Description:

The purpose of the Fluidea electric proportional joystick JEOP is to servo control remotely devices actuated by electric or electro-hydraulic systems, like main directional valves, selector vales, actuators, hydraulic pumps and motors with variable displacement, brakes and clutches. The analogue output signal with variable voltage is usually converted to a digital PWM pulsing current signal with adjustable frequency by an electronic regulator, either already fitted in the system or available within our ELR product range .

The movement of the control lever of the joystick, through a robust and tested mechanical linkage made with antiwear materials, operates linear long life potentiometers, which stroke varies with the lever deflection angle and gives a voltage output signal proportional to the stroke.

This remote control sistem is specially reccomended for the applications, where there are several devices operating sequentially or at the same time, which require a precise, compact and ergomomic control device and permit the operation with minimum effort of several functions in an easy, precise, intuitive way. In addition to simplify and speed the working cycle, the safety of the operator and the surrounding environment is optimized, because his attention is focused on the operating functions, without looking away for seeking the other controls, as it often happens when lever and pushbuttons are dislocated in the panel of the cabin.
JEOP joysticks are extremely compact and light, and, at the same time, they are robust and reliable, having been developed specifically for application on machines operating in harsh ambient conditions.

Special attention has been dedicated to the choice of the components, to ensure their maximum life cycle, reliability and worlwide availability. The accurate choice of the materials, the surface treatments to prevent wear and oxidation, the dust proof body, ensure a very good protection in any working condition.

The JEOP joysticks can be combined with all the FLUIDEA range o grips, including palmar, straight and ergonomic multifunctoin options, which allow the integration of more "on-off" and proportional controls like pushbuttons and roller to optimize the ergonomy and to minimize the cost of the control system.
A further improvement of the JEOP versatility is the optional directional "on-off" microswitches on each of the 4 movements North-South-East-West of the control lever.
They are activated when the lever is moved away from the rest position. This option is used to control auxiliary signals as acoustic or light signalling devices, or additional funtions to optimize features and safety.

The system can be integrated with armrest, panel or portable control dashboards with customized wiring to quickly adapt the system to any requirement with quick deiveries and at a competitive cost.

Applications

Typical applications of “on-off” joystick series JEOP are agricultural machines, as tractors, moving grass cutters, pick-up machines, viticulture and olive-culture machines, and also forest machines, material handling machines, construction machines, street maintenance machines, fishing boats and industrial plants.

Technical features

Joystick:

- Mechanical life	> 5x1 ^{6} cycles
- Maximum angle deflection	20° movements on X-Y axis 26° combined movements
- Body material	Aluminium alloy 6060
- Plunger materials	Stainless steel AISI 420
- Plunger guide material	Bronze
- Microswitch brackets material	Aluminium alloy 6060
- Rubber boot material	Neoprene
- Protection degree	IP 64
- Ambient temperature	–20 ÷ + 85 °

Potenziometers:

- Maximum input voltage	30 VDC
- Electrical life:	5x10^{6} cycles
- Mechanical life	1.000.000 cycles
- Protection degree	IP 40
- Ambient temperature	from - 40 to +125°C
- Operating stroke	12,7 mm ± 0,38 mm
- Operating force	4,00 N max
- Body material:	Thermoplastic

Microswitches:

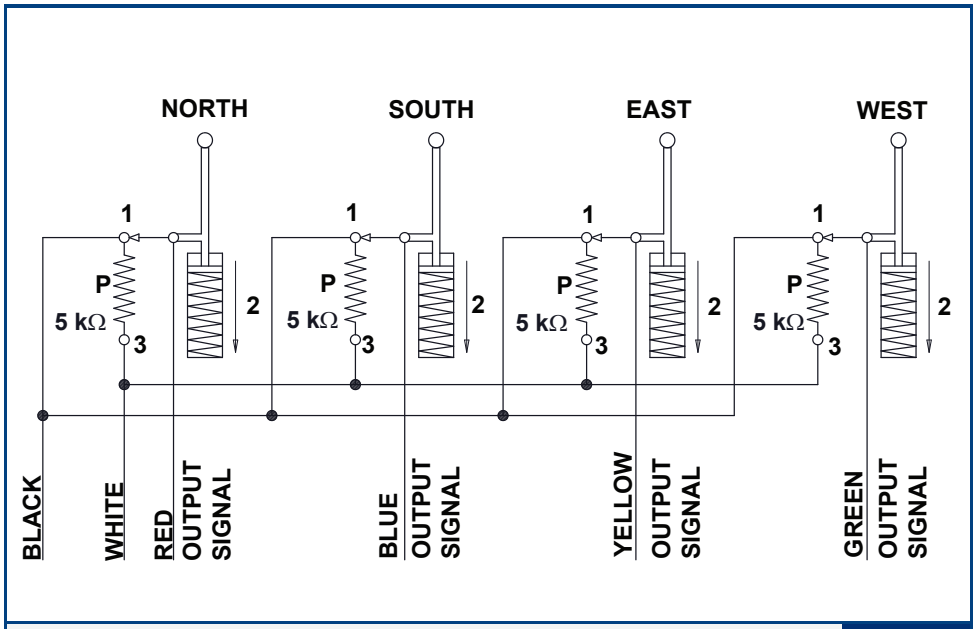
- Maximum current	10 A inductive - 16 A resistive
- Maximum voltage	250 VAC
- Electrical life	100.000 cycles @ max current
- Mechanical life	1.000.000 cycles
- Protection degree	IP 54
- Ambient temperature	from -55 to + 85°C
- Operating stroke	2,4 mm max
- Operating force	3,00 N max
- Release force	0,75 N min
- Terminal material	Cadmium silver alloy
- Body material:	Thermoplastic
- Approvals	CE, CSA, UL, VDE

Wires:

- Terminal material	Tinned copper strands
- External insulation material	Silicon or PVC
- Wire sleeve material	Black polyester fibre
- Wire section	0,50 mm^{2}
- Rope making wires	Class 6 VDE 0295
- Approvals	UL - CSA - HAR
- Standard length	500 mm (other length on request)

