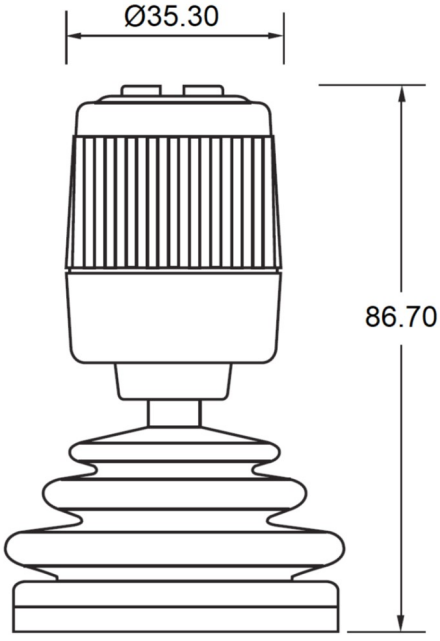

**Handle 6**



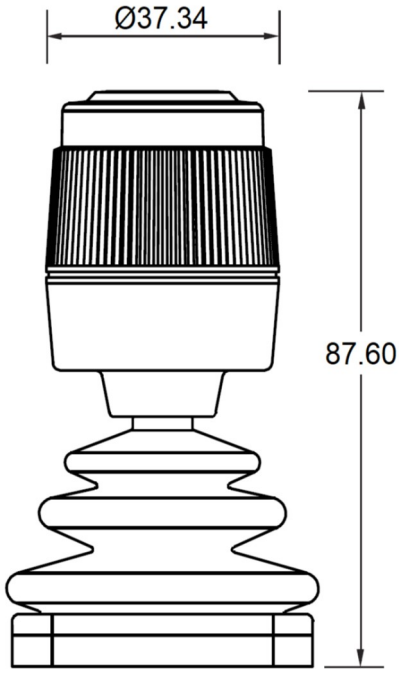

**Handle 7**




**Handle 9**




**Handle A**




**Handle B**

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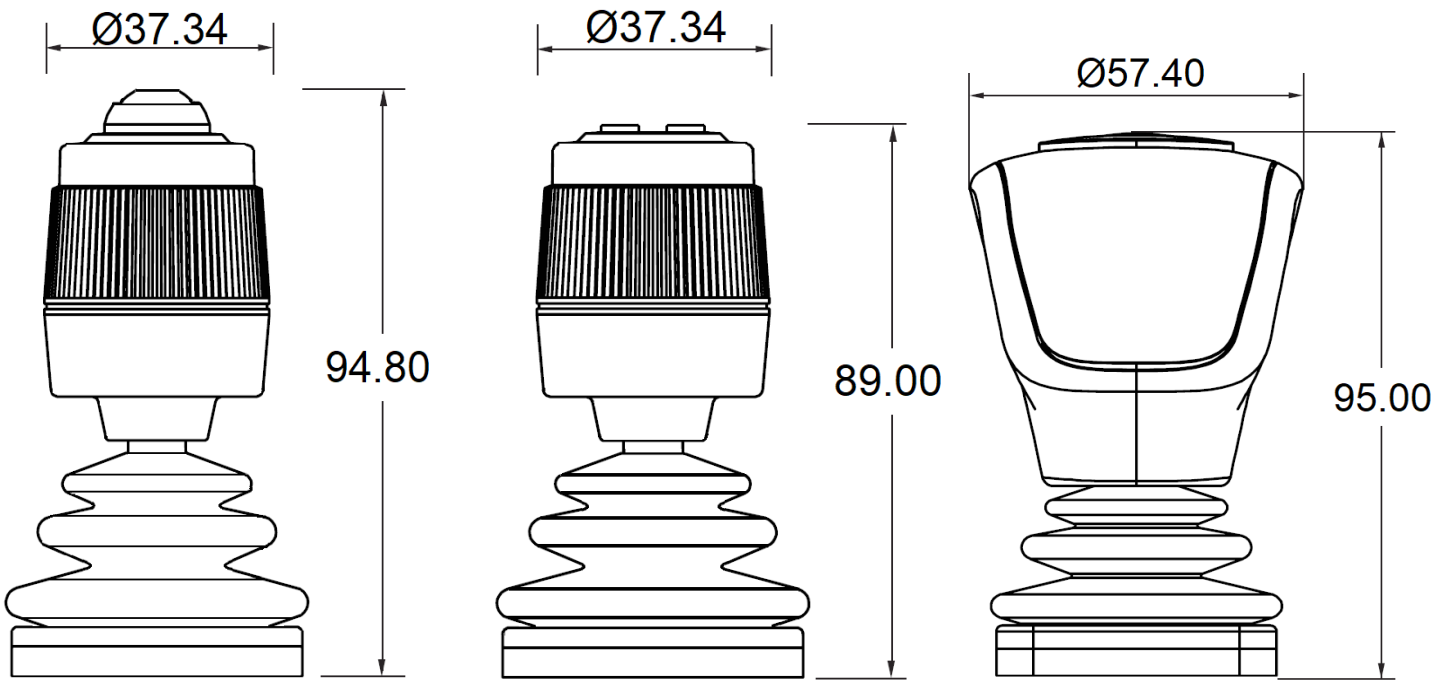
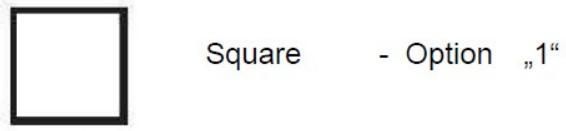



