Environment-resistant contact displacement sensor

D5M

IP67-compliant contact linear sensor is capable of inline measurement even in adverse environments.

- **IP67 (IEC standard) protective structure (sensor).**
- **4- to 20-mA linear current output is possible.**
- **Offset adjustment is easily performed at the amplifier. (For details, please see the Operation Manual and User's Manual.)**
- **Displays CE mark (TÜV certified) indicating compliance with EMC regulations.**

Applications

Flatness measurement

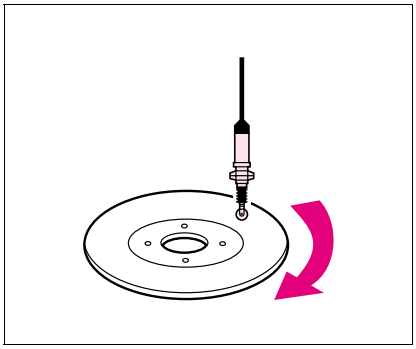
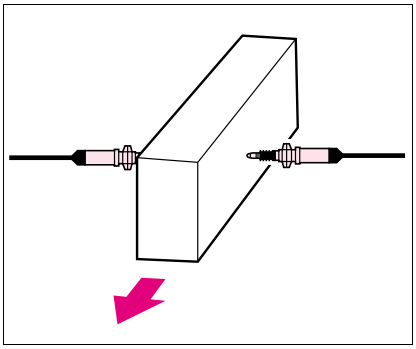
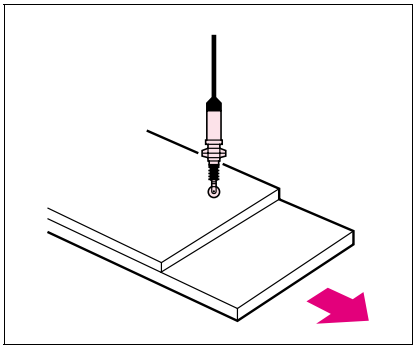


Plate thickness measurement



2-sheet insertion detection



Ordering Information

Stroke	Measurement head	Accessories	Model
5 mm	Ball type	---	**D5M-5B**
		With locking block	**D5M-5BB**
	Roller type	---	**D5M-5R**
		With locking block	**D5M-5RB**
10 mm	Ball type	---	**D5M-10B**
		With locking block	**D5M-10BB**
	Roller type	---	**D5M-10R**
		With locking block	**D5M-10RB**

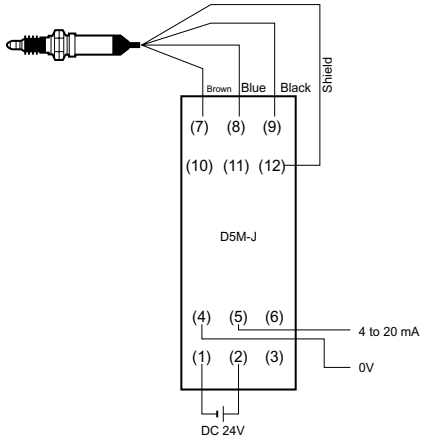
Note:1.When ordering, please order by set.
2.The sensor and amplifier are adjusted for operation as a set. Please use the sensor and amplifier only as a set.

Set model details

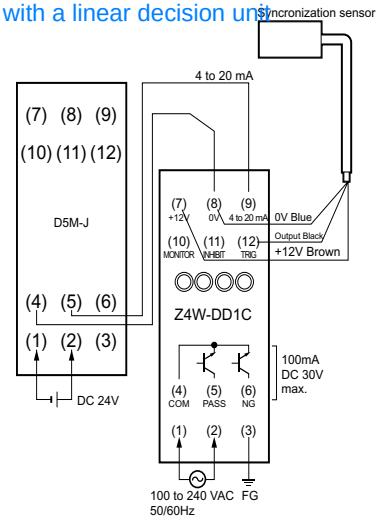
Stroke	Model	Sensors	Amplifier	Stroke	Model	Sensors	Amplifier
5 mm	D5M-5B	D5M-S5B	D5M-J5A	10 mm	D5M-10B	D5M-S10B	D5M-J10A
	D5M-5BB	D5M-S5BB			D5M-10BB	D5M-S10BB	
	D5M-5R	D5M-S5R			D5M-10R	D5M-S10R	
	D5M-5RB	D5M-S5RB			D5M-10RB	D5M-S10RB	

