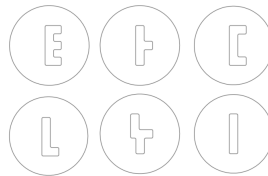
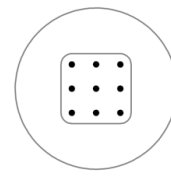


M25-RR
Spring-return



M25-H(E/T/C/L/Z/I)
Friction lock

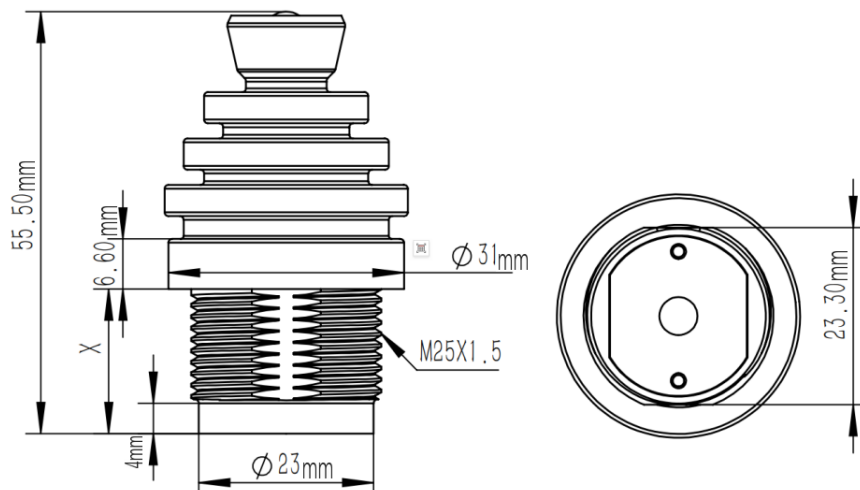


M25-MM
Nine-position detent

Key features

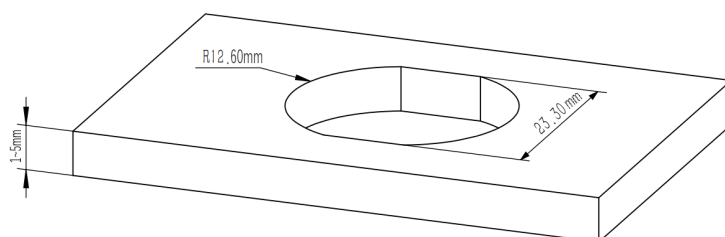
- Dual-channel output
- 3D Hall-effect sensing
- IP68 protection rating
- Output: analogue (0.5–4.5 V) / PWM (optional)
- Mechanical mode: spring-return / friction lock / nine-position detent friction (optional)
- Top push-button output (optional)
- M25×1.5 mounting thread

General mounting dimensions



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

Recommended panel cut-out

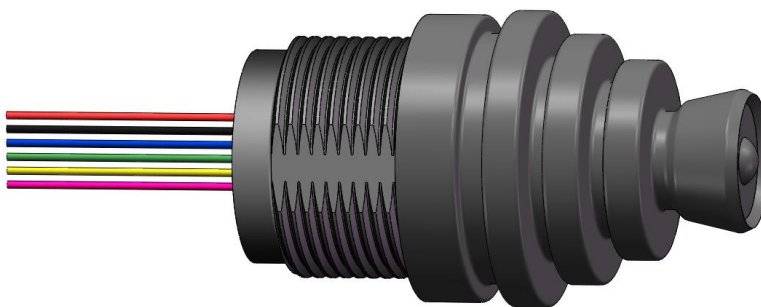


General parameters · Environment

Protection rating	IP68
Operating temperature	-40 °C to +85 °C
Storage temperature	-40 °C to +85 °C
EMC	Not yet certified; testing to the standard required by the application (e.g. EN ISO 14982, ISO 13766-1) can be arranged per project.

Electrical parameters

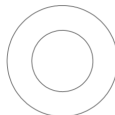
Supply voltage	5 V
Output mode	Dual-channel analogue / dual-channel PWM
Output voltage range	0.5–4.5 V (customisable)
PWM duty cycle range	5%–95% (customisable)
PWM frequency	1000 Hz
Output current	8 mA (analogue output); 20 mA (PWM output)
Sensing method	Hall-effect



Wiring

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

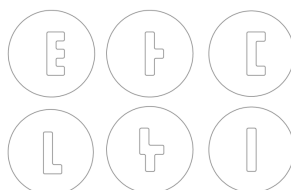
M25-RR · Spring-return



Operating characteristic: always returns to the centre position.

Maximum angle (each direction)	$\pm 30^\circ$
Operating force	$3\text{ N} \pm 0.5\text{ N}$
Service life	$> 1,000,000$ cycles
Centring accuracy	0.3°

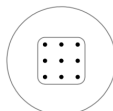
M25-H(E/T/C/L/Z/I) · Friction lock



Operating characteristic: a locking restoring force returns the stick into the right-hand locking slot. Six gate panels: E, T, C, L, Z and I.

Maximum angle (forward / back)	$\pm 30^\circ$
Operating force	$3\text{ N} \pm 0.5\text{ N}$
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)	$\pm 25^\circ$
Operating force	$2\text{ N} \pm 0.5\text{ N}$
Service life	$> 1,000,000\text{ cycles}$

M25 series ordering code

M25	-	HE	-	N	-	45
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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
 HI = friction lock, I panel
 HZ = friction lock, Z panel
 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.