Joystick type EJ1-10, EJ2-10 and EJ3-10..

with linear potentiometer and direction switches
connection via with solderless lugs

CE

Type EJ1-10
EJ2-10

Type
EJ3-10..

1. General

1.1 Brief description and circuitry

These joysticks, single axis EJ1-10, dual axis EJ2-10, three axis EJ3-10R (right hand) EJ3-10L (left hand) are intended as control elements for proportional hydraulic drive systems..

The most essential functional parts are:

- One linear conductive plastic track potentiometer per axis
- Two direction switches per axis (all NO-contacts)

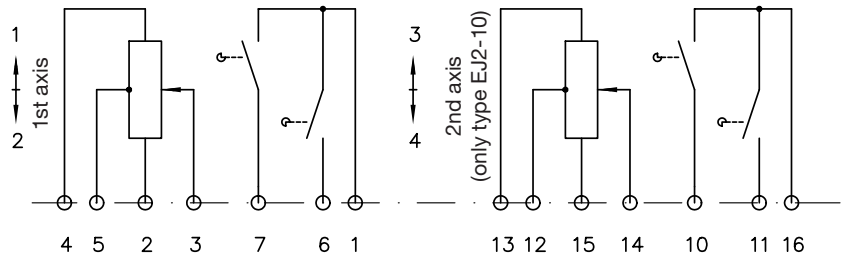
All customer related connections are via solderless lugs.

The most essential qualities:

- Equipment fulfill IEC 947-5-1, EN 60947-5-1, and DIN VDE 0660-200
- All axis are with spring return into the middle position
- Sturdy industrial design
- Very high mechanical and electrical service life
- Conductive plastic track potentiometer with solid center tap
- High IP protection class
- Resistance against oil, maritime climate, ozone and UV radiation

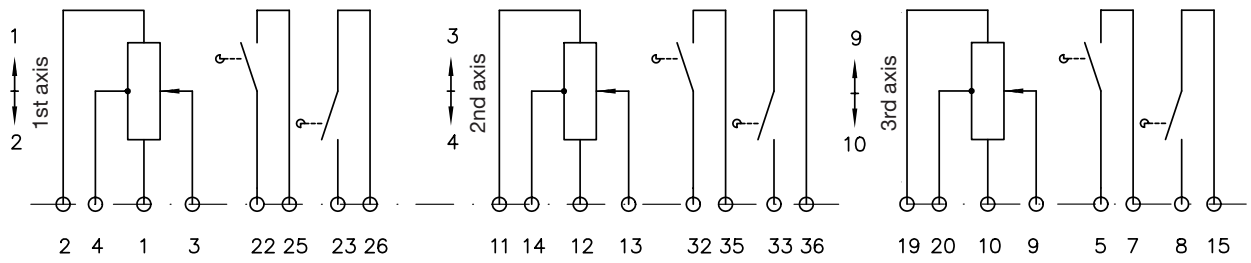
Circuitry

Circuitry of joysticks EJ 1-10 and EJ 2-10



Note: Directions of movement (acc. to DIN 15025) see sect. 3.3

Circuitry of joysticks EJ 3-10 R and EJ 3-10 L



The joystick is used together with a prop. amplifier as electrical signaling transmitter for the control of prop. valves (spool valves). Every axis is provided with a spring return into the middle position (resting position). The built-in conductive plastic track potentiometer delivers a electrical reference voltage proportional to the deflection angle. This is converted into a proportional electric current by means of a proportional amplifier e.g. EV22K1 .. acc. to D 7817 or EV1M2-.. acc. to D 7831/1, which again controls the prop. valve.The direction switches, supplied for every axis indicate the deflection direction of the joystick. The solid center tap of the potentiometers eases the design of a safety circuit for line rupture. For examples, see D 7817 sect. 6.1).
The direction switches can be used for safety related tasks, e.g. activating or deactivating of an idle circulation valve or de-coupling or direction reversion of solenoid coils. For examples, see D 7831/1 sect. 5.2).