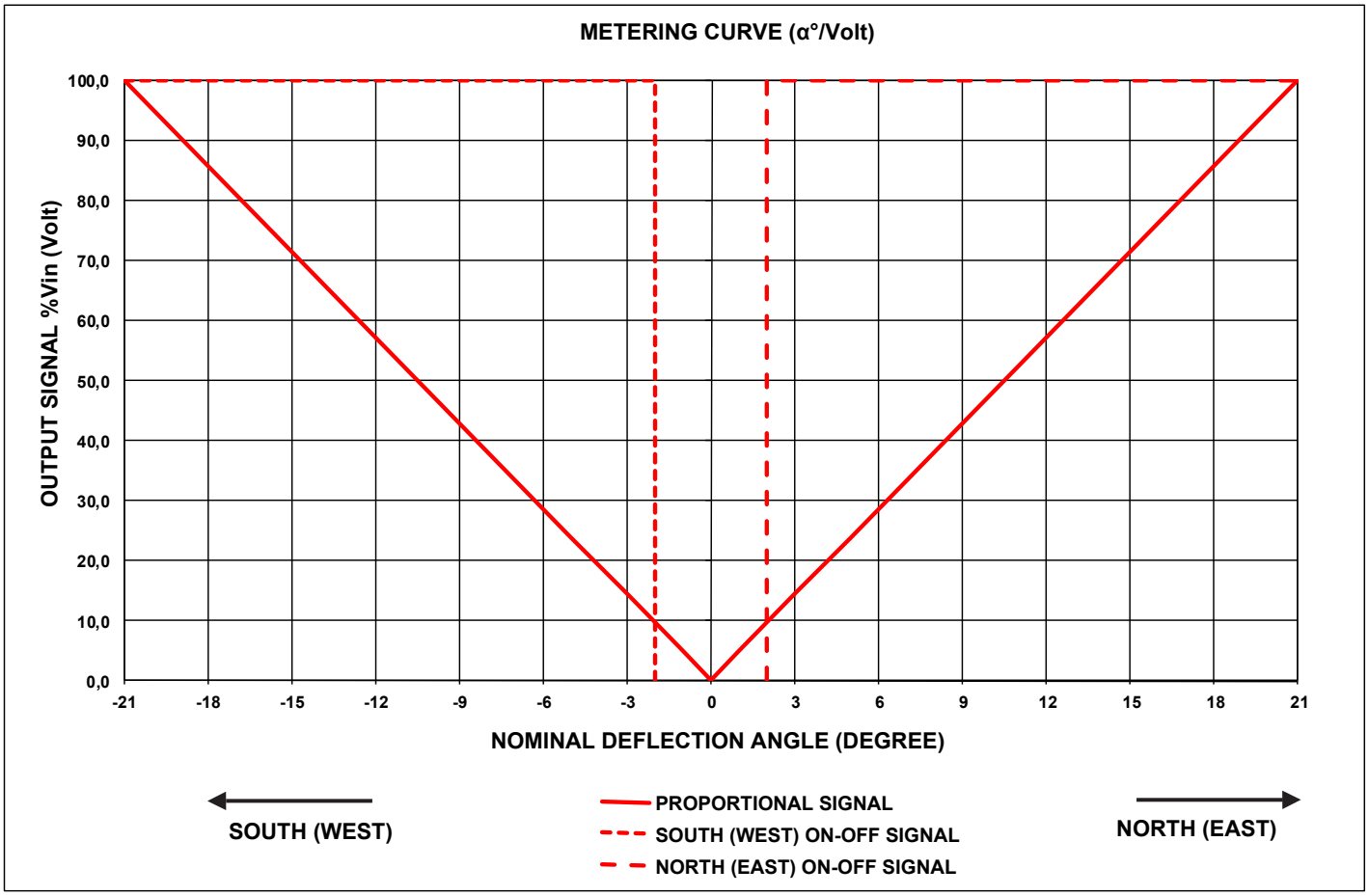
The data and the technical features in this catalogue are not binding. The manufacturer reserves the right to carry out modifications, by its unquestionable judgement and without prior notice, in order to improve its products. The manufacturer is not responsible for damage to people or properties caused by an improper use of the product.

Electric diagram and metering curve 1



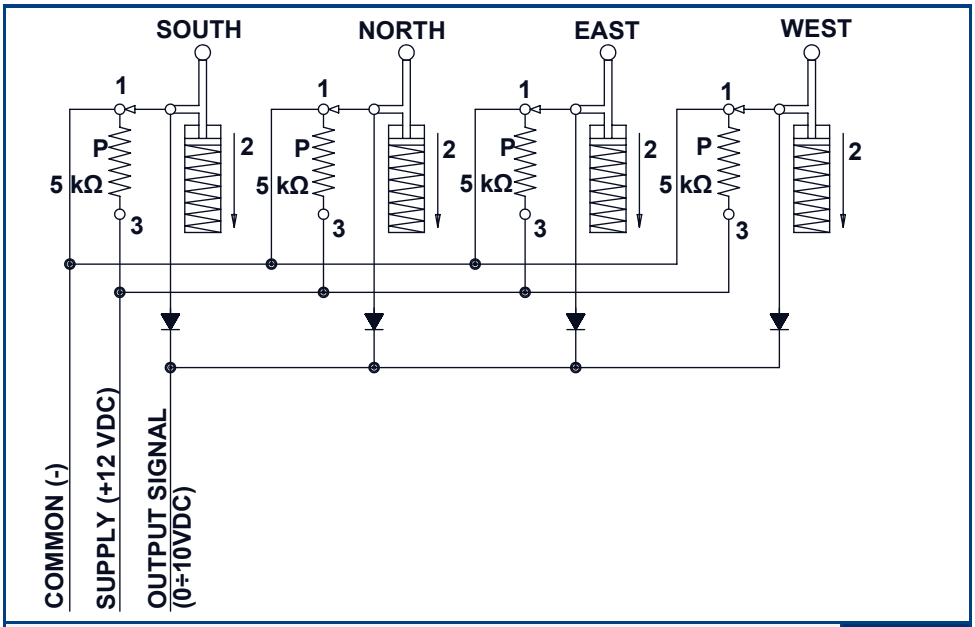
Standard: 4 proportional output 0-100% of the input voltage and 0 in the rest position

