



Miniature magnetic position sensors

Programmable switching points and completely integrated electronics

Miniature magnetic position sensors

With analog output or freely programmable switching points

The product family of intelligent magnetic cylinder sensors are characterized through an analog output as well as one or two freely programmable, independent switching points.

Despite this high degree of functionality, BERNSTEIN has succeeded in integrating the entire electronics into a compact sensor enclosure with the smallest possible dimensions. This design feature renders additional protection (e.g. for the cable electronics or high-cost safeguards) unnecessary. The compact design is suitable for installation in all standard T- and C-slots (e.g. FESTO or SMC).

The analog output with 0–10 V provides the user with the ability to continuously detect the position in his application. When using versions HP1 and HP2, one or two switching points can be programmed.

In an installed position, the sensors can be quickly and easily set with the aid of the easy-to-use teach-in tool. The rapid, electronic matching in an installed condition replaces the manual method of searching switching points.

LEDs at the top of the sensor serve as the function indicator, providing information on the programming status and also signal faults.

In addition to featuring effective polarity reversal protection as standard, the sensors also have an internal storage as security in the event of power failures. This configuration largely avoids unintentional changes to the settings.

Industries and applications

- Assembly and handling systems
- Short-stroke cylinders
- Block cylinders
- Clamping element
- Robotics
- Grippers

Smallest analog cylinder sensor

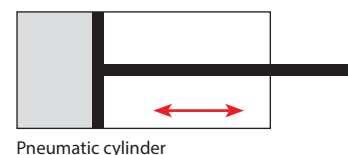
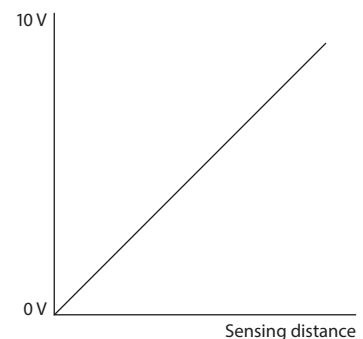
Product range

Technology	Series	Material	Type of connection	Type of installation	Article number	Article designation
Analog 0..10V						
	E30	Aluminium	Plug	T-Nut	6370099169	MEA-E30A10/H50-KL0,3S8

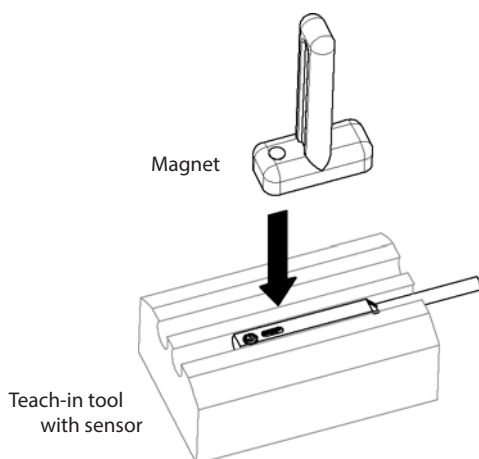


Advantages

- Analog output with 0–10 V
- Straightforward teach-in procedure
- Suitable for standard T-slots
- Completely integrated electronic solution
- No need for additional electronics
- Fully immersed and therefore protected installation in the slot
- Can be fitted from above
- Shielded connection cable with M8 plug connector
- Ambient temperature +5 °C to +55 °C



Miniature magnetic position sensors with freely programmable switching points



- The installed sensor assumes programming mode when the teach-in tool is placed over it
- The positions of the magnet are assigned to the respective outputs by correspondingly aligning the tool
- The programmable switching points are stored in the sensor
- The switching points can be changed by repeating the teach-in procedure

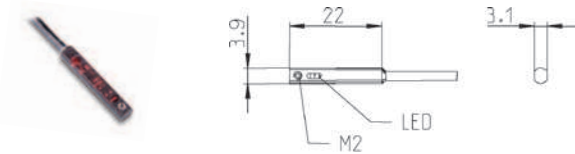
Advantages

- One or two freely programmable switching points
- Straightforward teach-in procedure
- Suitable for standard C- and T-slots
- High switching accuracy
- Reduced installation and wiring requirements
- Can be fitted from above
- Completely integrated electronic solution
- No need for additional electronics
- Fully immersed and therefore protected installation
- Available as cable or plug version

