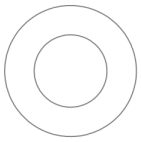
M25 Series

Dual-axis Hall-effect thumb joystick

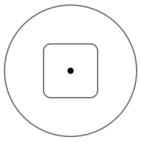




M25-RR
Spring-return



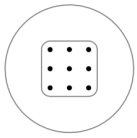
M25-H□
Friction lock



M25-FF
Dual-axis friction



M25-FX
Cross-gate friction



M25-MM
Nine-position detent

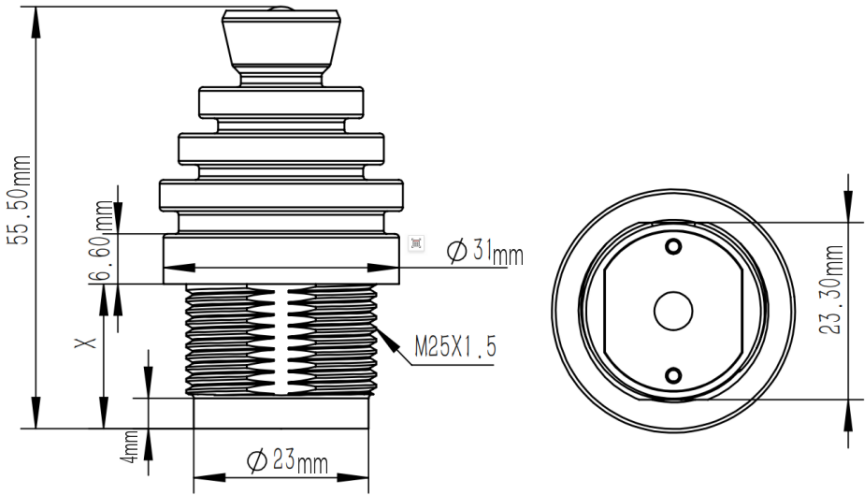
Key features

- Dual-channel output
- 3D Hall-effect sensing
- IP65–IP68 protection rating (customised on request)
- Output: analogue (0.5–4.5 V) / PWM (optional)
- Mechanical mode: spring-return / friction lock (six gate panels E, T, C, L, Z, I) / dual-axis friction / cross-gate friction / nine-position detent friction (optional)
- Top push-button output (optional)
- M25×1.5 mounting thread

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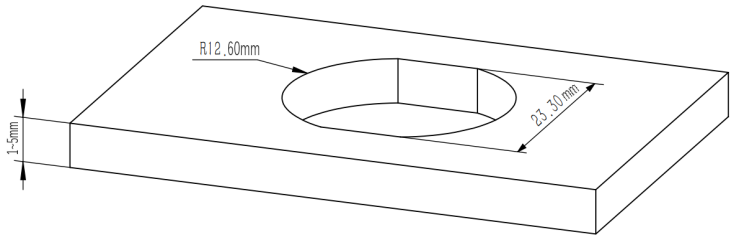
Chengdu Gudao Technology Co., Ltd.
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General mounting dimensions



X = 16.5 mm (spring-return); X = 19 mm (friction lock / dual-axis friction / cross-gate friction / nine-position detent friction)

Recommended panel cut-out



General parameters · Environment

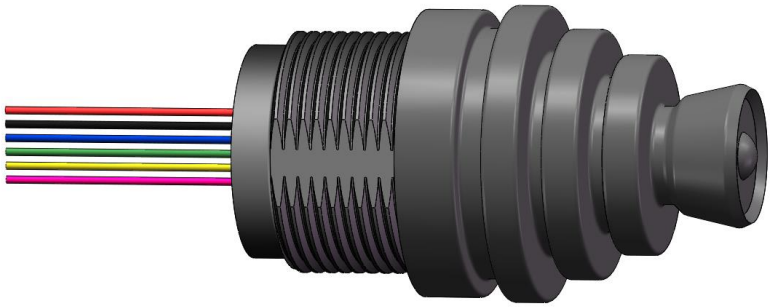
Protection rating	IP65–IP68 (customised on request)
Operating temperature	−40 °C to +85 °C
Storage temperature	−40 °C to +85 °C
EMC	Testing to the applicable standard (e.g. EN ISO 14982, ISO 13766-1) can be arranged per project.