**Handle C** **Handle D** **Handle E**

## ***Limiters:***



Square - Option „1“

Round - Option „3“



Single Axis - Option „7“

Single Axis - Option „8“

X/Y Plus - Option „9“

X/Y Cross - Option „D“

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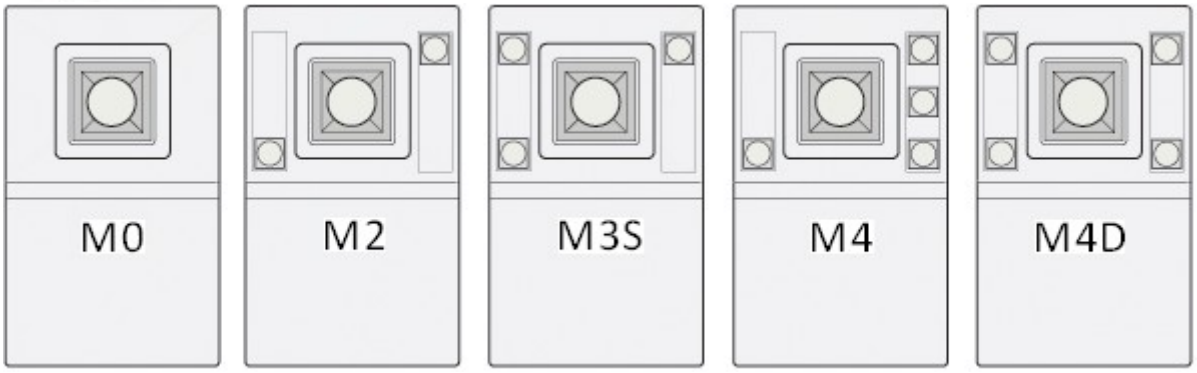
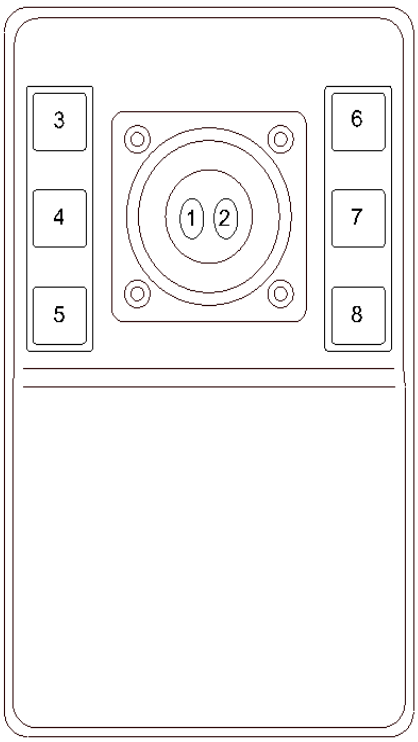
## ***Desktop housing :***