Connection schematic

Connecting the amplifier unit and the sensor



Connection with a linear decision unit



Rating/performance

Item \ Model		D5M-5□	D5M-10□
Protective structure (sensor)		IP67*1	
Mechanical life		10 million times or more	
Rated supply voltage (operating voltage)		24 V DC ±10%	
Current consumption		80 mA max.	
Measurement range		5 mm	10 mm
Mechanical movable range		Approx. 6 mm	Approx. 12 mm
Resolution		2.5 μm	5 μm
Output Characteristics	Repetition precision	10 μm max.	20 μm max.
	Linearity	±0.5%FS max.*2	
Output		4 to 20 mA (permissible load resistance: 0 to 300 Ω)	
Operating force		5.88 N maximum	
Indicator lamp		Power display (POWER), pressure warning (OVER)	
Insulation resistance		100 MΩ or higher (using insulation resistance tester) between chargers and ground	
Dielectric strength		1000 V AC 50/60 Hz, 1 min, between chargers and ground	
Rated insulation voltage (Ui)		1,000 VAC	
Pollution level (operating environment)		3 (IEC947-5-1)	
Electric shock protection class		Class II	
PTI (tracking characteristics)		175	
Switch category		3 (IEC335)	
Vibration resistance	Sensors	10 to 55 Hz, 2-mm double amplitude for 2 hours each in X, Y, and Z directions	
	Amplifier	10 to 55 Hz, 0.75-mm double amplitude for 2 hours each in X, Y, and Z directions	
Shock resistance	Sensors	Destruction: 500 m/s2 for 3 times each in X, Y, and Z directions	
	Amplifier	Destruction: 200 m/s2 for 3 times each in X, Y, and Z directions	
Ambient temperature	Sensors	-20°C to 60°C (with no icing or condensation)	
	Amplifier	-10° to 55°C (with no icing or condensation)	
Ambient humidity	Sensors	95%RH max. (with no icing or condensation)	
	Amplifier	85%RH max. (with no icing or condensation)	
Temperature influence	Sensors	±0.03%FS/°C*2	
	Amplifier	±0.03%FS/°C*2	
Extension cable length (sensor)		3-wire shielded cable, 2 m	
Weight	Sensors	Approx. 200 g	Approx. 300 g
	Amplifier	Approx. 100 g	
Material	Sensors	Stainless steel	
	Amplifier	ABS resin	

*1. The protective structure is IP67-compliant, however, it cannot be used in water or oil. The amplifier does not have a dust-proof or waterproof structure.
*2. FS indicates the measurement range. (Example: FS indicates 5 mm for the D5M-S5.)

Overseas certification standard

Certifying agency	Standard	File number
TÜV Product service	EN61010-1	B950522868003
	EN55011(EMI) EN50082-1(EMS)	E99505422868004

Certified safety standard rating

TÜV (EN55011, EN50082-1)

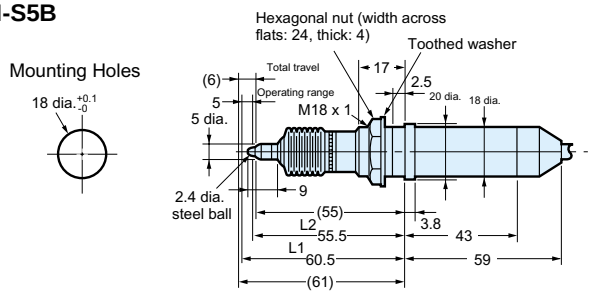
Rated current	0.1A
Rated voltage	24 VDC

Dimensions (Unit: mm)

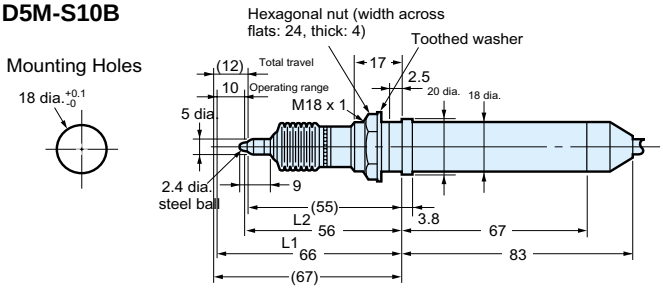
Sensor

* The lengths from the reference position to outputs of 4 mA and 20 mA are initially set in the manner L1 (measure start position) and L2 (measure end position).