1

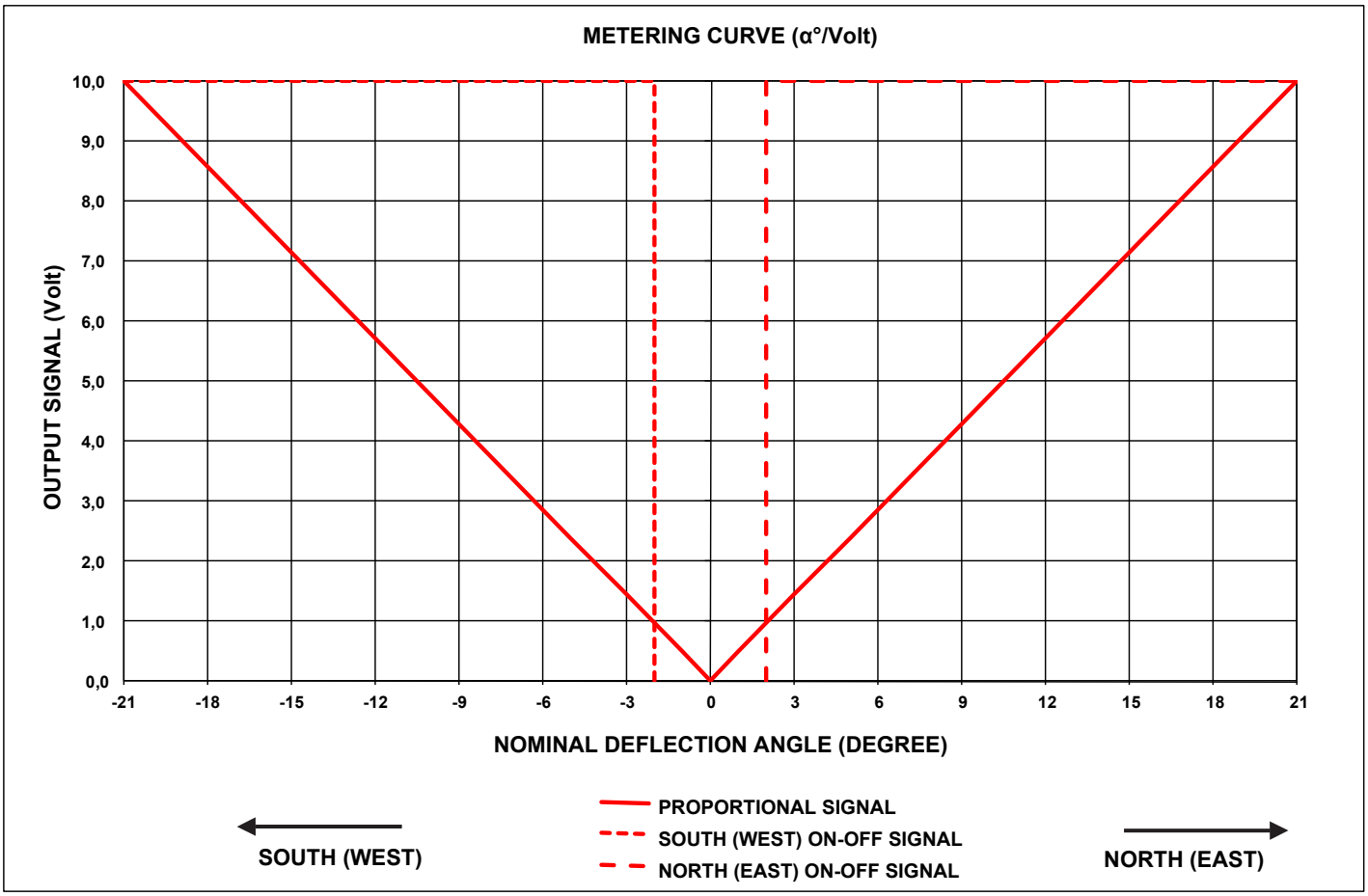


Microswitches activation angle is 2° in any direction

Electric diagram and metering curve 2

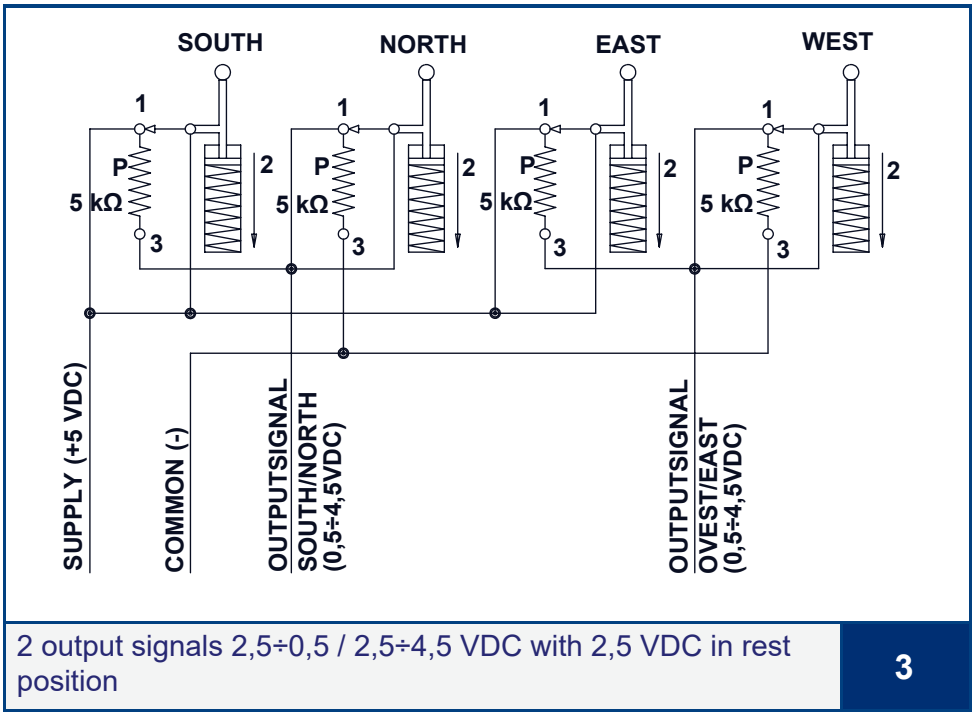


2 output signals 0÷10 / 0÷10 VDC with 0 VDC in rest position **2**



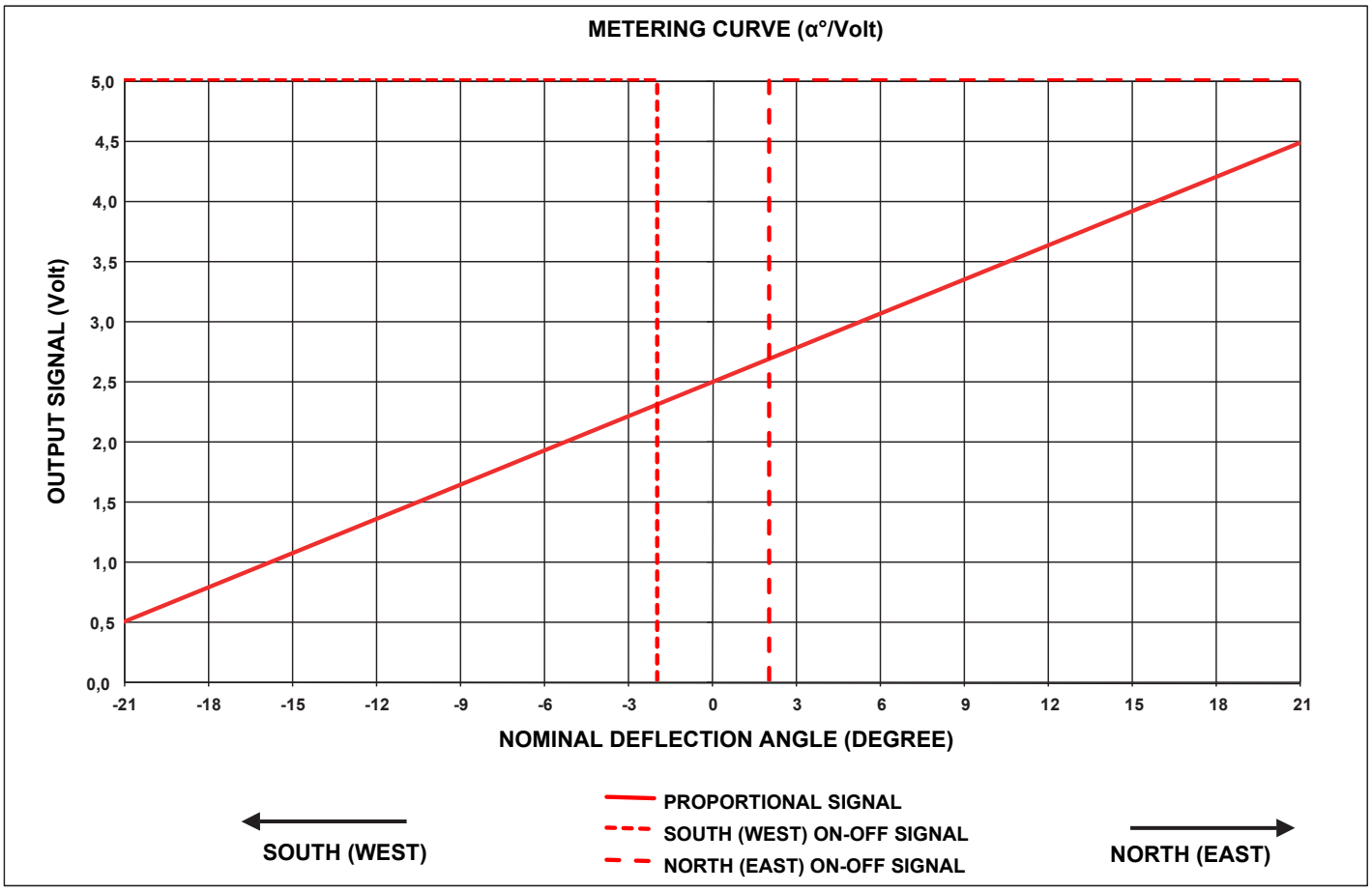
Microswitches activation angle is 2° in any direction

