

Data Sheet for Angle Sensors

Programmable Hall-Effect Multiturn Encoder

Series MAB22APM



- Ø 22 mm housing with servo-mount flange
- Start and end points easily set in field via dry contacts
10° to 200 x 360°
- 12 bit resolution
- Analog output: 0-10 V
- Supply voltage 16-30 V
- Ball bearings

The Series MAB22APM 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..10 V
Theoretical Resolution	
Programmed angle $\geq 360^\circ$	12 bit (4096 steps)
Programmed angle $< 360^\circ$	$4096 \text{ steps} \times \text{programmed angle} / 360^\circ$
Update rate	5 ms (high speed on request)
Supply voltage	16..30 V
Power consumption (no load)	< 15 mA (typ. 5-6 mA)
Output load	> 5 kOhm
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	Gap seal (IP40) Better IP-grades on request
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. 67 g
Material shaft	Stainless steel
Material housing	Aluminium

Data Sheet for Angle Sensors

Programmable Hall-Effect Multiturn Encoder

Series MAB22APM

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

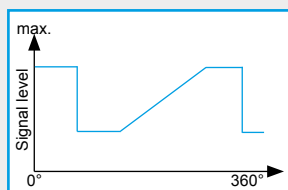
Description	Options			
Series MAB22APM	MAB22APM			
Shaft Ø 3,175 mm (1/8") Ø 4 mm		3,175 4		
Resolution / Supply voltage / output signal 12 bit / 24 V (16..30 V) / 0..10 V			12 2410	
Other shaft length [mm from mounting surface] (*)				Axx (*)
Standard cable length 1 m axial output Other cable length axial output [m] (*) Standard cable length 1 m radial output (*) Other cable length radial output [m] (*)				- CVxx (*) CVR (*) CVRxx (*)

(*) = 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



Customized output signal

For example:

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

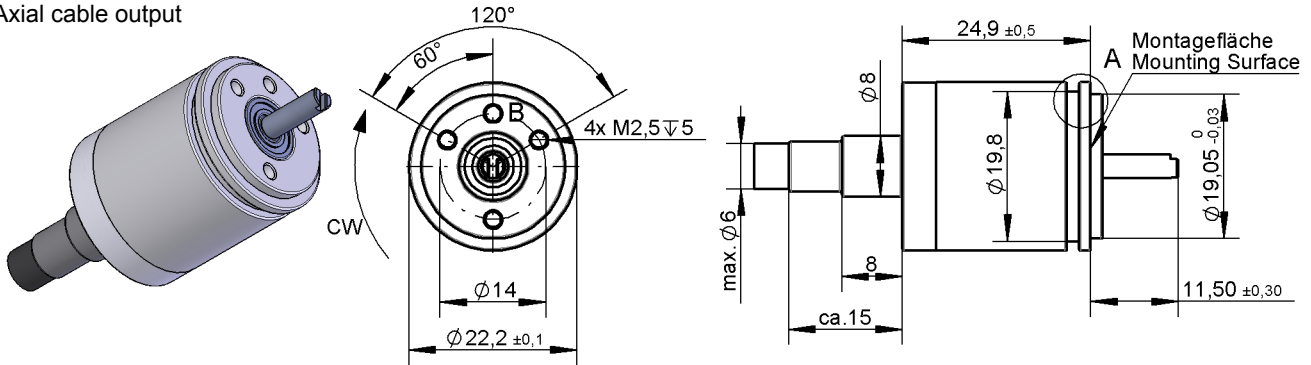
Data Sheet for Angle Sensors

Programmable Hall-Effect Multiturn Encoder

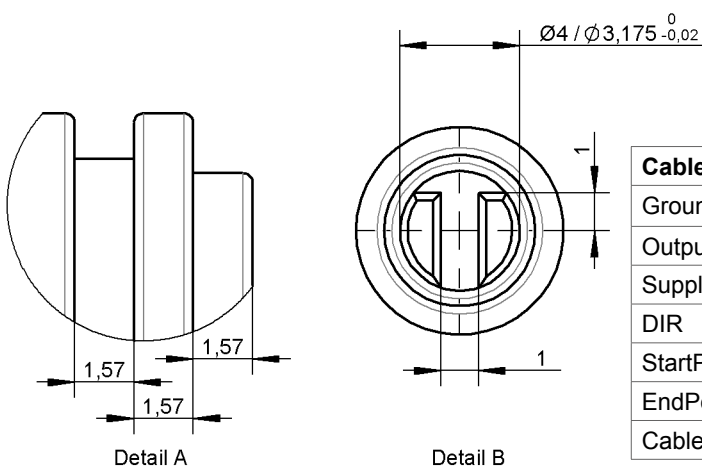
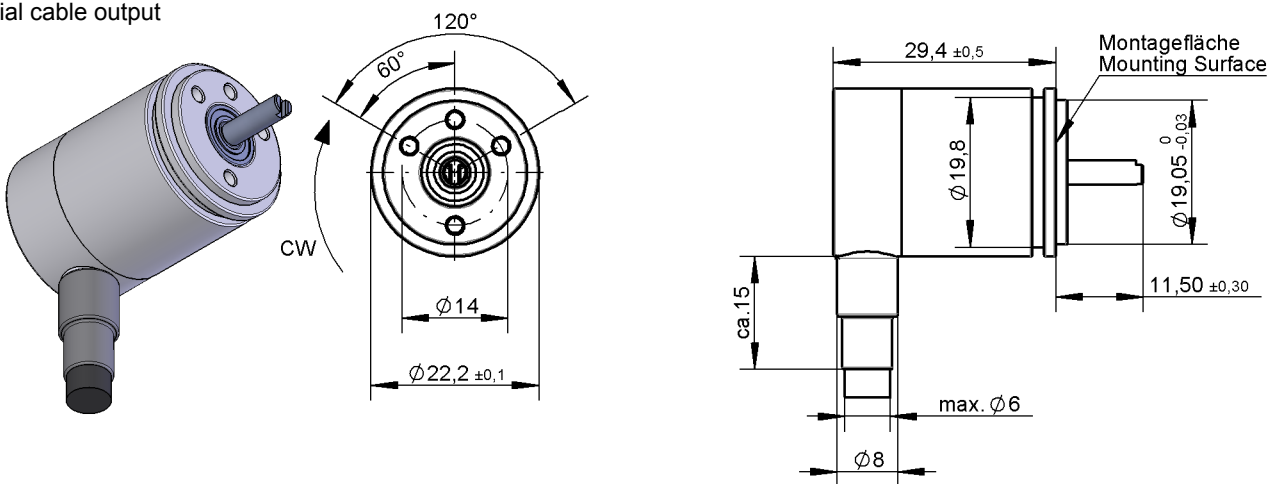
Series MAB22APM

Drawing

Axial cable output



Radial cable output



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“