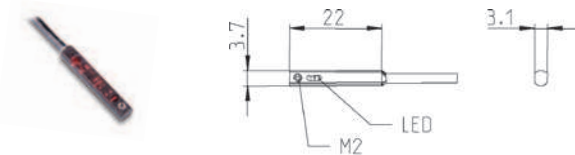
Product range

Intelligent electronic magnetic sensors – teachable, one or two switching points

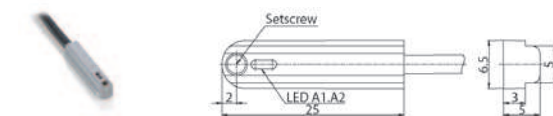
Configuration	Series	Material	Type of connection	Type of installation	Article number	Article designation
2 switching points	E22	Plastic	Cable	C-slot – SMC	6370281183	MEK-E22PS/HP2-KL2
2 switching points	E22	Plastic	M8 plug	C-slot – SMC	6370281184	MEK-E22PS/HP2-KL0,3S8
1 switching point	E22	Plastic	Cable	C-slot – SMC	6372281177	MEK-E22PS/HP1-KL2
1 switching point	E22	Plastic	M8 plug	C-slot – SMC	6372281178	MEK-E22PS/HP1-KL0,3S8



Configuration	Series	Material	Type of connection	Type of installation	Article number	Article designation
2 switching points	E22	Plastic	Cable	C-slot – Festo	6370281185	MEK-E22PS/HP2-KL2
2 switching points	E22	Plastic	M8 plug	C-slot – Festo	6370281186	MEK-E22PS/HP2-KL0,3S8
1 switching point	E22	Plastic	Cable	C-slot – Festo	6372281179	MEK-E22PS/HP1-KL2
1 switching point	E22	Plastic	M8 plug	C-slot – Festo	6372281180	MEK-E22PS/HP1-KL0,3S8



Configuration	Series	Material	Type of connection	Type of installation	Article number	Article designation
2 switching points	E30	Aluminium	Cable	T-slot	6370299187	MEA-E30PS/HP2-KL2
2 switching points	E30	Aluminium	M8 plug	T-slot	6370299188	MEA-E30PS/HP2-KL0,3S8
1 switching point	E30	Aluminium	Cable	T-slot	6372299181	MEA-E30PS/HP1-KL2
1 switching point	E30	Aluminium	M8 plug	T-slot	6372299182	MEA-E30PS/HP1-KL0,3S8



Accessories

Cable coupler (straight version, 2 m cable)	4-pin M8	4139100837	GDK-M08UA/WO0-2
Cable coupler (straight version, 2 m cable)	3-pin M8	4139100795	GDK-M08US/WO0-2

All sensors come with the following accessories:


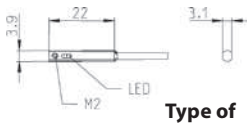

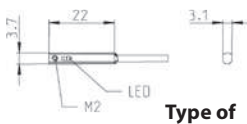

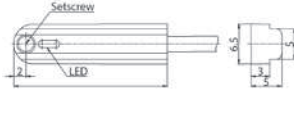

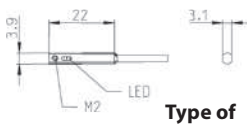

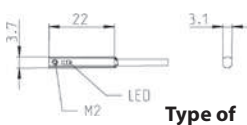

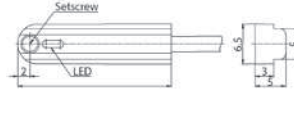
- 1 x Setscrew M2x3 (E22), M3x6 (E30), DIN 913
- 1 x Offset screwdriver (E22)
- 1 x Teach-in tool
- 1 x Operating and installation instructions

Other slot sensors:

Sensors with only one output can also be used for applications that require only one switching point. For this purpose BERNSTEIN offers a range of Hall sensors with set sensitivity or reed contact versions that do not require auxiliary energy (see "Delivery Range – Other Slot Sensors", page 6).

Product range

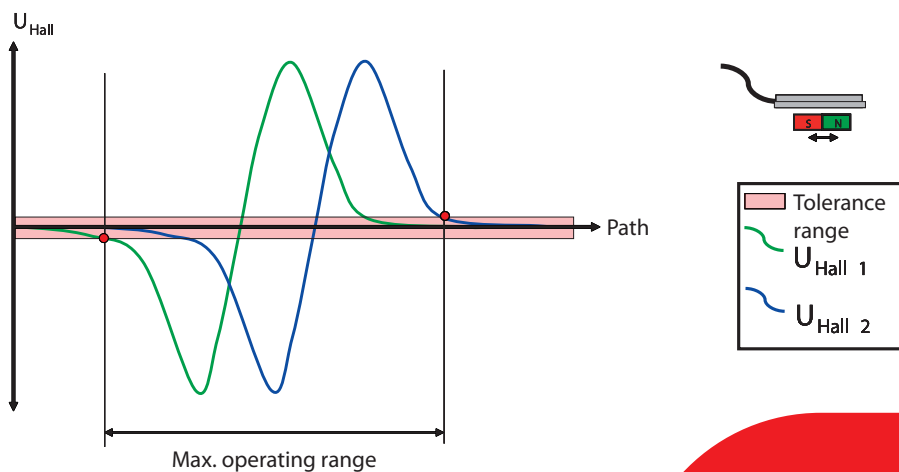
Other slot sensors – one switching point, non-teachable