Electric diagram and metering curve 3



2 output signals 2,5÷0,5 / 2,5÷4,5 VDC with 2,5 VDC in rest position

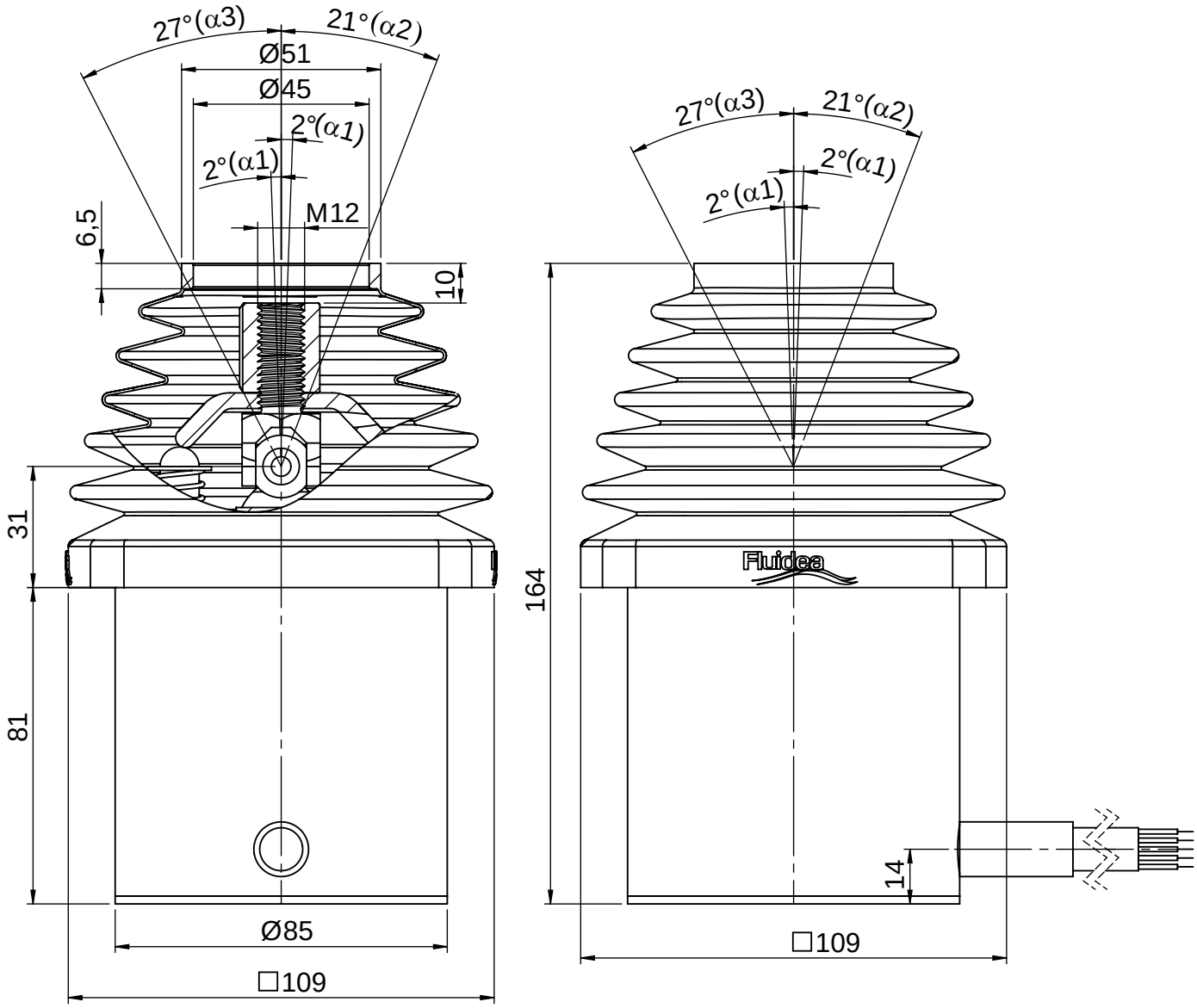
3



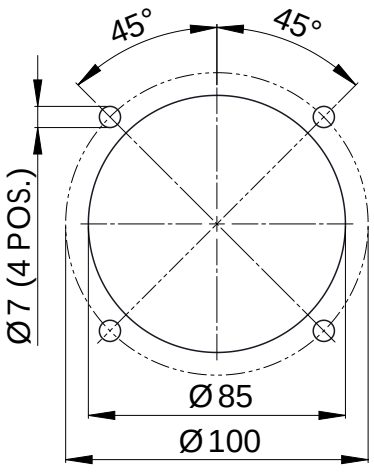
Microswitches activation angle is 2° in any direction

Overall dimensions

Standard dual axis joystick without handle, with rubber boot type Q



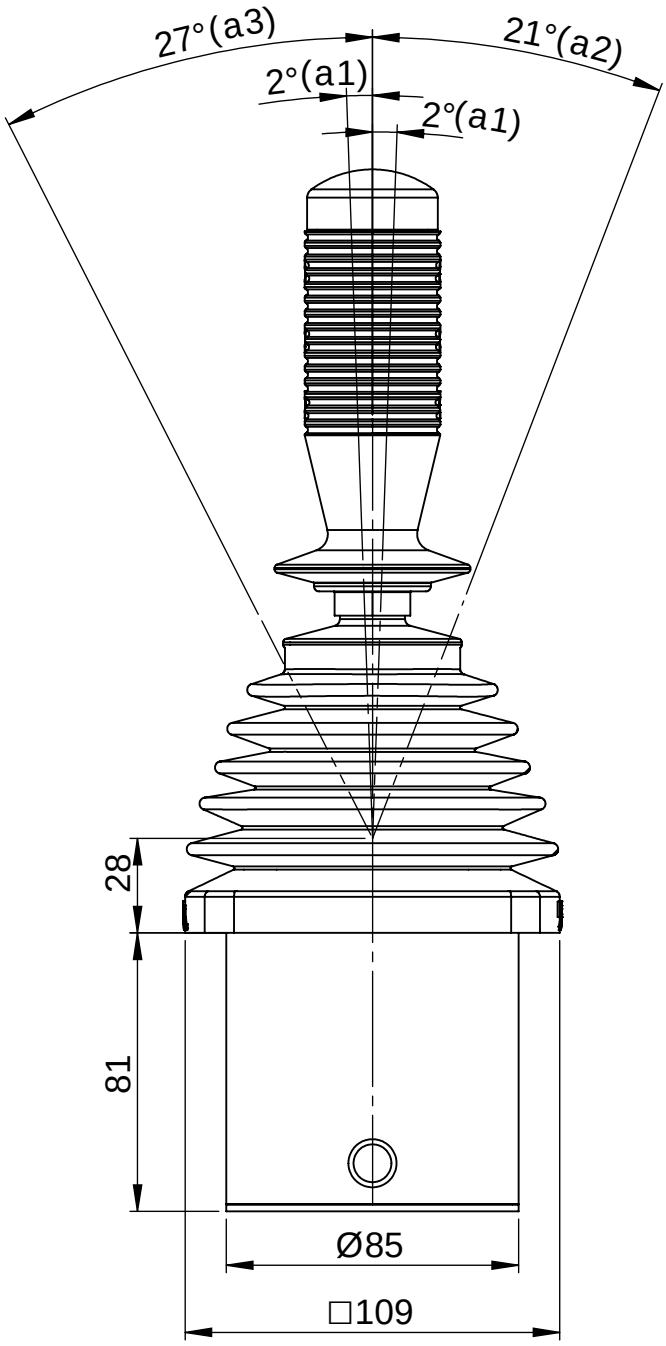
(α1) Standard microswitch activation angle
(α2) Maximum for movements X - Y
(α3) Maximum for combined movements