2. Available versions, type coding key

Order examples:

EJ 1 - 10
EJ 2 - 10
EJ 3 - 10 R

Basic type coding

Number of axis (1 to 3)

R = Right hand operation
L = Left hand operation

Design number (internal coding)

3. Technical data

3.1 General data

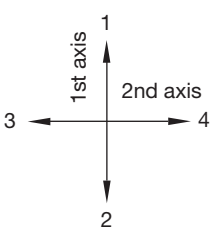
Nomenclature	Joystick, single, dual or three axis
Actuation	Return spring into the middle position for all axis
Version	Handles made of Noryl synthetic material (PPE) or Polyamid (PA), gaitars of Neoprene (CR)
Color	Black
Connection wiring	max. 1.5 mm²
Fastening	By means of screws into a control panel
Installed position	Any
Mass (weight)	EJ1-10 and EJ2-10 approx. 0.5 kg
	EJ3-10 approx. 1.4 kg
Protection class DIN EN 60529 or IEC 60529	
In built-in state	EJ1-10 and EJ2-10 IP 54
	EJ3-10 IP 65
Ambient temperature	-40° ... + 60°C (storage -50° ... +80°C)
Climate resistance	Perm. damp warmth acc. to DIN IEC 68 part 2-3
	Period. damp warmth acc. to DIN IEC 68 part 2-30

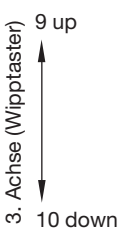
3.2 Electrical parameters

	EJ1-10 EJ2-10	**EJ3-10**
Conductive plastic track potentiometer (with solid center tap)		
Resistance	10 kΩ (2x 5 kΩ)	
Load capacity	max. 0.5 Watt	
Track current	max. 1 mA	
Characteristics	linear	
Service life (operation cycle)	10^7	
Direction switches (NO-contacts)		
Load capacity (for service life of 2 million operation cycles)	0.5 A at 110 VAC, cos φ ≤ 0.3 1.5 A at 24 VDC	
Operation classification acc. to IEC 947-5-1, EN 60947, and DIN VDE 660 T 200	AC 15 or DC 13	
Mechanical service life (operation cycles) of the joystick	6 million	10 million

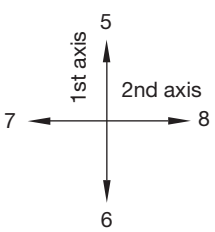
3.3 Directions of movement (acc. to DIN 15025)

Left joystick:





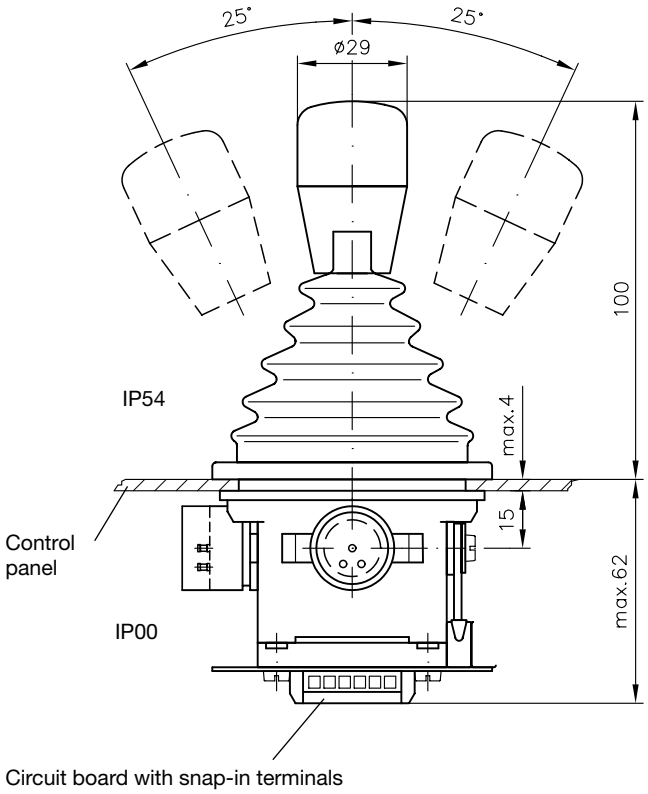
Right joystick:

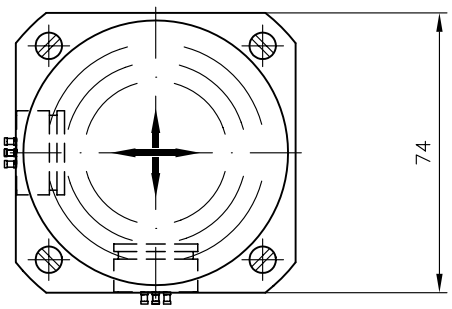


4. Unit dimensions

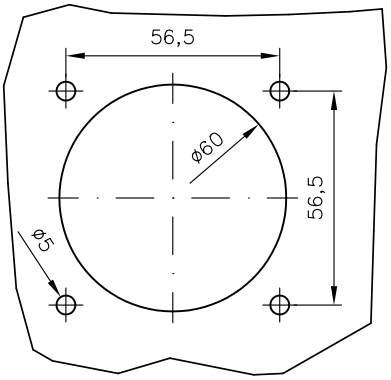
All dimensions in mm, subject to change without notice!