Technology	Series	Material	Type of connection	Type of installation	Article number	Article designation	
2-wire NO contact	Reed						
	E22	Plastic	Cable	C-slot – SMC	6310281741	MAK-E22S/R20-2	
	E22	Plastic	M8 plug	C-slot – SMC	6310281742	MAK-E22S/R20-0,3S8	
							
	Series	Material	Type of connection	Type of installation	Article number	Article designation	
	E22	Plastic	Cable	C-slot – Festo	6310281743	MAK-E22S/R20-2	
	E22	Plastic	M8 plug	C-slot – Festo	6310281744	MAK-E22S/R20-0,3S8	
							
	Series	Material	Type of connection	Type of installation	Article number	Article designation	
	E30	Aluminium	Cable	T-slot	6310299745	MAA-E30S/R20-2	
E30	Aluminium	M8 plug	T-slot	6310299746	MAA-E30S/R20-0,3S8		
							
8–30 V DC Typ. 3mT 150 mA PNP/ NO contact south-switching	Hall						
	E22	Plastic	Cable	C-slot – SMC	6372281171	MEK-E22PS/H03-KL2	
	E22	Plastic	M8 plug	C-slot – SMC	6372281172	MEK-E22PS/H03-KL0,3S8	
							
	Series	Material	Type of connection	Type of installation	Article number	Article designation	
	E22	Plastic	Cable	C-slot – Festo	6372281173	MEK-E22PS/H03-KL2	
	E22	Plastic	M8 plug	C-slot – Festo	6372281174	MEK-E22PS/H03-KL0,3S8	
							
	Series	Material	Type of connection	Type of installation	Article number	Article designation	
	E30	Aluminium	Cable	T-slot	6372299175	MEA-E30PS/H03-KL2	
E30	Aluminium	M8 plug	T-slot	6372299176	MEA-E30PS/H03-KL0,3S8		
							

Functional principle of the programmable HP1 and HP2 versions

The illustration shows the maximum sensing range of both sensor elements over the traverse range of the magnet. A curve must be outside the tolerance range in order to achieve clear assignment of the switching points. The sensor immediately detects the moment at which both curves are within the tolerance range of low magnetic sensitivity due to the magnet and air gap constellation and signals a fault.

Magnetic field parallel to sensor



**Other products
in our complete range**

Technical data

- PNP/NO contact
- Magnetic sensitivity $\pm 1.5 \text{ mT}$ to $\pm 13.5 \text{ mT}$
- Sensing distance up to 50 mm (depending on magnet/air gap)
- Repeat accuracy $\leq 0.1 \text{ mT}$
- Hysteresis $1 \text{ mT} \leq H \leq 1.35 \text{ mT}$
- Operating voltage range UB 10–30 V DC
- Output current $I_e \leq 50 \text{ mA}$ (one output switched)
 $\leq 25 \text{ mA}$ per output (both outputs switched)
- Ambient temperature $-20 \text{ }^\circ\text{C}$ to $+80 \text{ }^\circ\text{C}$
- Protection class IP 67



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**Sensor systems –
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**Enclosure systems –
Function and design**

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Contact

**International Headquarters
BERNSTEIN AG**
Hans-Bernstein-Str. 1
32457 Porta Westfalica
Phone +49 571 793-0
Fax +49 571 793-555
info@de.bernstein.eu
www.bernstein.eu

**Denmark
BERNSTEIN A/S**
Phone +45 7020 0522
Fax +45 7020 0177
info@dk.bernstein.eu

**France
BERNSTEIN S.A.R.L.**
Phone +33 1 64 66 32 50
Fax +33 1 64 66 10 02
info@fr.bernstein.eu

**Italy
BERNSTEIN S.r.l.**
Phone +39 035 4549037
Fax +39 035 4549647
info@it.bernstein.eu

**United Kingdom
BERNSTEIN Ltd**
Phone +44 1922 744999
Fax +44 1922 457555
info@uk.bernstein.eu

**Austria
BERNSTEIN GmbH**
Phone +43 2256 62070-0
Fax +43 2256 62618
info@at.bernstein.eu

**Switzerland
BERNSTEIN (Schweiz) AG**
Phone +41 44 775 71-71
Fax +41 44 775 71-72
info@ch.bernstein.eu

**Hungary
BERNSTEIN Kft.**
Phone +36 1 4342295
Fax +36 1 4342299
info@hu.bernstein.eu

**China
BERNSTEIN Safe Solutions
(Taicang) Co., Ltd.**
Phone +86 512 81608180
Fax +86 512 81608181
info@bernstein-safesolutions.cn