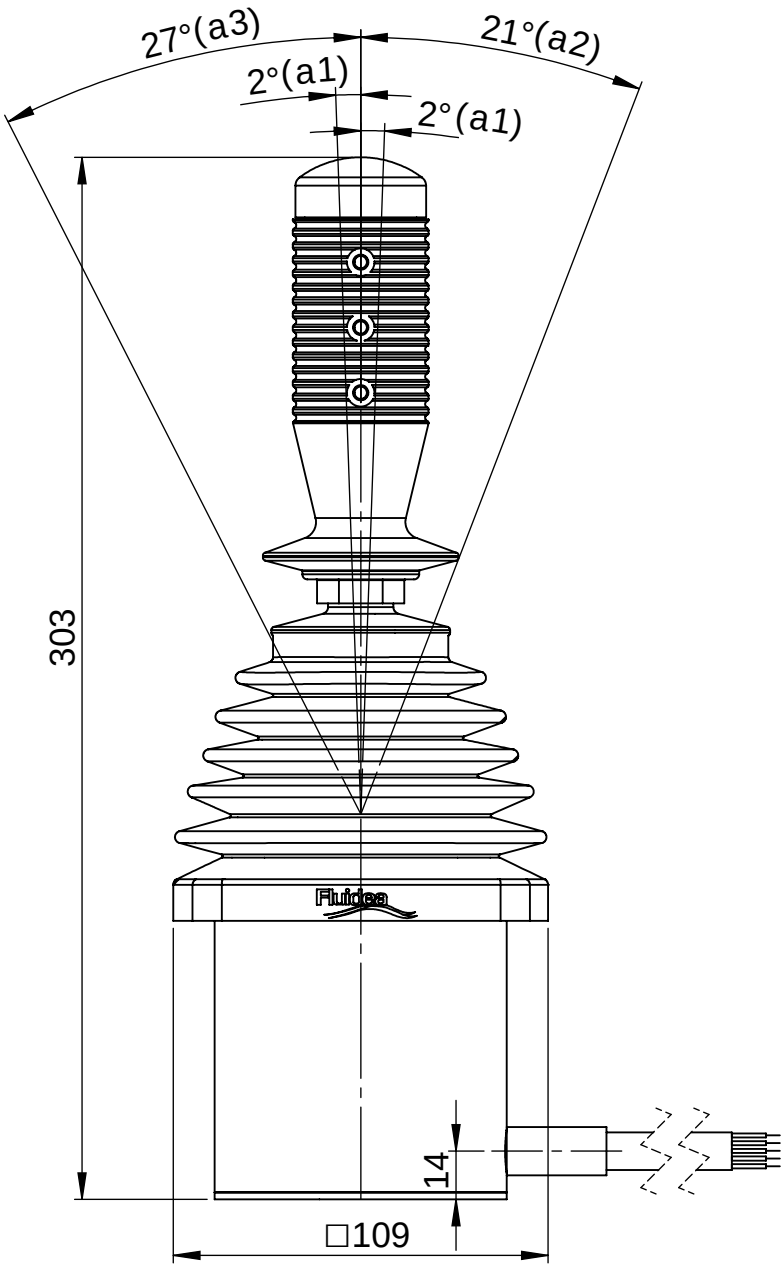


Mounting holes
Valid for all configurations

Overall dimensions

Dual axis joystick with straight handle without pushbuttons and rubber boot type Q

