

Product Features

- Ergonomic design
- Single-axis or dual-axis operation with spring return
- Robust joystick for harsh environments
- Equipped with 2A @ 30Vdc microswitches with independent switch outputs
- Multiple handle top options

Application Markets

- Drive proportional valves and switching valves to realize electro-hydraulic control
- Rotary drilling rigs, aerial fire trucks, cranes, shield machines and other electrical & electro-hydraulic control systems

**Technical Specifications****Mechanical Parameters**

Tilting Angle	$\pm 25^\circ$
Operating Force	10~20N (Spring Return)
Limit Force	300N
Service Life	Potentiometer Type: Over 2 million cycles Hall Effect Type: Over 5 million cycles
Weight (Base Only)	560g

Pivot Distance: 93 mm

Electrical Parameters**Analog / Hall Voltage Type**

Supply Voltage	$5.0 \pm 0.5\text{Vdc}$
Supply Current	<9mA per channel
Midpoint Voltage	$2.5 \pm 0.1\text{V}$
Output Linear Error	$\pm 3\%$
Max Overvoltage	30Vdc
Max Reverse Voltage	-15Vdc
Load Resistance	>10K Ω
Insulation Resistance	>1000M Ω

Analog / Potentiometer Type

Supply Voltage	9 ~ 36Vdc
Total Resistance	10 K Ω
Midpoint Dead Zone Angle	$\pm 3^\circ$
Max Power	0.2W

Microswitch

Configuration	2 microswitches per axis
Actuation Angle	$3^\circ \sim 5^\circ$
Load Capacity	10A@30Vdc (Resistive Load)
Service Life	1 million cycles
Insulation Resistance	Insulation resistance: $\geq 100 \text{ M}\Omega$ (at 500 Vdc).

Environmental Parameters

Operating Temperature	$-30^\circ\text{C} \sim +80^\circ\text{C}$
Storage Temperature	$-40^\circ\text{C} \sim +85^\circ\text{C}$
Protection Rating	IP65 (Above mounting panel)



Product Model Coding Rule

Model No.	D191 - ① - ② - ③ - ④ - ⑤ - ⑥ - ⑦
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① Limit

SS	Single-axis Y-axis operation, spring return
DS	Dual-axis omni-directional operation, spring return
DP	Dual-axis cross directional operation, spring return

② Spring Force

L	6N initial force, 20N full deflection force
H	10N initial force, 40N full deflection force

③ Mounting Panel

56	Mounting hole pitch 56*56 mm
75	Mounting hole pitch 75*75 mm

④ Handle Top Style

M	Ball top, palm operation on top
TN	Conical top without top button
TB	Conical top with top button
M1B6	Curved top with enable switch & top rocker switch
M1N6	Curved top with enable switch & single top button (latching button optional)
M2B6	Straight rod top without enable switch, with top rocker switch

⑤ Output Type

H1	Hall effect, 5Vdc supply, 0.5-2.5-4.5V output
H2	Hall effect, 5Vdc supply, 1-2.5-4V output
2H1	Redundant Hall effect, 5Vdc supply, 0.5-2.5-4.5Vdc output
2H2	Redundant Hall effect, 5Vdc supply, 1-2.5-4Vdc output
P10	Potentiometer type, supply voltage $\leq 36\text{Vdc}$, 10K Ω 3-pin potentiometer
NA	No analog output
	*Contact our sales team for custom output requirements

⑥ Direction Microswitch

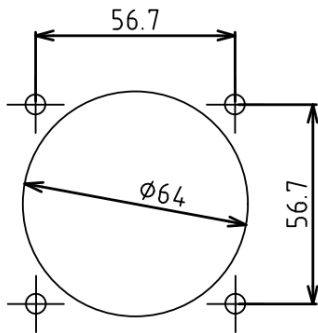
N	Without microswitch
S2	Single-axis version, one microswitch for forward & one for backward
S4	Dual-axis version, one microswitch for forward & backward on each axis

