

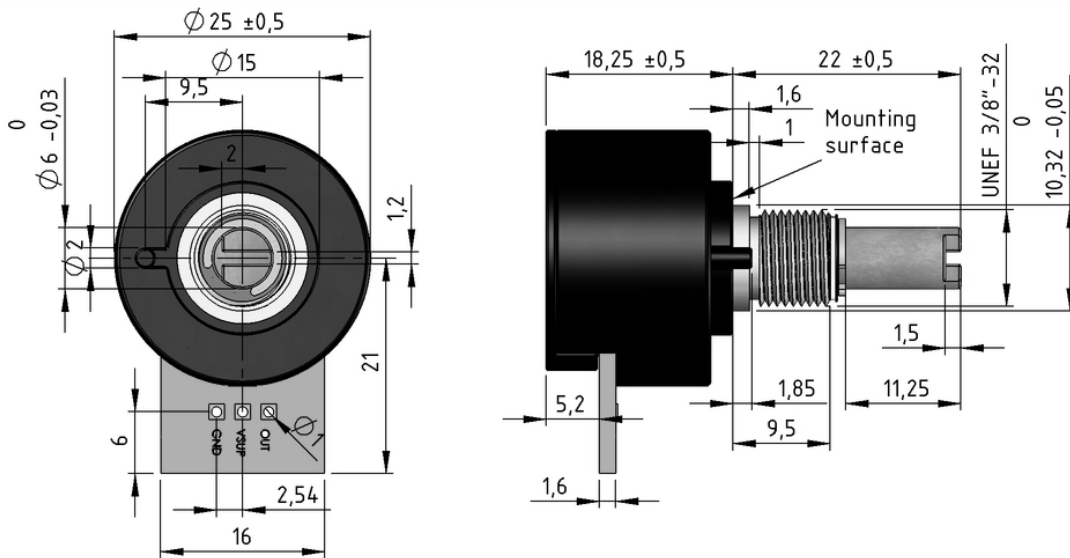
## Series MAB25A / Hall Effect Absolute Encoder

- Angle range 360° (signal characteristic configurable)
- 12 Bit resolution
- Linearity tolerance  $\pm 0,3\%$
- Analog output: 0-10 V, 0-5 V ratiometric, 5 V PWM, 4-20 mA, 0-20 mA
- Supply voltage: 5 V, 24 V, 9-30
- Housing  $\varnothing$  22 mm
- High life expectancy (polymer sleeve bearing)

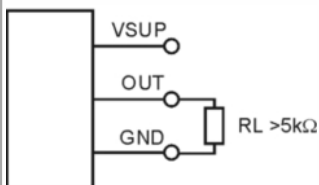
This well-priced absolute encoder MAB25A with analog output guarantees highest life time based on polymer sleeve bearing. The compact design enables to using in different applications.



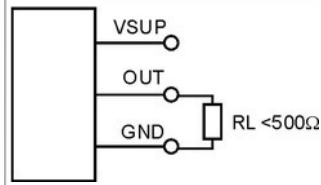
### Drawing



#### Voltage Output



#### Current Output



#### Terminal pin-out

VSUP Supply Voltage  
OUT Output  
GND 0V

## Series MAB25A / Hall Effect Absolute Encoder

Electrical Data	Voltage Output	Current Output
Electrical Angle	20°...360° (Standard 360°)	
Independent Linearity Tolerance	0,3%	
Resolution	4096 Steps (12 Bit)	
Update rate:	0,6 ms / Option High Speed 0,2 ms	
Output Signal	0-10 V, 0-5 V ratiometric, 5 V PWM	4-20 mA, 0-20 mA
Supply Voltage	5 VDC ± 10%, 15-30 VDC, 9-30 VDC	15-30 VDC
Supply Current:	< 15 mA / < 20 mA (HS)	
Signal Load	> 5k Ohm	< 500 Ohm

Mechanical Data	
Maximum mechanical rotation speed	3000 rpm
Life Expectancy	> 50 Mio. tuns
Max. torque mounting nut	1 Nm

Other Data	
Protection Class	Shaft: IP65 / Housing: IP40
Operating Temperature	-40 .. +85° C
Storage Temperature	-40 .. +90° C
Bearing	Polymer Sleeve Bearing
Material Housing	Glass-fiber reinforced Polyamide
Material Shaft	Stainless steel
Mounting parts (included)	Hex-nut (SW14), tooth washer
Weight	≈20 g