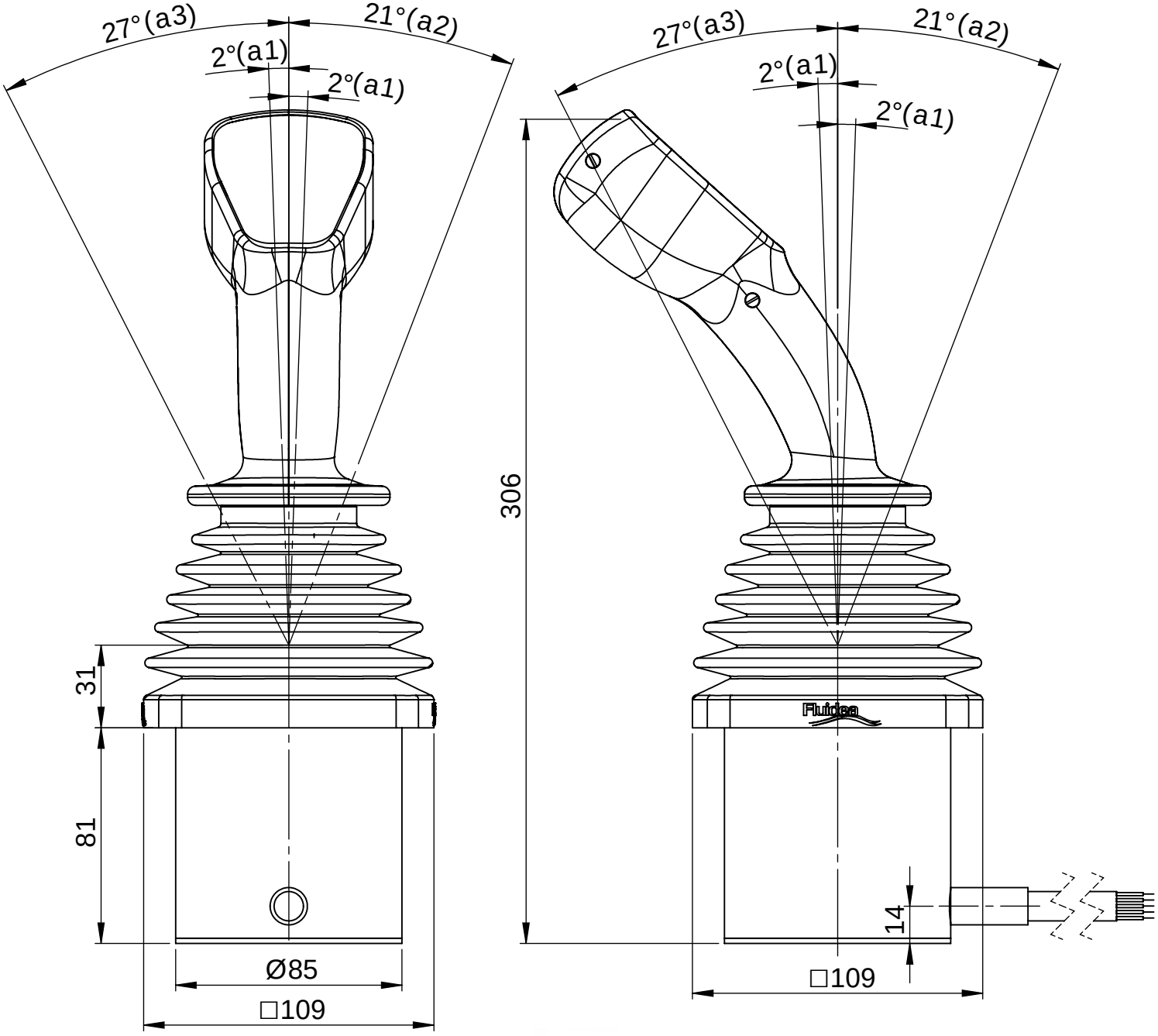




(α1) Standard microswitch activation angle
(α2) Maximum for movements X - Y
(α3) Maximum for combined movements

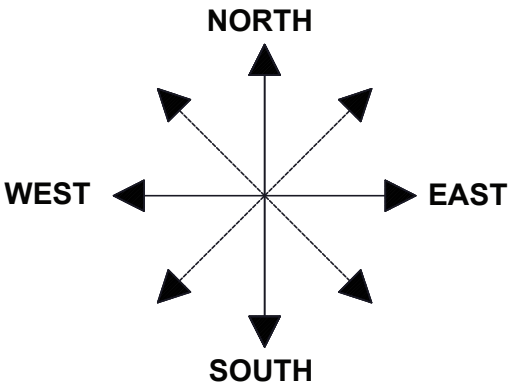
Overall dimensions

Dual axis joystick with ergonomic handle without pushbuttons and rubber boot type Q

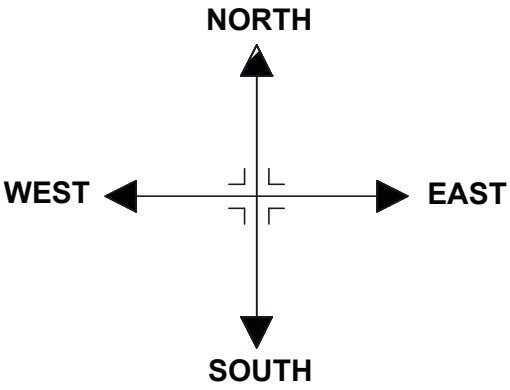


(α1) Standard microswitch activation angle
(α2) Maximum for movements X - Y
(α3) Maximum for combined movements

Control device configuration

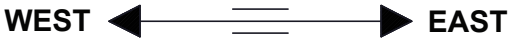


Standard control with combined movements available	B



Cross control with combined movements inhibited	C

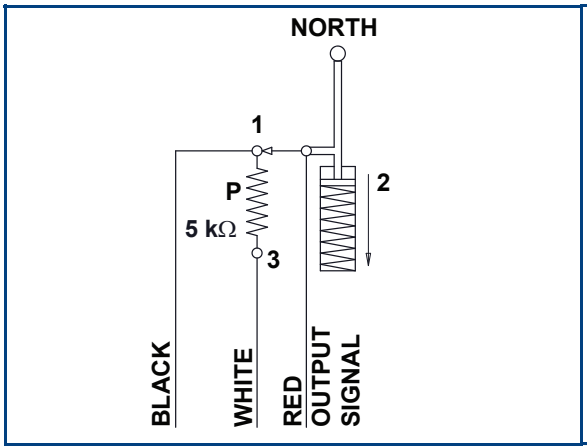
NORTH-SOUTH control with EAST-WEST movements inhibited	V



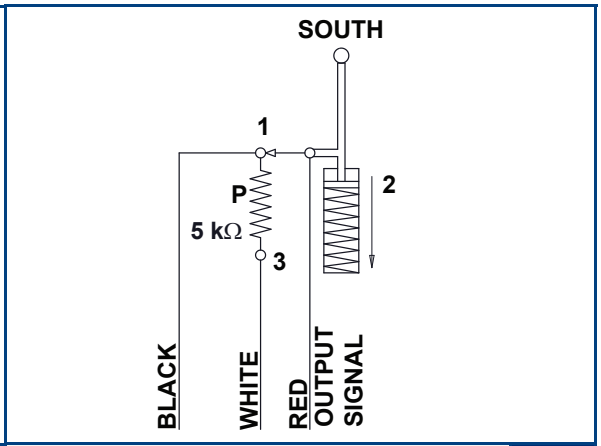
EAST-WEST control with NORTH-SOUTH movements inhibited	O

