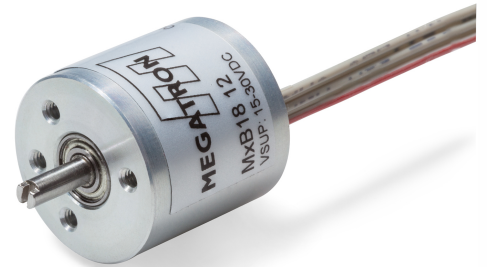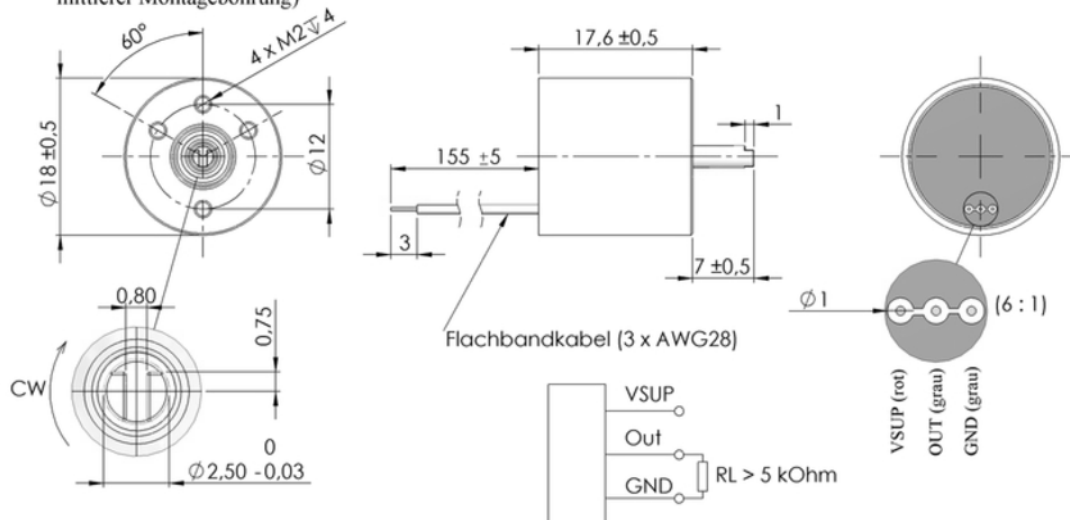## Series MAB18A / Hall Effect Absolute Encoder

- Angle range 360° (signal characteristic configurable)
- 12 Bit resolution
- Analog output: 0-10V, 0-5V ratiometric
- Supply voltage: 5V, 24V
- 18 mm body diameter
- High life cycle by precision ball bearing

The MAB18A is space-saving and used for applications with a high demand on lifetime. The operating- and signal voltage-range enables a flexible adjustment to various applications.

Drawing

Hier dargestellt: Elektrischer Nullpunkt nach Option N (Wellenschlitz und Abflachung fluchten mit mittlerer Montagebohrung)

Flachbandkabel (3 x AWG28)

RL > 5 kOhm

VSUP (rot)   OUT (grau)   GND (grau)

Series MAB18A / Hall Effect Absolute Encoder

Electrical Data

Electrical angle	20°...360° (Standard 360°)
Independent linearity tolerance	±0,3%
Resolution	12 Bit (4096 Steps)
Update rate	1,0 ms 0,2 ms Option High Speed
Output signal	0-5 V ratiometric, 0-10 V
Supply voltage	5 VDC ±10%, 15-30 VDC
Supply current	<20 mA
Signal load	>5kOhm

Mechanical Data

Maximum mechanical angle	6.000 rpm

Other Data

Protection class (shaft/housing)	IP65
Operating temperature	-40 ... +85° C (other temperatures on request)
Storage temperature	-40 ... +105° C
Bearing	2 precision ball bearings
Housing material	chromed aluminium
Shaft material	stainless steel
Weight	≈ 25 g

MEGATRON

Order Description and Options

Series MAB18A	**MAB18A**					
Supply voltage / Output signal						
5 V / 0...5 V	**12 0505**					
24 V (9..30 V) / 0...5 V	12 2405 (*)					
24 V (15..30 V) / 0...10 V	**12 2410**					
Counterclockwise rising signal		CCW360 (*)				
Other electrical effective angle		C(C)Wxxx (*)				
Clockwise rising signal; 360°, zero point alignment			**N**			
Other shaft length [mm]				Axx (*)		
Other cable length [m]					CVxx(*)	

"bold print = standard option"
short-term stock types can be found on: http://www.megatron.de/en/stocklists/angle-sensors/lagerliste.html
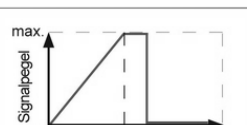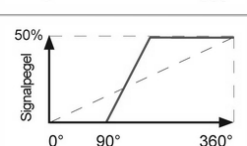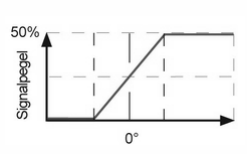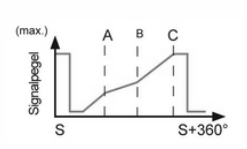(*) = on request available for projects