# Series MAB25A / Hall Effect Absolute Encoder

Description	Series	Options			
Infiniturn with 25 mm housing	MAB25A				
Redundant Infiniturn with 25 mm housing,	MAB25AX				
<b>Resolution</b>					
12 bit		12			
12 bit high speed		12HS			
<b>Supply voltage/output signal</b>					
5 V $\pm$ 10% / 0-5V ratiometric			0505		
9-30 V $\pm$ 10% / 0-5V (redundancy not possible)			DC05		
15-30 V / 0-10V (combination of HS and redundancy is not possible)			2410		
8-30 V / 4-20 mA (Redundancy not possible)			2442		
8-30 V / 0-20mA (Redundancy not possible)			2420		
5 V $\pm$ 10% / 5V PWM (Option PWM, look at last page) (combination of HS and redundancy is not possible)			0505 PWM		
<b>Direction and electrical angle</b>					
Standard - CW360° no description necessary (each angle from 20° to 360° possible) Independent choice of direction and angle for redundancy				CWxxx CCWxxx C(C)Wxxx/C(C)Wxxx	
<b>Zero point alignment:</b>					
Electrical zero point is positioned on mechanical zero point (Flat and Slot fall in line with anti rotation pin)					N
<b>Shaft length</b> related on mounting surface [mm] (22 mm standard, no description necessary)					Axx
Example standard version:	MAB25A	12	0505		
Infiniturn with 25 mm housing, analog output, 12 bit resolution, 5V supply voltage, 0-5V output signal, direction CW, electrical angle 360°					
Example with options:	MAB25AX	12	0505	CW175/CCW40	N A05
Infiniturn with 25 mm housing, redundant analog output, 12 bit resolution, 5V supply voltage, 0-5 V output signal, section 1: direction CW, angle 175°, section 2: direction CCW, angle 40°, zero point alignment, shaft length related on mounting surface 5 mm					

More options and accessories on request.

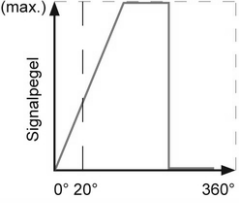
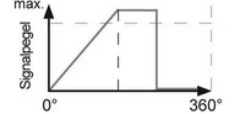
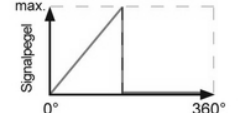
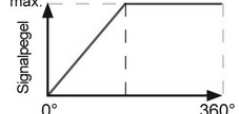
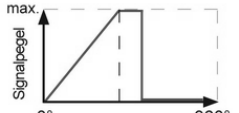
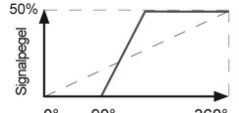

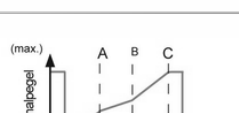
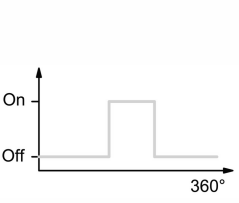
## Our speciality are custom solutions for reasonable prices, even for small series

On serial demand we offer:

Current interface (0-20mA), special angles and shafts, mounting of gear wheels and other mechanical parts, cable and connector assemblies.

Please ask us.

## Electrical Options

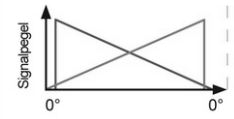
<p><b>Modified effective electrical angle</b>                  Electrical zeropoint is at the beginning of the signal rise without reference of housing and shaft. The electrical measuring range can be programmed from 0-20° to 0-360°. The mechanical angle is always larger or equal to the electrical angle. 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.</p>	CWxxx / CCWxxx	
<p><b>Electrically non effective angle - Delta 1/2</b>                  If the electrical effective angle is programmed below 360°, the remaining electrically non effective angle is divided in two equal parts: High level &amp; Low level (Delta ½).</p>	EA1a	
<p><b>Electrically non effective angle - Low-Level</b>                  At electrically effective angle below 360°, after reaching the maximum the signal level falls to low level and remains at this.</p>	EA1b	
<p><b>Electrically non effective angle - High-Level</b>                  If the electrically effective angle is programmed below 360°, the signal level remains high after reaching the full level.</p>	EA1C	
<p><b>Electrically non effective angle - Variable Level</b>                  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.</p>	EA1d	
<p><b>Zero point positioning</b>                  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 aligned to the mechanical zero point. Nevertheless the zero point can be programmed at any offset according to customer requirement. Offset 0° = Standard option N</p>	EA2	
<p><b>Center position</b>                  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</p>	EA3	
<p><b>Multipoint programming</b>                  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 (minimum/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</p>	EA4	
<p><b>Software switching function</b>                  Possible for housing Ø bigger than 28                  Switching function 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 configured to any angular position.                  Example:                  MAB22A.... EA5 On: CW40° Off: CW85°                  MAB36A.... EA5 On1: CW40° Off1: CW85° On2: CW55° Off2: CW70°</p>	EA5	

# Series MAB25A / Hall Effect Absolute Encoder

## 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

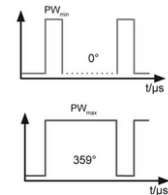
For housing Ø bigger than 22 e.g. MAB22 possible

PWM provides a constant carrier frequency which defines high to low 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



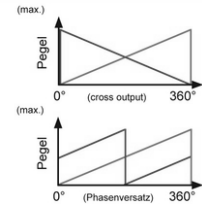
With this option custom specific PWM signals can be provided. You can choose the Frequency (100 Hz...1 kHz) and the minimum and maximum duty cycle.

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 completely different than channel 1.

MAB...X



The specifications and information in this datasheet cannot consider all special demands that are caused by the application. Because of this, they are no general description of the properties of the product.  
01. Juni 2012. All specifications are subject to change without notice.