Proportional output configuration

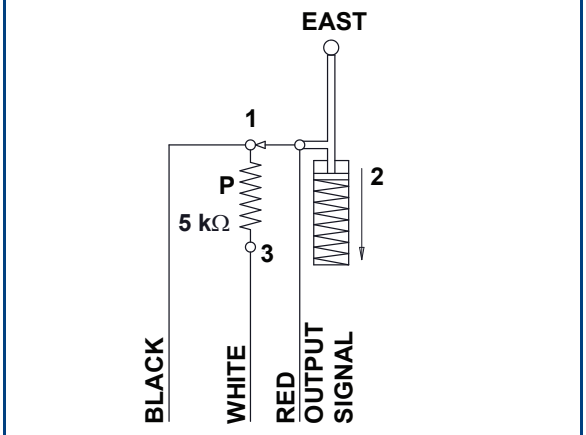
Without potentiometer	00



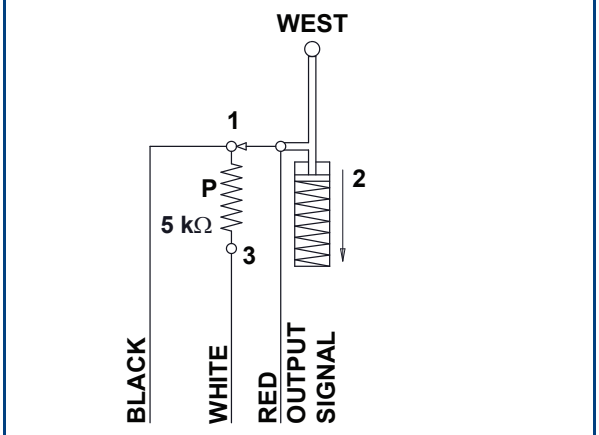
1 proportional output NORTH	N



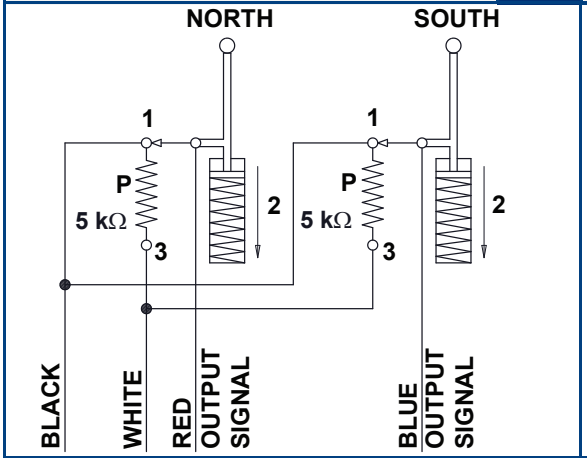
1 proportional output SOUTH	S



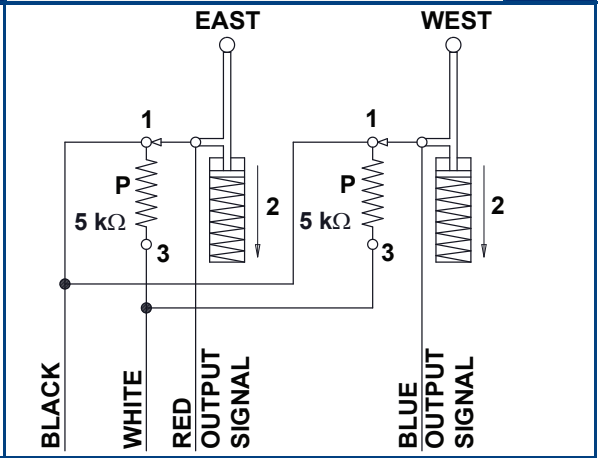
1 proportional output EAST	E



1 proportional output WEST	W

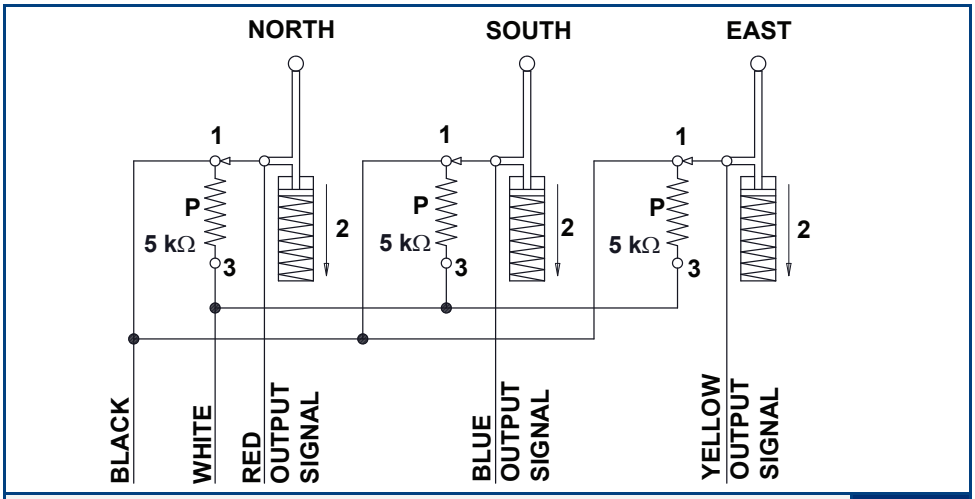


2 proportional output NORTH-SOUTH	NS

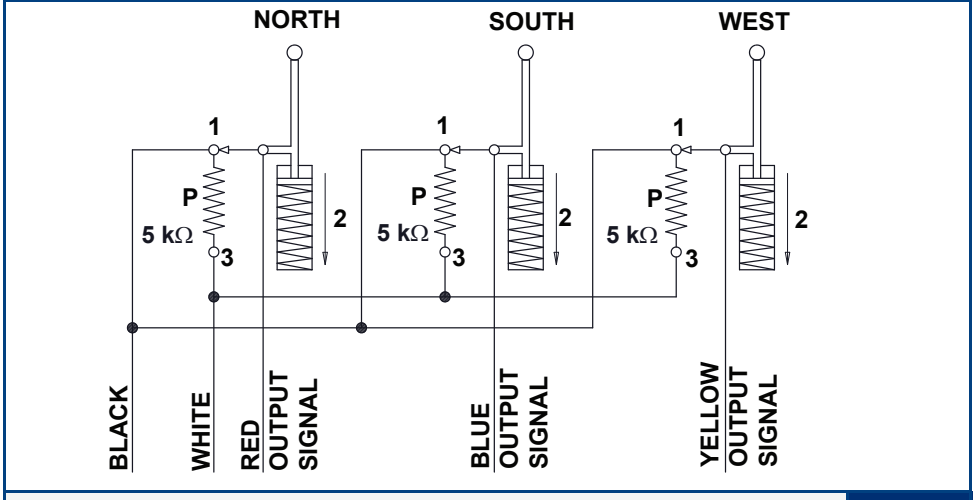


2 proportional output EAST-WEST	EW

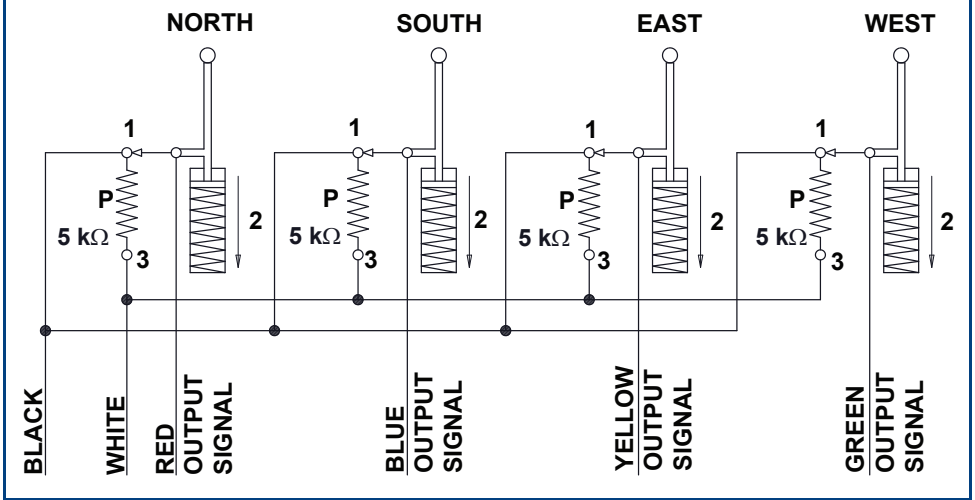
Proportional output configuration



3 proportional output NORTH-SOUTH-EAST **NSE**



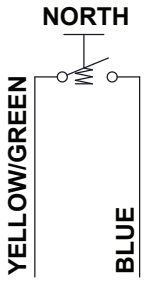
3 proportional output NORTH-SOUTH-WEST **NSW**



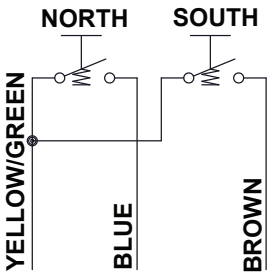
4 proportional output NORTH-SOUTH-WEST-EAST **NSEW**