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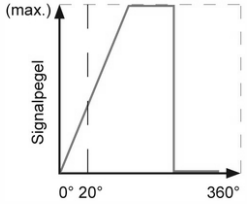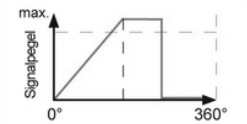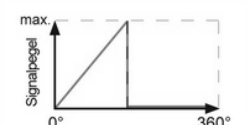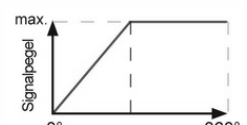
Our speciality are custom solutions, for reasonable prices even for small series

On serial demand we offer:
Special angles and shafts, mounting of gear wheels and other mechanical parts, assembling of cables, connetors and more. Please ask us.
Please also see the following table with the electrical options.

Electrical Options

Modified effective electrical angle Electrical zeropoint is at the begining of the signal rise without reference of housing and shaft. The electrical measuring range can be programmed from 0-20° to 0-360°. The mechanical angle is always larger or equal to the electrical angle. In the electrical basic type with stop, the zeropoint is always at CCW position. For non-effective electrical travel the options EA1a - EA1d are selectable. If it is not specified by the customer, the signal level is programmed according EA1A. On request it is also possible to set the zeropoint at CW position.	CWxxx / CCWxxx	
Electrically non effective angle - Delta 1/2 If the electrical effective angle is programmed below 360°, the remaining electrically non effective angle is divided in two equal parts: High level & Low level (Delta ½).	EA1a	
Electrically non effective angle - Low-Level At electrically effective angle below 360°, after reaching the maximum the signal level falls to low level and remains at this.	EA1b	
Electrically non effective angle - High-Level If the electrically effective angle is programmed below 360°, the signal level remains high after reaching the full level.	EA1C	
Electrically non effective angle - Variable Level If the electrically effective angle is programmed below 360°, the remaining electrically non effective angle can be divided into high and low level in any ratio according to customer request.	EA1d	
Zero point positioning The mechanical zero point is established when the shaft marking is aligned with the marking on the sensor housing. The electrical zero point can be alligned to the mechanical zero point. Nevertheless the zero point can be programmed at any offset according to customer requirement. Offset 0° = Standard option N	EA2	
Center position The center of the effective electrical angle can be aligned with the mechanical zeropoint. The centre position gives equal effective electrical angles on both sides with reference to the shaft position against marking on the housing. (Example: For 120°, centre positioning will give 0° at center , and angle 60° CW and CCW). The center point can be programmed at any offset according to customer requirement	EA3	
Multipoint programming This option allows an output characteristic which consists of 3 to 6 rising or horizontal linear segments. The minimum and maximum signal level can be defined within the total electrical angle. The first and last linear segment (minimun/maximum) is always horizontal. The first segment can start at the zeropoint or at a specified offset, and rise to maximum. Within maximum and minimum position, 1 to 3 calibration points can be set according to customer request	EA4	

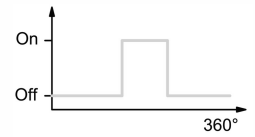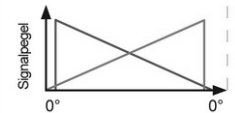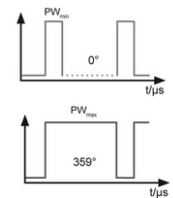|		
Software switching function Possible for housing Ø bigger than 28 Switching funktion can be assigned to any angular position by one potential free relay output (open/close, max. Voltage 60V, max. current 0,2A). For housing Ø bigger than 36 e.g. MAB36, a second switching function is also possible. For each switching function the rising and falling edge can be configurated to any angular position. Example: MAB22A.... EA5 On: CW40° Off: CW85° MAB36A.... EA5 On1: CW40° Off1: CW85° On2: CW55° Off2: CW70°	EA5	
Rotational direction The standard direction of rotation is Clockwise (CW). It is also possible with this option to change the direction from Clockwise(CW) to Counterclockwise (CCW).	CCW	
PWM - Pulse width modulation For housing Ø bigger than 22 e.g. MAB22 possible PWM provides a constant carrier frequency which defines high to how ratio. The ratio between high and low responds to the signal characteristics. It is in a fixed relation to the angle. The Standard electrical Options EA1 -EA4 can also be integrated in this version. Generally for further signal processing, no A/D converter is required because many microcontrollers already have PWM input. Basic type: Frequency 244 Hz - Duty cycle min. = 10% = approx. 0,4 ms - Duty cycle max. = 90% = approx. 3,6 ms - Duty cycle increases with clockwise rotation.	PWM	
With this option custom specific PWM signals can be provided. You can choose the Frequency (100 Hz...1 kHz) and the minimum and maximum duty cycle.	EA7	
2-channel-output This is made up of a hall sensor Chip consisting of 2 galvanically insulated sensing elements. One magnet provides magnetic field simultaneously for both elements. If both elements are programmed identically, redundancy is provided. Channel 2 can also be programmed completeley different than channel 1.	MAB...X	