Ball plunger type
D5M-S5B



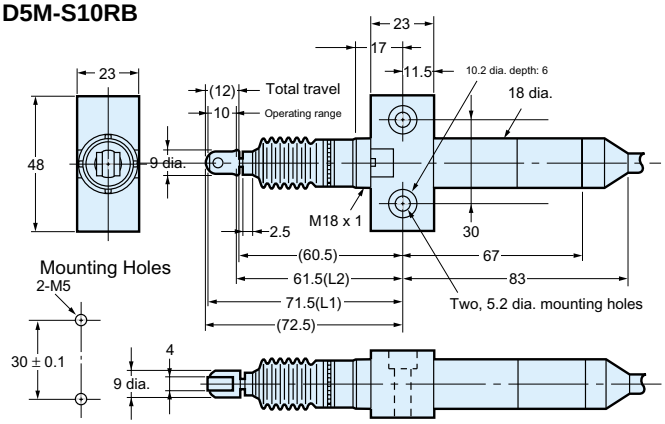
Ball plunger type
D5M-S10B



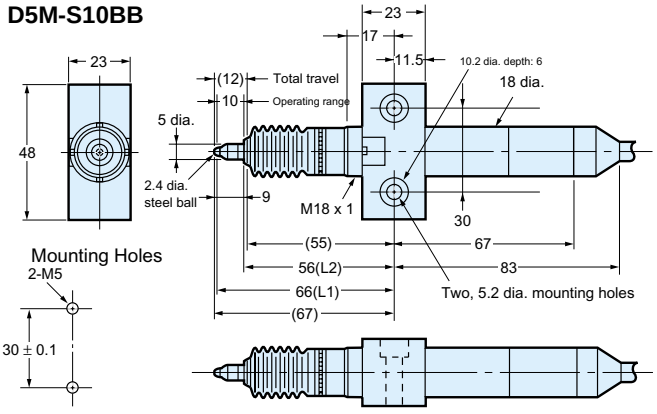
Sensor with locking block

* The lengths from the reference position to outputs of 4 mA and 20 mA are initially set in the manner L1 (measure start position) and L2 (measure end position).

Roller plunger type
D5M-S10RB



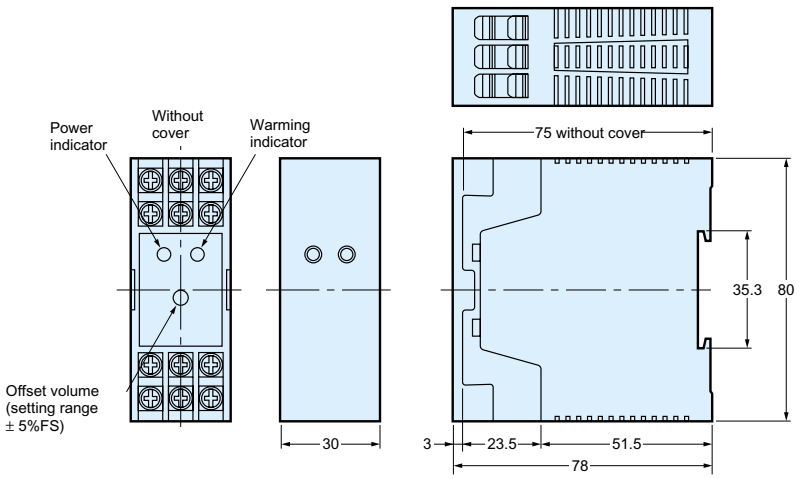
Ball plunger type
D5M-S10BB

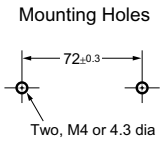


Note: In the dimension diagrams of each model above, dimension tolerances are ±0.4 mm unless otherwise specified.

Amplifier

D5M-J5A
D5M-J10A





Note: In the dimension diagrams of each model at left, dimension tolerances are ±0.4 mm unless otherwise specified.