Directional microswitches configuration

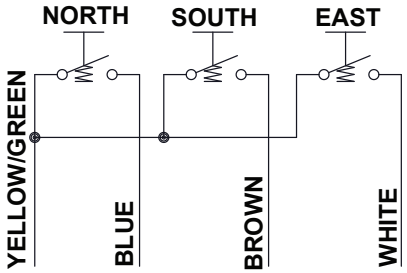
Without microswitch	**00**



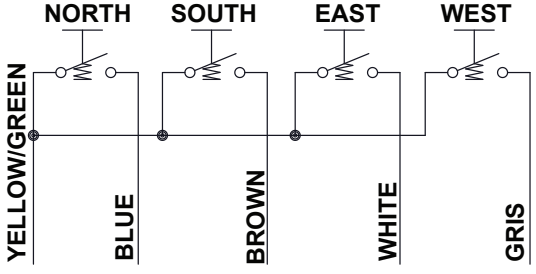
One out of centre microswitch: **1** + specify direction **N** (north) - **S** (south) - **E** (east) - **O** (west)	**1N**



Two out of centre microswitches: **2** + specify directions **N** (north) - **S** (south) - **E** (east) - **O** (west)	**2NS**



Three out of centre microswitches: **2** + specify directions **N** (north) - **S** (south) - **E** (east) - **O** (west)	**3NSE**



Four out of centre microswitches	**4X**

Control handles

For a detailed configuration of the handle, please refer to the technical catalogue of the required model

Without handle	Z

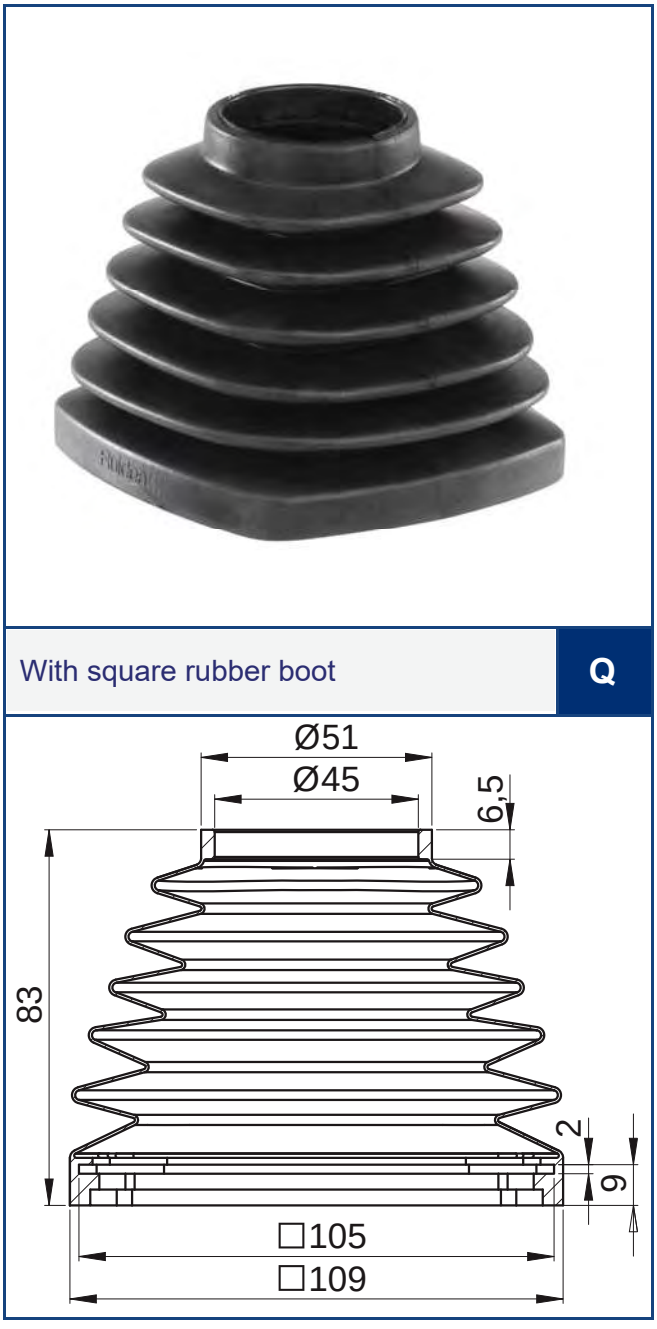
Standard straight handle	IC1

Multifunctional straight handle	IC2

Multifunctional ergonomic	IE2

Rubber boot

Without rubber boot	Z



With square rubber boot	Q

Ordering key

JEOP	1	B	4X	NSEW	IE20001	Q

Rubber boot (page 14):
- without rubber boot = **Z**
- with square rubber boot = **Q**

Handle (page 13):
- **IE20001** = handle part number, assigned by FLUIDEA (for the available options refer to technical catalogue of the handle)
- **Z** = without handle

Proportional output configuration (pages 10-11):
- **00** = without potentiometers
- **N** = 1 proportional output NORTH
- **S** = 1 proportional output SOUTH
- **E** = 1 proportional output EAST
- **W** = 1 proportional output WEST
- **NS** = 2 proportional output NORTH-SOUTH
- **EW** = 2 proportional output EAST-WEST
- **NSE** = 3 proportional output NORTH-SOUTH-EAST
- **NSW** = 3 proportional output NORTH-SOUTH-WEST
- **NSEW** = 4 proportional output NORTH-SOUTH-EAST-WEST

Out of centre microswitch configuration (page 12):
- **00** = without microswitch
- **1(N)** = One out of centre microswitch: **1** + specify direction **N** (north) **- S** (south) **- E** (east) **- O** (west)
- **2(NS)** = Two out of centre microswitches: **2** + specify direction **N** (north) - **S** (south) - **E** (east) - **O** (west)
- **3(NSE)** = Three out of centre microswitches: **3** + specify direction **N** (north) - **S** (south) - **E** (east) - **O** (west)
- **4X** = Four out of centre microswitches

Control device configuration (page 9):
- **B** = Standard control with combined movements available
- **C** = Standard control with combined movements inhibited
- **V** = NORTH-SOUTH control with EAST-WEST movements inhibited
- **O** = EAST-WEST control with NORTH-SOUTH movements inhibited

Electric diagram and metering curves (pag. 6-7-8):
- **1** = standard
- **2** = Supply 12 VDC; 0÷10 VDC
- **3** = Supply 5 VDC; 0,5÷4,5 VDC with 2,5 VDC in rest position

Modello base:
- **JEOP** = "ON-OFF" & Proportional electric joystick

THE COMPREHENSIVE RANGE OF MANUFACTURED AND MARKETED COMPONENTS INCLUDES:

- Hydraulic gear and axial piston pumps & motors
- Directional control valves & selector valves
- Proportional EH pressure reducing valves & manifold blocks
- Hydraulic, pneumatic and electric on-off & proportional joysticks
- Control electronics
- Radio controls, push buttons stations, dashboards and armrests
- Multifunction ergonomic, cylindrical & palm grips
- Hydraulic filters & contamination control systems
- Heath exchangers and cooling systems
- Fluid monitoring & diagnostic instruments
- Bell housings, driving flanges & elastic couplings