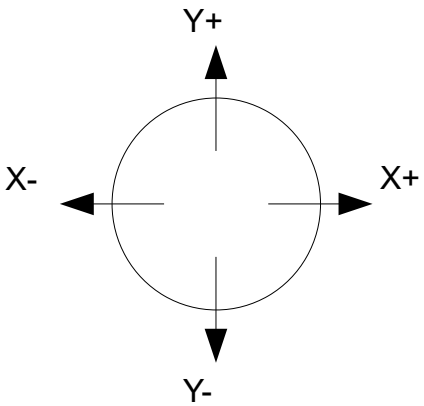
The desktop case is black (like the handle and buttons).

Feel free to contact us if you need a different configuration




## ***Position of the push buttons :***




**The push buttons n°4 is not available. It is represented for reasons of consistency.**
**There is a maximum of 6 push buttons.**

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## ***Option USB :***

**USB interface (USB 1.1 HID compatible):**

The USB controller is integrated in the joystick. The power supply will be provided by USB connection cable.

This USB interface supports most versions of Microsoft Windows and Linux OS.

USB cable included (length approx. 1.25 m) with USB male connector type A. Other connectors and cable lengths available on request.

**USB joystick as mouse:**

Optional cursor emulation available. Supported protocols include Sun Microsystems (5VDC serial mouse systems) and USB (most versions of Microsoft Windows and Linux OS).
**Refer to the USB interface card MCB 487**

**For large quantities or continuous demand, additional options are available:**

- Redundant output signal (reversed or parallel), voltage regulator
- User-specific cable

**The controller push buttons appear in order depending on their presence or not.**

Example : Only buttons n°1, 5 and 6 are present on the joystick. (see figure "position of the push buttons")
They will be seen by Windows in position BP1, BP2 and BP3

## ***Option CAN :***

The CANOPEN controller is integrated in the housing.
**Refer to the CANOPEN interface card MCB-402**

| Wiring CAN | |
|---|---|
| Rigid wire | Shielding |
| Black | 0V |
| Red | +5VDC±5 %, 200mA |
| Green | CAN-L |
| White | CAN-H |

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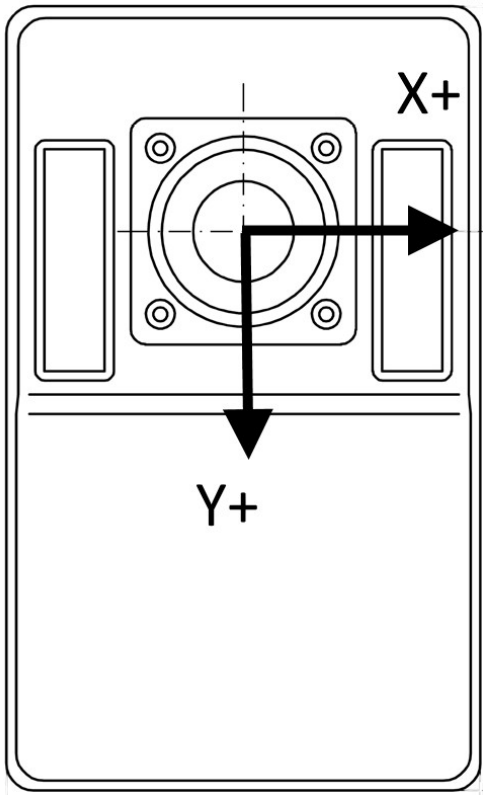
| Wiring on MCB-402 | |
|---|---|
| Axis X | X |
| Axis Y | Y |
| Axis Z | Z |
| BP1 | IN0 |
| BP2 | IN1 |
| BP3 | IN2 |
| BP4 | Impossible |
| BP5 | IN3 |
| BP6 | IN4 |
| BP7 | IN5 |
| BP8 | IN6 |