⑦ Cable Outlet

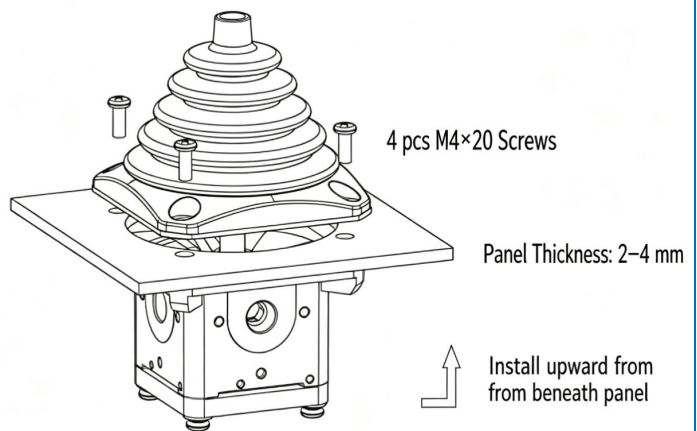
L	Direct cable outlet (AWG24 cable, standard length 500mm) Custom connectors available upon consultation with sales
T	Terminal block outlet

Mounting Panel

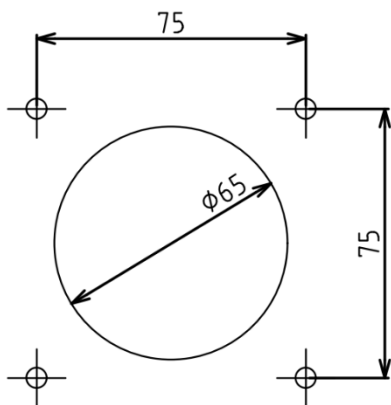
56- (Mounting hole pitch 56*56mm)



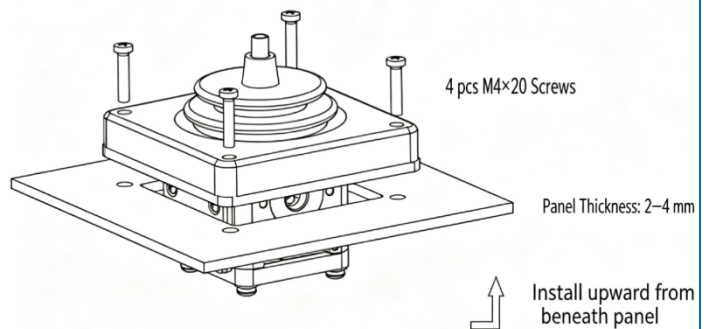
Installation Diagram



75- (Mounting hole pitch 75*75mm)

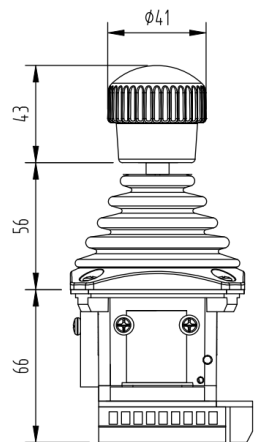


Installation Diagram

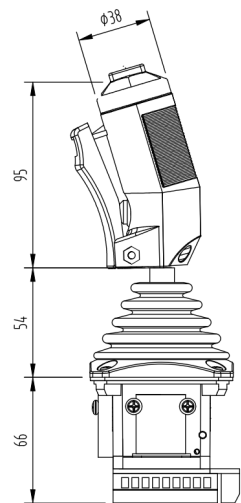


Handle Top Options

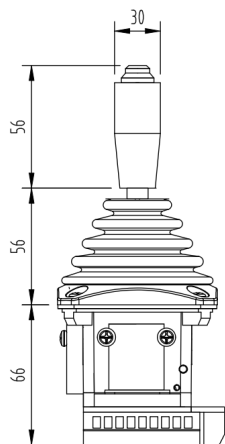
M Top



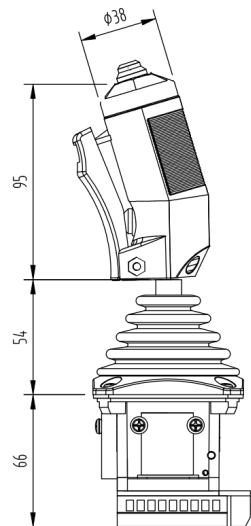
M1B6 Top



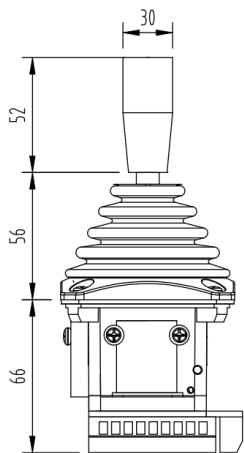
TN Top



M1N6 Top



TB Top



M2B6 Top