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Electrical parameters

Supply voltage	5 V
Output mode	Dual-channel analogue / dual-channel PWM
Output voltage range	0.5–4.5 V (customisable)
PWM duty cycle range	5%–95% (customisable)
PWM frequency	1000 Hz
Output current	8 mA (analogue output); 20 mA (PWM output)
Sensing method	Hall-effect



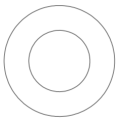
Wiring

Wire colour	Function
Red	Supply +5 V
Black	GND
Blue	OUT1
Green	OUT2
Yellow (optional)	Button terminal A
Purple (optional)	Button terminal B

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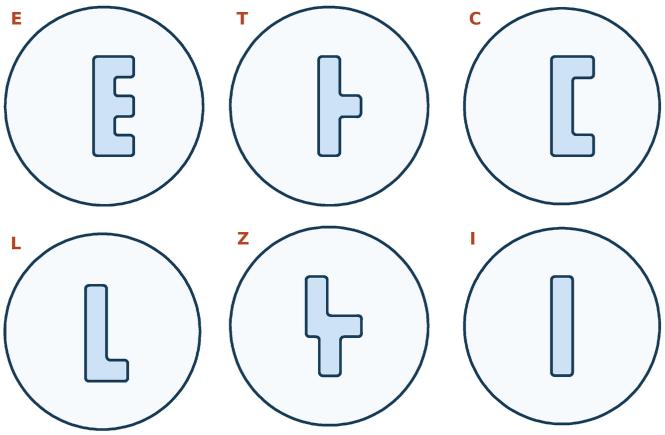
M25-RR · Spring-return



Operating characteristic: always returns to the centre position.

Maximum angle (each direction)	±30°
Operating force	3 N ± 0.5 N
Service life	> 1,000,000 cycles
Centring accuracy	0.3°

M25-H□ · Friction lock (six gate panels)



Operating characteristic: follows the gate and stays where released; push into the right-hand slot to lock. □ = panel code.

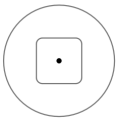
Panel	Gate path and locking
E panel	Straight slot, three side locks (forward / neutral / reverse)
T panel	Straight slot, side lock at neutral
C panel	Straight slot, side locks at both ends
L panel	Straight slot, side lock at rear end
Z panel	Z-shaped path, side lock at neutral
I panel	Straight path, no side lock (single-axis)

Mechanical data: max. angle ±30° (forward / back) · force 3 N ± 0.5 N · life > 1,000,000 cycles

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M25-FF · Dual-axis friction



Operating characteristic: proportional control in any direction; the stick stays where it is released and does not return to centre.

Maximum angle (each direction)	±30°
Operating force	3 N ± 0.5 N
Service life	> 1,000,000 cycles

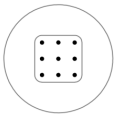
M25-FX · Cross-gate friction



Operating characteristic: operated along a cross gate (forward/back or left/right); the stick stays where it is released.

Maximum angle (each direction)	±30°
Operating force	3 N ± 0.5 N
Service life	> 1,000,000 cycles

M25-MM · Nine-position detent friction



Operating characteristic: nine discrete positions with a detent feel; the stick stays where it is placed.

Operating angle (non-diagonal, each direction)	±25°
Operating force	2 N ± 0.5 N
Service life	> 1,000,000 cycles

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M25 series ordering code

M25	-	HE	-	N	-	45

Series

M25

Operating type

RR = spring-return
HE = friction lock, E panel
HT = friction lock, T panel
HC = friction lock, C panel
HL = friction lock, L panel
HZ = friction lock, Z panel
HI = friction, I panel (straight)
FF = dual-axis friction
FX = cross-gate friction
MM = nine-position detent friction

Top button

N = without top button
K = with top button

Output type

50 = 0–5 V
45 = 0.5–4.5 V
40 = 1–4 V
PWM = PWM output

Example: M25-HE-N-45 = M25 series, friction lock with E panel, without top button, 0.5–4.5 V analogue output.

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