## ***Analog wiring :***




Y axis is inverted, regarding USB version.

| Wiring color | Fonction |
|---|---|
| Black | 0 |
| Red | + supplied |
| Blue | X |
| Yellow | Y |
| Green | Z |
| White | Common BP |
| Orange | BP1 |
| Purple | BP2 |
| Light green | BP3 |
| Blue/Red | BP4 |
| Green/Red | BP5 |
| Yellow/Red | BP6 |
| Pink | X redundant |
| Brown | Y redundant |
| Grey | Z redundant |

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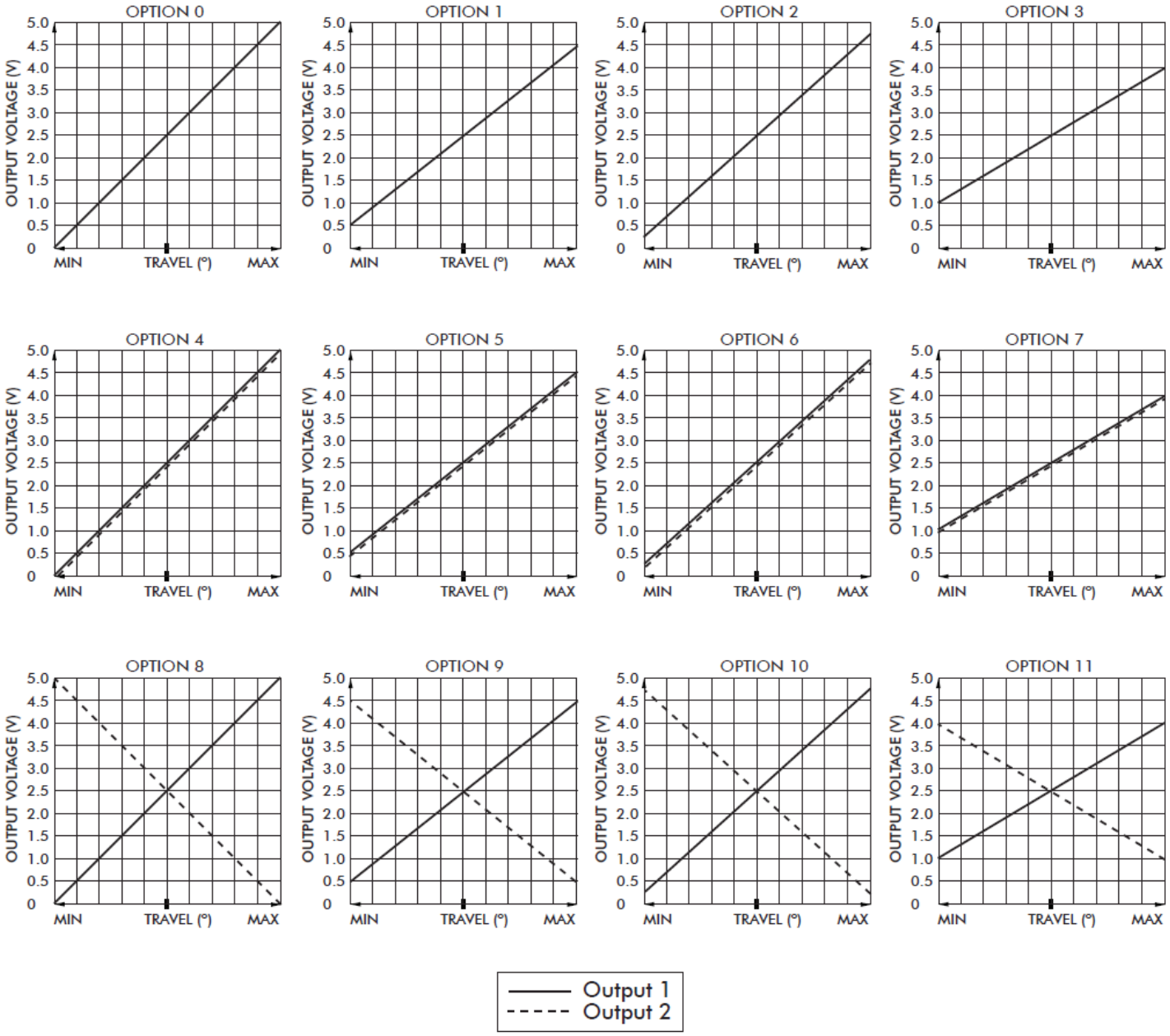
## VOLTAGE OUTPUT OPTIONS[1]

