

Data Sheet for Angle Sensors

Programmable Hall-Effect Multiturn Encoder

Series MAB40APM



- Ø 40 mm housing with servo-mount flange
- Designed for harsh environment - IP67
- Start and end points easily set in field via dry contacts
10° to 200 x 360°
- 12 bit resolution
- Analog output: 0..5 V or 0..10 V
- Supply voltage 24 V
- Ball bearings

The Series MAB40APM allows a flexible and exact adjusting of the start and end point as well as the direction of the signal by the customer. The counter state of up to 200 turns is stored in a non volatile memory. During power off it is possible to turn the shaft $\pm 179^\circ$ without loss of the position value.

Electrical Data

Effective electrical angle of rotation 1.)	0..10°	
Minimum programmable	0..72000° (200 turns)	
Maximum programmable	Startpoint, endpoint and electrical angle adjustable by customer. Delivery status: CW 0..3600° (10-Turn) <small>For detecting the absolute position the sensor shouldn't be turned more than $\pm 179^\circ$ during power off.</small>	
Independent linearity (best straight line) 1.)	$\pm 0,5\% @ 360^\circ / \pm 0,05\% @ 3600^\circ / \pm 0,005\% @ 36000^\circ$	
Output signal	0..5 V	0..10 V
Theoretical Resolution	12 bit (4096 steps)	
Programmed angle $\geq 360^\circ$	4096 steps x programmed angle / 360°	
Programmed angle $< 360^\circ$		
Update rate	3,5 ms	
Supply voltage	9..30 VDC	15..30 VDC
Power consumption (no load)	< 10 mA	
Output load	$\geq 5\text{ k}\Omega$	
Insulation voltage 1.)	1000 VAC @ 50 Hz, 1 min	
Insulation resistance 1.)	2 M Ω @ 500 VDC, 1 min	
Max. number of programming cycles	10.000	

Mechanical and Environmental Data

Mechanical angle of rotation 1.)	Endless
Bearing	Ball bearings
Max. operational speed	120 rpm
Operating temperature range	-30..+80 °C (fixed cable, other temperature on request)
Storage temperature range	-40..+80 °C
Protection grade (IEC 60529)	IP67
Sealing shaft / bearing	Radial shaft sealing ring (IP57S; IP59S)
Vibration (IEC 68-2-6, Test Fc)	$\pm 1,5\text{ mm} / 20\text{ g} / 10\text{ bis }2000\text{ Hz} / 16\text{ frequency cycles (3x4 h)}$
Shock (IEC 68-2-27, Test Ea)	50 g / 11 ms / half sine (3x6 Shocks)
Mass	approx. 151 g
Material shaft	Stainless steel
Material housing	Aluminium

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Accessory

Small parts (not included in delivery, please order separate) 3 pieces synchro clamps SFN1 (M3 x 0,5)

Emission / Immunity

EN 55011 Emission AC/DC power	Class B
EN 55011 Emission housing	Class B
EN 61000-4-2 Immunity housing ESD	Class B
EN 61000-4-3 Immunity RF sine wave	Class A
EN 61000-4-4 Immunity DC power, I/O cable: Burst	Class B
EN 61000-4-5 Immunity DC power, I/O cable: Surge	Class B
EN 61000-4-6 Immunity DC power, I/O cable: Conducted sine wave	Class A

1.) According IEC 60393

Order code

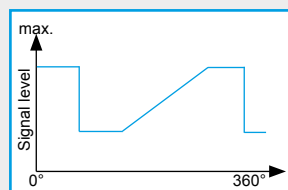
Description				
Series MAB36APM	MAB40APM			
Resolution / Supply voltage / output signal				
12 Bit / VSUP=24 V (9..30 V) / 0..5 V		12 2405		
12 Bit / VSUP=24 V (15..30 V) / 0..10 V		12 2410		
Other shaft length [mm from mounting surface] (*)			Axx (*)	
Standard cable length 1 m axial output				-
Other cable length axial output [m] (*)				CVxx (*)

(*) = on request available for projects

For higher quantities or on-going demand, additional options are available as described below

For example:

- Other starting torque
- Special shaft design
- Special housing
- Mu-Metal shielding
- 12 Bit / 24 V (8...30 V) supply voltage / 4...20mA current output



Customized output signal

For example:

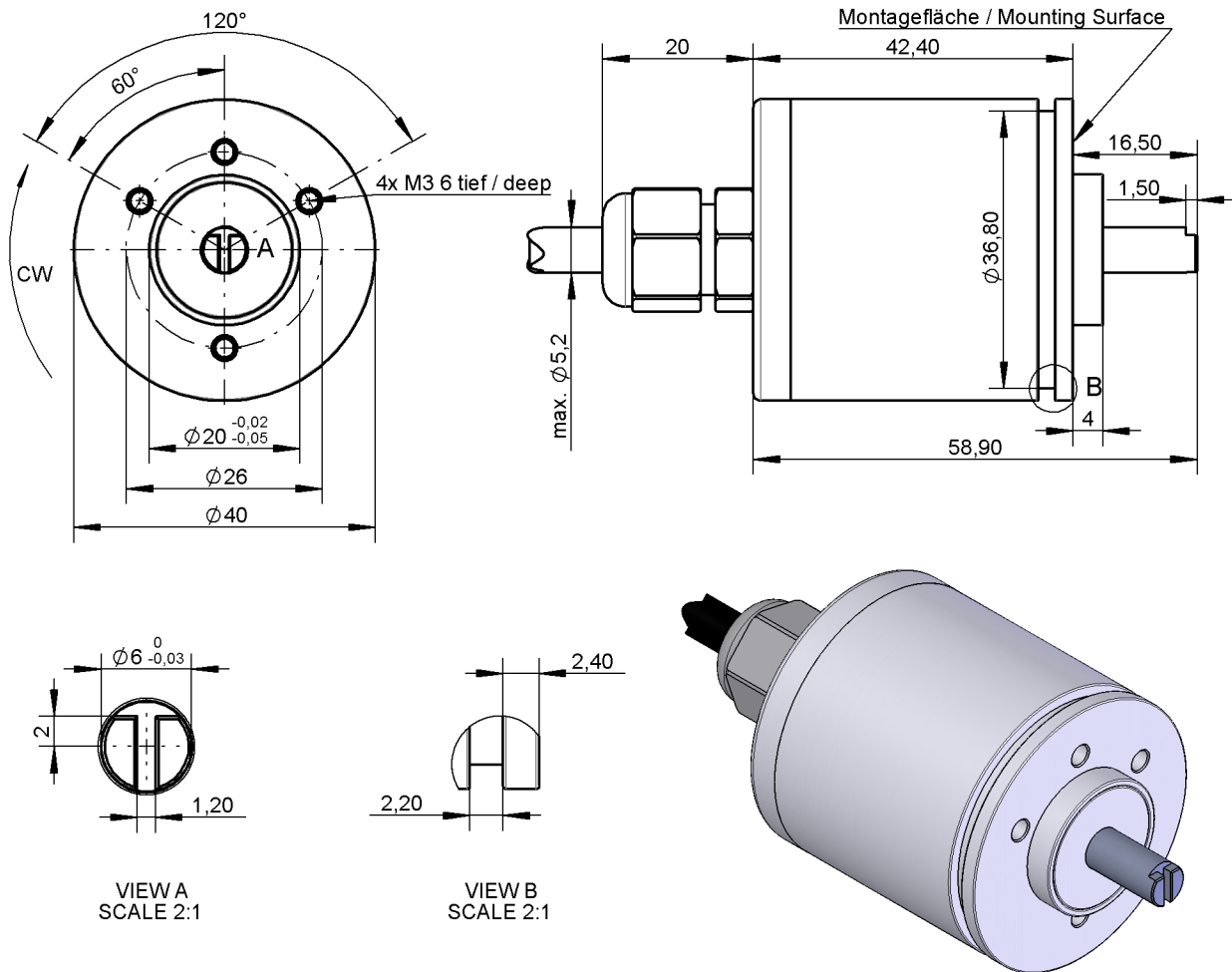
- Other minimum and maximum signal level
- Default CCW direction
- Other default angles (3-turn, 5-turn)

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Drawing



Cable assignment	
Ground	black
Output signal	brown
Supply voltage	red
DIR	orange
StartPos	yellow
EndPos	green
Cable: AWG26 shielded, length: 1 m	

Please also note the supplement „Manual programmable Multi Turn with Short Description“