4.1 Type EJ 1-10 and EJ 2-10

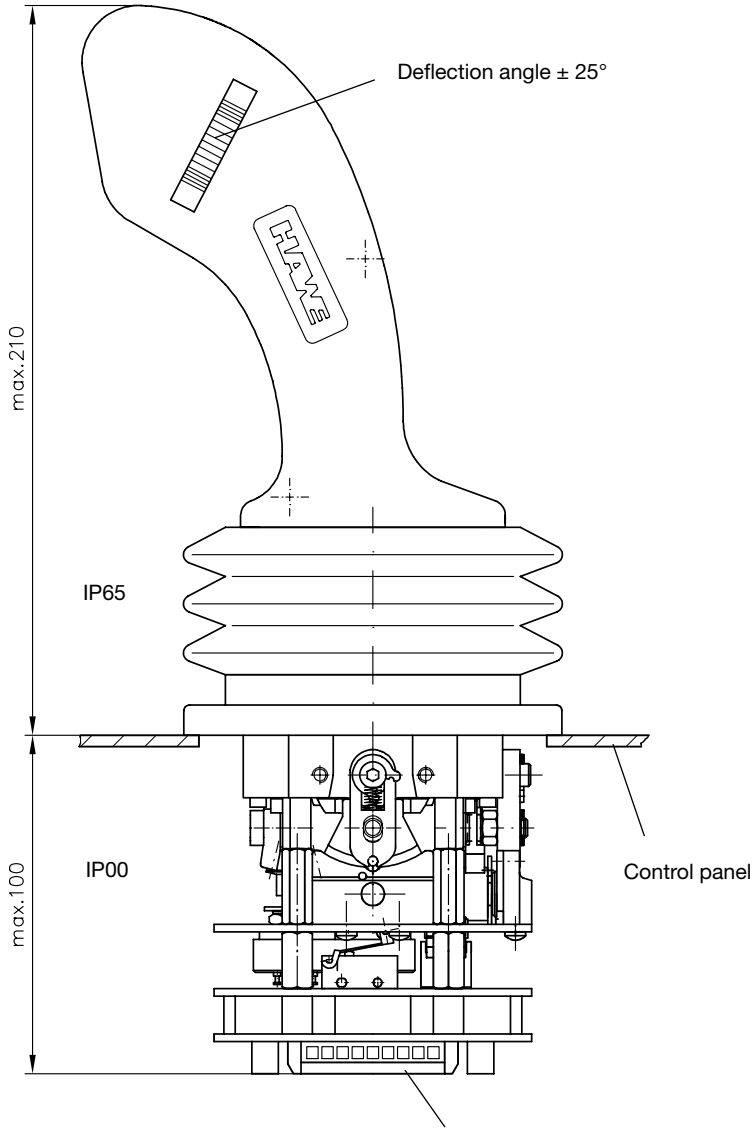




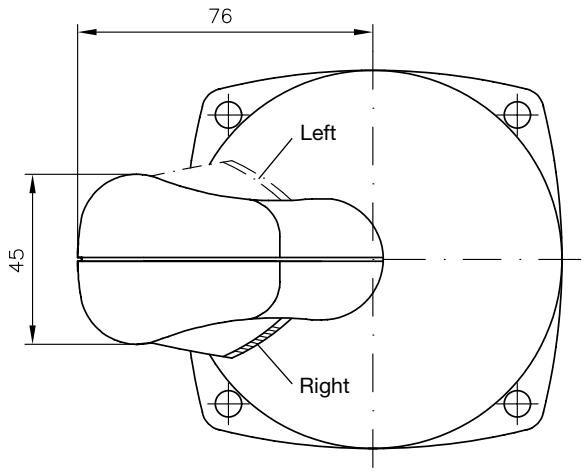
Hole pattern (control panel)

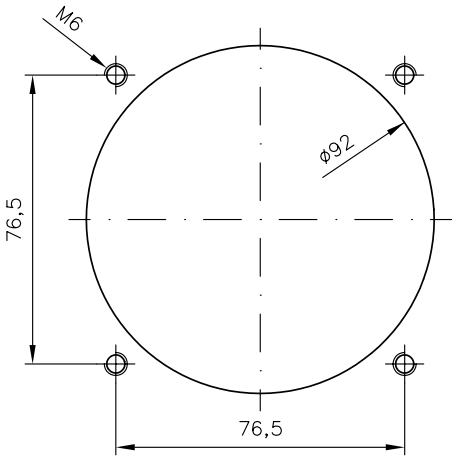


4.2 Type EJ 3-10 R and EJ 3-10 L



Hole pattern (control panel)





Deflection angle in both directions ± 30°