

# Magnesensor

# SET-B3

# Magneswitch

# SET-K2

## High accuracy non-contact Magnesensor and Magneswitch

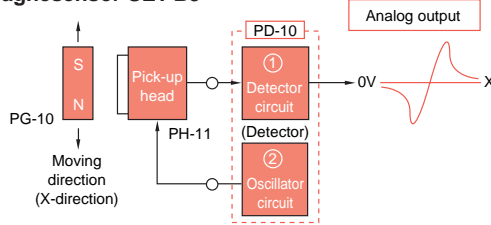
- Magnesensor SET-B3 can be used as a zero point or to detect small displacements.
- Magneswitch SET-K2 can be used as a zero point for Magnescale and rotary encoders.
- Excellent resistance to workshop conditions.
- Compact and lightweight. Non-contact design.
- Repeatability:  $\pm 1 \mu\text{m}$
- Max response frequency: 1.7 kHz
- Output signal: analog (Set B3) / pulse (Set K2)
- Power supply: +12 V DC

### Specifications

Model	Magnesensor SET-B3	Magneswitch SET-K2
Repeatability	$\pm 1 \mu\text{m}$ (under same conditions) (Note1)	
Operating range	—	$8 \pm 1 \text{ mm} / 0.31 \pm 0.04''$ (at $0.5 \text{ mm} / 0.019''$ clearance) (Note4)
Clearance	Max. $2.5 \text{ mm} / 0.11''$	Max. $3 \text{ mm} / 0.09''$
Max. response frequency	1.7 kHz (Note2)	max.delay: 0.1 ms (Note2)
Power supply	+12 V DC $\pm 5\%$	+12 V DC $\pm 10\%$
Power consumption	Max. 40 mA	Max. 20 mA
Output impedance	3 k $\Omega$	12 k $\Omega$
Temperature characteristics	$0.3 \mu\text{m} / ^\circ\text{C}$ (zero drift)	$0.8 \mu\text{m} / ^\circ\text{C}$ (Note5)
Voltage characteristics	$0.2 \mu\text{m}$ or less/ % (zero drift)	$8 \mu\text{m} / \text{V}$
Operating temperature	$-10^\circ\text{C}$ to $50^\circ\text{C} / 14^\circ\text{F}$ to $122^\circ\text{F}$	
Cable length (sensor)	3 m / 9.8' (extendable up to 15 m / 49.2' by MSK-5000) (Note3)	3 m / 9.8' (extendable up to 30 m / 98' by MSK-5000) (Note3)
Cable length (detector)	Max. 100 m / 328.0' by MSK-5100	Max. 20 m / 65.6' by MSK-5100

### Configuration

#### Magnesensor SET-B3

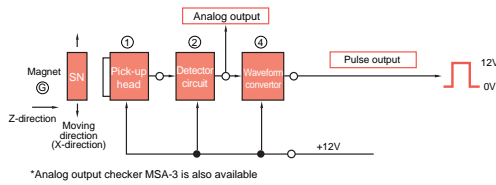


Note 1 Repeatability conditions: temperature change within  $\pm 1.2^\circ\text{C}$ , voltage change within  $\pm 0.12 \text{ V}$ , clearance change less than  $3 \mu\text{m}$ , speed change less than  $10 \text{ mm/s}$ .

Note 2 Response speed conditions: response frequency 1.7 kHz, which is an input signal frequency where the relative output level drops by 3 dB. Max.response speed is about  $9 \text{ m/s}$  when the standard PG-10/-910 magnet is used.

Note 3 Cable extension: Output voltage decreases about 2.3 %/m by cable extension.

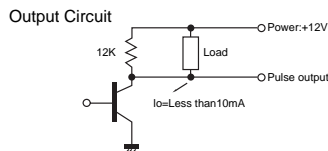
#### Magneswitch SET-K2



\*Analog output checker MSA-3 is also available

Accuracy	$1 \mu\text{m}$	$5 \mu\text{m}$	$10 \mu\text{m}$
Pulse	10mm/s	50mm/s	100mm/s

Max.speed change at the time of position detection at a constant speed.



Note 1 Repeatability: indicates the accuracy of the position at which the pulse output goes ON. Conditions for  $\pm 1 \mu\text{m}$  are: clearance  $0.5 \text{ mm}$ , temperature change within  $\pm 1.2^\circ\text{C}$ , voltage change within  $\pm 0.12 \text{ V}$ , clearance change less than  $3 \mu\text{m}$ , speed change less than  $10 \text{ mm/s}$ .

Note 2 Response speed Max. delay  $0.1 \text{ m/s}$   
This is a proper time constant of the detector circuit and indicates a max. delay (T) from detection to pulse output rise. Max. response speed is  $l/T$  where  $l$  is a practically allowable detection tolerance. When the detector's proper time constant is taken into account in use, the time delay is negligible. (e.g.: the detector head and magnet are operated at the same speed.) The detector element's max. response speed is  $10 \text{ MHz}$ .

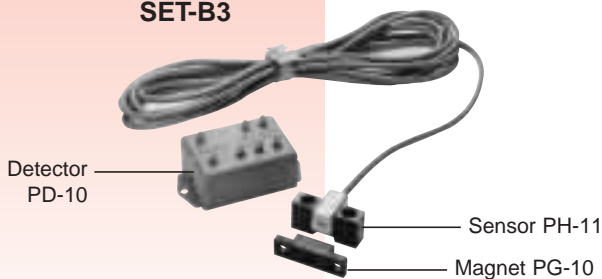
Note 3 When extending the cable, check the noise caused by external equipment.

Note 4 Clearance

Clearance affects the operating range and repeatability.

Note 5 Watch the temperature characteristics.

#### SET-B3



#### SET-K2