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| Ordering options and references | Model | Axis | Lids | Return | Handle | Limiters | Output | Mounting |
|---|---|---|---|---|---|---|---|---|
| Hall effect Joystick | TRF100 | | | | | | | |
| 1 axis | | 1 | | | | | | |
| 1 axis with push buttons | | 6 | | | | | | |
| 2 axes | | 2 | | | | | | |
| 2 axes with push buttons | | 3 | | | | | | |
| 3 axes | | 4 | | | | | | |
| 3 axes with push buttons | | 5 | | | | | | |
| Rubber bellows | | | 5 | | | | | |
| With springs | | | | 1 | | | | |
| Handle 1 or 2 axes type 1 conical | | | | | 1 | | | |
| Handle 1 or 2 axes type 3 ball | | | | | 3 | | | |
| Handle 1 or 2 axes type 4 with push button | | | | | 4 | | | |
| Handle 1 ou 2 axes type 5 with push button | | | | | 5 | | | |
| Handle 3 axes type 6 compact design | | | | | 6 | | | |
| Handle 3 axes type 7 | | | | | 7 | | | |
| Handle 3 axes type 9 with 1 push button | | | | | 9 | | | |
| Handle 3 axes type A with 2 push buttons | | | | | A | | | |
| Handle 3 axes type B | | | | | B | | | |
| Handle 3 axes type C with 1 push button | | | | | C | | | |
| Handle 3 axes type D with 2 push buttons | | | | | D | | | |
| Handle 3 axes type E with 2 push buttons | | | | | E | | | |
| □ Square grid | | | | | | 1 | | |
| ◯ Round grid | | | | | | 3 | | |
| ⎓ Linear grid X (restricted) | | | | | | 7 | | |
| ⎸ Linear grid Y (restricted) | | | | | | 8 | | |
| ╋ 2 axes grid X+Y (restricted) | | | | | | 9 | | |
| ╳ 2 axes grid X+Y diagonal (restricted) | | | | | | D | | |
| Extended power range (see options) | | | | | | | 0 | |
| 0 to 5V | | | | | | | 1 | |
| 0.5 to 4.5V | | | | | | | 2 | |
| 0.25 to 4.75V | | | | | | | 3 | |
| 1 to 4V | | | | | | | 4 | |
| Dual output 0 to 5V on all axes | | | | | | | 1D | |
| Dual output 0.25 to 4.75V on all axes | | | | | | | 3D | |
| Dual output 0.5 to 4.5V on all axes | | | | | | | 2D | |
| Dual output 1.0 to 4.0V on all axes | | | | | | | 4D | |
| Dual output 0 to 5V / 5 to 0V | | | | | | | 1X | |
| Dual output 0.25 to 4.75V / +4.75 to 0.25V | | | | | | | 3X | |
| Dual output 0.5 to 4.5V / 4.5 to 0.5V | | | | | | | 2X | |
| Dual output 1.0 to 4.0V / 4.0 to 1.0V | | | | | | | 4X | |
| USB joystick | | | | | | | 5 | |
| USB souris | | | | | | | 6 | |
| CANopen | | | | | | | 8 | |
| Desktop housing without button | | | | | | | | M0 |
| Desktop housing with 2 buttons | | | | | | | | M2 |
| Desktop housing with 4 buttons | | | | | | | | M4 |
| Desktop housing with 4 buttons (2 left, 2 right) | | | | | | | | M4D |
| Desktop housing with 3 buttons (2 left, 1 right) | | | | | | | | M3S |
| Reference example | TRF100 | 3 | 5 | 1 | 4 | 3 | 5 | M4 |

**For any special options, please contact us.**

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